

Volume I of III

## Final Environmental Impact Report

Dogwood Geothermal Energy Project:

- Dogwood Geothermal Energy Project (CUP No. 23-0020)
- Heber 2 Solar Energy Project (CUP No. 23-0021)
- Heber Field Company Geothermal Wells & Pipeline Project (CUP No.23-0022)

SCH No. 2024010510

*Imperial County, California*

May 2025

**Prepared for**

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## Appendices

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Appendix B	Visual Resources Baseline and Sensitivity Report
Appendix C	Glint and Glare Analysis
Appendix D	Air Quality and Greenhouse Gas Technical Report
Appendix E <sub>1</sub>	Biological Resources and Burrowing Owl Survey Report.
Appendix E <sub>2</sub>	<u>Burrowing Owl Non-Breeding and Breeding Season Surveys Report</u>
Appendix F	Preliminary Jurisdictional Report
Appendix G	Cultural Resources Assessment
Appendix H	Geotechnical Site Assessment
Appendix I	Hazard Assessment
Appendix J	Water Quality Management Plan
Appendix K	Noise Technical Report
Appendix L	Transportation Technical Report

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## 0.1 Introduction to Final EIR

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

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

- a. The Draft EIR or a revision of the Draft;
- b. Comments and recommendations received on the Draft EIR, either verbatim or in summary;
- c. A list of persons, organizations, and public agencies commenting on the Draft EIR;
- d. The responses of the Lead Agency to significant environmental points raised in the review and consultation process; and
- e. Any other information added by the Lead Agency.

In accordance with these requirements, the Dogwood Geothermal Energy Project Final EIR is comprised of the following:

- Draft EIR, August 2024 (SCH No. 2024010510); and
- This Final EIR document, dated May 2025, that incorporates the information required by §15132.

### Format of the Final EIR

#### **Section 0.1 Introduction**

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

#### **Section 0.2 Errata to the Draft EIR**

This section of the Final Environmental Impact Report (EIR) identifies the location of, or contains revisions to, information included in the Draft EIR dated August 2024, based upon additional or revised information required to prepare a response to a specific comment. The information added to the EIR does not meet the requirements for recirculation pursuant to Section 15088.5 of the State *California Environmental Quality Act (CEQA) Guidelines*.

#### **Section 0.3 Responses to Comment Letters Received on the Draft EIR (Final EIR Volume II)**

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

## **Section 0.4            Mitigation Monitoring and Reporting Program (Final EIR Volume III)**

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



## 0.2 Errata to the Draft EIR

### A. Introduction

This section of the Final Environmental Impact Report (EIR) identifies the location of, or contains revisions to, information included in the Draft EIR dated August 2024, based upon additional or revised information required to prepare a response to a specific comment. The information added to the EIR does not meet the requirements for recirculation pursuant to Section 15088.5 of the State *California Environmental Quality Act (CEQA) Guidelines*.

The new information simply clarifies information presented in the Draft EIR. Text that has been added to the document appears in an underline format. Text that has been deleted appears with strikeout.

This Errata, in conjunction with the Final EIR, will be used by the County of Imperial in its evaluation and analysis of the proposed project and in the adoption of any findings required by law. Substantial evidence in support of findings may be found anywhere in the administrative record. (14CCR 15091(b)(e)). The County of Imperial is designated the Lead Agency for California Environmental Quality Act (CEQA) compliance.

### B. Corrections and Additions

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Appendix E1 Biological Resources and Burrowing Owl Survey Report.

Appendix E2 Burrowing Owl Non-Breeding and Breeding Season Surveys Report

#### Executive Summary

*Table ES-1, Page ES-5*

**AG-1a. Payment of Agricultural and Other Benefit Fees.** Prior to the issuance of a grading permit or building permit (whichever is issued first), one of the following options included below shall be implemented:

**A. 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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits; or

*Table ES-1, Page ES-6*

**B. Mitigation for Prime Farmland:**

**Option 1:** *Provide Agricultural Conservation Easement(s).* ~~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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits; or

**Option 2:** Pay Agricultural In-Lieu Mitigation Fee.

## Section 1 Introduction

Page 1-5:

### **IMPERIAL IRRIGATION DISTRICT**

- Prior to construction, the Applicant will submit project plans to IID Water Department Engineering Services to concur that the Project would not disturb any IID drains, canals, or facilities in the Project area. If IID determines otherwise, a comprehensive IID hydraulic drainage system analysis may be required.
- Prior to construction, the Applicant will submit electrical plans, electrical panel size and location, operating voltage, electrical loads, an AutoCAD file of the site plan, construction schedule, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project.
- Prior to construction, the Applicant will submit the required documents to obtain an encroachment permit from IID to utilize the existing canals to provide water for construction activities.

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### **Availability of Reports**

The Draft EIR ~~will be~~ was distributed to various federal, state, regional, local agencies and interested parties ~~for a 50-day public review period~~; in accordance with Section 15087 of the CEQA Guidelines. The initial public comment period for the Draft EIR was from August 14, 2024 to October 2, 2024. This comment period was extended for 45 days to be from October 1, 2024 to November 11, 2024. Further, in response to the one request for extension, submitted by California Unions for Reliable Energy (CURE's)/Adams Broadwell, the public comment period was extended again from November 23, 2024 to January 13, 2025. In total, the public comment period lasted from August 14, 2024 to January 13, 2025, totaling 152 days. The Draft EIR and documents incorporated by reference ~~will be~~ were made available for public review at the County of Imperial Planning and Development Services Department, 801 Main Street, El Centro, California 92243. Documents ~~are~~ were available for review during regular business hours.

Comments received during the public review period of the Draft EIR ~~will be~~ have been reviewed and responded to in ~~the~~ this 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.

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### Document Organization

The structure of the ~~Draft~~ Final EIR is identified below. The ~~Draft~~ Final EIR is organized into ~~40~~ 14 chapters, including the Executive Summary.

- **Chapter 0.1 Introduction and Summary** describes the CEQA requirements and content of the Final EIR.
- **Chapter 0.2 Responses to Comment Letters Received on the Draft EIR** provides copies of the comment letters received and individual responses to written comments.
- **Chapter 0.3 Errata to the Draft EIR** identifies the location of, or contains revisions to, information included in the Draft EIR dated December 2021, based upon additional or revised information required to prepare a response to a specific comment.
- **Chapter 0.4 Mitigation Monitoring and Reporting Program** identifies the mitigation measures, timing, and responsibility for implementation of the measures.

## Section 3.3 Agricultural Resources

Pages 3.3-10 through 3.3-11

**AG-1a. Payment of Agricultural and Other Benefit Fees.** Prior to the issuance of a grading permit or building permit (whichever is issued first), one of the following options included below shall be implemented:

### A. 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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits; or

### B. Mitigation for Prime Farmland:

**Option 1:** *Provide Agricultural Conservation Easements. ~~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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits; or

**Option 2:** *Pay Agricultural In-Lieu Mitigation Fee.*

## Section 3.4 Air Quality

Page 3.4-17

*Valley Fever.* A potential impact associated with earth moving and resultant dust emissions includes the potential exposure of Valley Fever to sensitive receptors. The relatively low number of cases in the County indicate that Valley Fever would not pose a significant health risk during Project earth moving operations. Further, the proposed measures as stated on page 2-25 of the EIR, in addition to

the specified mitigation measures addressing fugitive dust are expected to minimize exposure to Valley Fever to less than significant levels. As identified on page 2-25, applicant proposed measures and best management practices include:

- providing Valley Fever awareness training for workers;
- providing respirators to workers when requested, including the provision of necessary training;
- use of closed-cab earth-moving vehicles equipped with HEPA-filtered air systems; employee testing for Valley Fever as needed; and conducting earth-moving activities downwind of workers when possible.

Page 3.4-21

**AQ-4      Dust Suppression Management Plan.** Prior to any earthmoving activity, the applicant shall submit an ~~an construction Enhanced Dust Control Plan~~ and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

## Section 3.5 Biological Resources

Page 3.5-1

This section identifies the biological and jurisdictional aquatic resources that may be impacted by the proposed project. The following identifies the existing biological and jurisdictional aquatic 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. Information from this section is summarized from the *Biological Resources and Burrowing Owl Survey* and *Preliminary Jurisdictional Report* prepared by Catalyst Environmental Solutions. These reports are included in Appendix E1 and F of this EIR, respectively. Additionally, information was included in this section from the *Burrowing Owl Non-Breeding and Breeding Season Surveys Report* (Catalyst Environmental Solutions 2025a) (Appendix E2 of this EIR).

Page 3.5-5

### Sensitive Natural Communities

Arrow-weed thickets in the BSA are considered a sensitive natural community by CDFW. A total of 1.17 acres of arrow-weed thicket was mapped in the BSA.

### Literature Review

Prior to reconnaissance level habitat surveys, available data sets and information regarding vegetation, water resources, and recent species occurrences within the vicinity of the project were reviewed. The following sources were reviewed:

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) official species list (USFWS 2024a)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) records search for sensitive habitats and special-status plants and animals known to occur within a standard 5-mile buffer around the Project footprint
- ~~U.S. Fish and Wildlife Service (USFWS)~~ National Wetlands Inventory (NWI) maps

### *Biological Reconnaissance Survey*

A pedestrian survey was conducted by Catalyst in February 2023 to photograph and document the general habitat present on the site as well as to record wildlife and vegetation observed during the visit. The project area as well as a 500-foot buffer area were surveyed (BSA). When not accessible due to private land, binoculars were used to survey the buffer area. No sampling was included as part of the survey.

The reconnaissance-level survey included:

- Recording all plant and animal species observed within the boundaries of the pProject sSite and immediate vicinity;
- Recording signs of animal presence, such as burrows (particularly those of suitable size to provide habitat for burrowing owls), scat, tracks, vocalizations, etc.;

*Pages 3.5-5 through 3.5-6*

### *Burrowing Owl Surveys*

The Project Site is part of the year-round range of the western burrowing owl (*Athene cunicularia hypugaea*) and suitable habitat for the species was identified during the Biological Reconnaissance Survey; therefore, focused surveys for burrowing owl were conducted in and following the methods provided in the 2012 Staff Report on Burrowing Owl Mitigation (CDFG 2012).

To address comments received on the Draft EIR, biologists performed two burrowing owl surveys, a non-breeding season survey in January 2025 and a breeding season survey in February 2025 for the Project. The entire BSA (Project Site plus 500-foot buffer) was surveyed during peak detection periods (e.g., between morning civil twilight and 10:00 AM and two hours before sunset until evening civil twilight; CDFG 2012) using a combination of transects, binoculars, and a spotting scope.

During the non-breeding season surveys, biologists observed five burrowing owls within the Dogwood project footprint and survey buffer area. Three of these individuals were present along berms that run through the proposed solar field site. One individual was observed near the existing well pad east of Ware Rd. near the northern extent of the survey area and one individual was observed along a berm adjacent to alfalfa fields near the existing well pad. A total of 17 burrowing owls, including several pairs at burrow entrances, were observed outside the survey area but within the vicinity. One individual was observed just north of the survey area. Sixteen burrowing owls were observed south of the survey area along the berms adjacent to various canals lining alfalfa fields (Catalyst Environmental Solutions 2025a).

A single breeding season survey was conducted where biologists observed eight burrowing owls within the Dogwood project footprint and survey buffer area. Five of these individual owls were observed along berms that run through the proposed solar field site, and three individuals were observed near the western extent of the survey area near an existing well pad and just south of Beech Drain along the access road between the canal and alfalfa field. A total of 16 burrowing owls, including several pairs at burrow entrances, were observed outside the survey area but within the general vicinity, most of which were observed south of the survey area (Catalyst Environmental Solutions 2025a).

In addition to the biological reconnaissance survey, Catalyst performed Phase I and Phase II surveys for burrowing owls. A Phase I survey assesses the presence of burrowing owl habitat on the project site, including an approximately 500-foot buffer around the project boundary. A Phase II survey is required if burrowing owl habitat occurs on the site and involves walking through suitable habitat over

~~the entire project site and 500-foot buffer. The biologists followed the California Burrowing Owl Consortium (CBOC) Survey Protocol and Mitigation Guidelines (CBOC 1993) except when access to private lands prevented them from walking the buffer areas, in which case binoculars were used to assess habitat.~~

~~Catalyst determined that potential burrowing owl habitat was present within the BSA and vicinity due to the presence of sandy banks along drainage canals and burrowing activity of local communities of ground squirrels. Due to the potential habitat, a Phase II survey was conducted.~~

*Page 3.5-7 through 3.5-9*

### *Wildlife Species*

The Project Site and the larger region provide habitat for many common species of wildlife, including birds, bats, small mammals, carnivorous mammals, snakes, lizards, and amphibians. The suitability of habitat at the Project Site is dynamic because the agricultural fields of the Project Site and adjacent properties are routinely flooded, drained, harvested, disked, and replanted with a variety of rotating crops. Additionally, the Project Site sits within a landscape crossed by paved roads and bordered by existing utility infrastructure, commercial development, and residences. Wildlife on the Project Site and adjacent similar habitats are exposed to energy infrastructure, paved roads, and vehicle traffic. Available habitat for wildlife is fragmented by these existing land uses. Habitat fragmentation results in reduced habitat quality for many species and is overall less functional (CDFW 2014). The Project Site likely provides for greater biodiversity when actively planted and irrigated compared to when fallow or disked; however, the intermittent nature of these conditions precludes the Project Site from serving as high quality habitat for most species. Highly mobile species such as birds can take advantage of these sporadically available conditions while smaller and less mobile species may be prevented from accessing the Site due to the presence of roads and canals.

Table 3.5-1 identifies the likelihood of occurrence of special status wildlife species in the Project area based on the literature review and reconnaissance level habitat surveys described above. Two (2) special-status wildlife species were identified as having moderate potential to occur at the Project Site, California black rail and American badger (Table 3.5-1). Five (5) special-status wildlife species were observed on the Project Site, including burrowing owl, northern harrier, white-tailed kite, long-billed curlew, and white-faced ibis (Table 3.5-1). Therefore, a total of seven (7) special-status wildlife species were determined to have a moderate or higher likelihood of occurrence on the Project Site.

Five (5) wildlife species identified during the literature review were reviewed and determined to have a low likelihood of occurrence due to the Project Site providing very marginal habitat for the species based on species' life histories. Five (5) wildlife species were determined to have no likelihood of occurrence based on lack of suitable habitat.

Brief habitat descriptions and rationale for the likelihood of occurrence for these species is provided in Table 3.5-1. Special-status species life histories were reviewed using the Cornell Laboratory of Ornithology Birds of the World (Billerman et al. 2022), the California Wildlife Habitat Relationships System Life History and Range dataset (CDFW 2025), the Guide to the Amphibians and Reptiles of California (Nafis 2025), and individual species assessments from USFWS.

~~Based on a review of the USFWS IPaC and CDFW CNDDb databases there are 15 species federally and/or state threatened or endangered, Species of Special Concern (SSC), or other sensitive species with potential to occur at the project site. Of the 15 species one is listed as federally endangered, one is a USFWS candidate species and nine are listed as SSC to California.~~



The following two species were ~~observed~~ within or directly adjacent to the project site, at the time of the survey:

- ~~Long-billed curlew (*Numenius americanus*). Long-billed curlew is on the CDFW Watch List and listed with a State Rank of S2. Species with this rank are considered imperiled and at very high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, server threats, or other factors. Habitats include upland shortgrass prairies and wet meadows which are used for nesting; large coastal estuaries, upland herbaceous area, and croplands are used in winter. The project site is outside of the yearlong range but does occupy the winter range. During the survey, long-billed curlews were observed in the alfalfa fields which are located within the survey buffer area west of the proposed Dogwood parasitic solar energy facilities polygon and east of the existing pipeline area. In addition, the surrounding area is planted with alfalfa and periodically flooded for irrigation.~~
- ~~Northern harrier (*Circus hudsonius*). Northern harriers are listed by the CDFW as a SSC. Northern harrier habitats include marshes, grasslands, and some croplands (e.g., alfalfa, grain, sugar beets, tomatoes, melons). The project site is outside of the northern harrier breeding range, but the species occurs more broadly during migration and winter. During the survey, one northern harrier was observed circling over the field immediately east of Beech Drain and south of Willoughby Road. This area is within the survey buffer area but outside of the project ground disturbance footprint. Harriers feed on a broad variety of small to medium sized rodents and passerines.~~

One species is considered to have a **moderate potential** occur at the project site:

- ~~Burrowing owl (*Athene cunicularia*). Burrowing owls are listed by the CDFW as a SSC. Burrowing owls start breeding as early as February and extend to August. Burrowing owls have a large breeding population in agricultural areas of the Central and Imperial Valleys where they have adapted to highly modified habitats including irrigation canals, roads, and agricultural areas. Burrows used by burrowing owls are mostly dug by ground squirrels (*Spermophilus beecheyi*), but they may use fox and badger dens, or other burrows made by small ground-dwelling rodents. The project site has potentially suitable burrowing owl habitat in the area for the proposed solar energy facilities, existing pipeline, and near the medium voltage distribution cable. Of the three areas with suitable habitat, only the area for the proposed solar energy facilities contained burrows from ground squirrels that could support burrowing owls (e.g., opening with a diameter greater than 4 inches). In addition, burrowing owls have been mapped 0.7 miles north, 2 miles east, and 3 miles northwest of the project site in 1991, 2007, and 1991, respectively. Therefore, this species has moderate potential to occur at the project site.~~

The following 13 species are considered to have **no potential** for occurrence in the project area due to lack of suitable habitat, age of last occurrence, and/or species range specifications at the time of this analysis:

- ~~Big free-tailed bat (*Nyctinomops macrotis*)~~
- ~~Costa's hummingbird (*Calypte costae*)~~
- ~~Flat-tailed horned lizard (*Phrynosoma mcallii*)~~
- ~~Gila woodpecker (*Melanerpes uropygialis*)~~
- ~~Monarch butterfly (*Danaus plexippus*)~~

- ~~Northern leopard frog (*Lithobates pipiens*)~~
- ~~Pocketed free tailed bat (*Nyctinomops femorosaccus*)~~
- ~~Tricolored Blackbird (*Agelaius tricolor*)~~
- ~~Western Grebe (*Aechmophorus occident*)~~
- ~~Western mastiff bat (*Eumops perotis californicus*)~~
- ~~Western yellow bat (*Lasiurus xanthinus*)~~
- ~~Yellow warbler (*Setophaga petechia*)~~
- ~~Yuma Ridgway"s rail (*Rallus obsoletus yumanensis*)~~

Pages 3.5-11 through 3.5-15

**Table 3.5-1. Results of Special-Status Wildlife Species Literature Review and Surveys of the Project Site**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
<b><u>Birds</u></b>						
<u>Athene cunicularia hypugaea</u>	<u>Western burrowing owl</u>	<u>BCC</u>	<u>Candidate Threatened or Endangered</u>	<u>SSC</u>	<u>Live in open, treeless areas with sparse vegetation and gentle sloping terrain. Nests in a burrow, often dug by small mammals.</u>	<b><u>Present.</u></b> Presence of burrowing owls confirmed on the Project Site and in the vicinity during surveys conducted in January and February 2025.
<u>Circus hudsonius</u>	<u>northern harrier</u>	<u>BCC</u>	<u>:</u>	<u>SSC</u>	<u>Breed in many open habitats. Feed on small mammals, reptiles, amphibians, and birds.</u>	<b><u>Present.</u></b> Species observed during biological resources reconnaissance survey in February 2023 and during surveys conducted in January and February 2025.
<u>Elanus leucurus</u>	<u>white-tailed kite</u>	<u>:</u>	<u>:</u>	<u>FP</u>	<u>Common in open habitats, including cultivated fields. Feed on small mammals, lizards, and birds.</u>	<b><u>Present.</u></b> Species observed during biological resources reconnaissance survey in February 2023.
<u>Empidonax traillii extimus</u>	<u>Southwestern willow flycatcher</u>	<u>Endangered</u>	<u>Endangered</u>	<u>:</u>	<u>Wet meadows and montane riparian habitats (CDFW 2025). Willows and other shrubs near standing or running water.</u>	<b><u>None.</u></b> Species included in USFWS Official Species List (USFWS 2024a). Riparian-obligate species. No suitable habitat present.
<u>Laterallus jamaicensis coturniculus</u>	<u>California black rail</u>	<u>:</u>	<u>Threatened</u>	<u>FP</u>	<u>Most common in tidal and emergent wetlands or in brackish marshes. Species requires stable, shallow water. In Imperial County, the species yearlong range includes the Salton Sea and the lower Colorado River area (CDFW 2025).</u>	<b><u>Moderate.</u></b> Species is commonly associated with arrow-weed thickets. Arrow-weed thickets growing at or below the top of bank of IID canals in the vicinity of Project Site could provide suitable habitat. Agricultural

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
						fields in the Project Area are subject to frequent irrigation providing only intermittent standing water.
<u>Numenius americanus</u>	<u>Long-billed curlew</u>	=	=	<u>WL</u>	Occur in short vegetation, including agricultural fields, where they feed on insects, crustaceans, and benthic invertebrates.	<b>Present.</b> Species observed during biological resources reconnaissance survey in February 2023 and during surveys conducted in January and February 2025.
<u>Plegadis chihi</u>	<u>White-faced ibis</u>	=	=	<u>WL</u>	Forage in shallow wetlands and wet agricultural field where they feed on invertebrates such as earthworms, crayfish, and insects.	<b>Present.</b> Species observed during biological resources reconnaissance survey in February 2023 and during surveys conducted in January and February 2025.
<u>Setophaga petechia</u>	<u>Yellow warbler</u>	=	=	<u>SSC</u>	Breed in lowland and foothill riparian woodlands with cottonwoods, willows, and other small trees.	<b>None.</b> CNDDB record >75 years. No suitable habitat present. Project Site is well outside of the current known range of the species (CDFW 2025).
<u>Rallus obsoletus yumanensis</u>	<u>Yuma Ridgway's rail</u>	<u>Endangered</u>	<u>Threatened</u>	<u>FP</u>	Species lives in freshwater marshes dominated by cattail (Typha sp.) with a mix of riparian tree and shrub species. Optimal habitat consists of a mosaic of emergent vegetation averaging >2 m (6 ft tall). Diet is dominated by crayfish, with small fish, tadpoles, clams, and other aquatic invertebrates also utilized (USFWS 2009).	<b>None.</b> None observed or heard during field surveys. Dense stands of cattails or other tall emergent vegetation are not present. No suitable habitat on site or in adjacent drains.
<b><u>Mammals</u></b>						

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
<u>Eumops perotis californicus</u>	<u>Western mastiff bat</u>	=	=	<u>SSC</u>	The largest native bat in the U.S. Suitable habitat consists of extensive open areas with abundant roost locations provided by crevices in rock outcrops and buildings. The species roosts in cliff-face crevices and feeds high above the ground and approach the ground only at a few select drinking sites due to limited maneuverability. These bats are limited to open areas for feeding and water by their large wingspan (CDFW 2025).	<b>Low.</b> Uncommon resident through southern California (CDFW 2025). Agricultural fields of the Project Site are not preferred habitat. No suitable roosting habitat. CNDDB record >25 years old.
<u>Lasiurus xanthinus</u>	<u>Western yellow bat</u>	=	=	<u>SSC</u>	Feeds on flying insects. Forages over water and among trees. Roosts in trees, including palm trees (CDFW 2025).	<b>Low.</b> Uncommon species in California (CDFW 2025). CNDDB records from the 5-mile buffer >25 years old. Potential to roost in nearby palm trees and forage in area, but no roost trees on Project Site.
<u>Nyctinomops femorosaccus</u>	<u>Pocketed free-tailed bat</u>	=	=	<u>SSC</u>	Roosts in rock cliffs and crevices for roosting and forages over ponds, streams, or arid desert habitat. Must drop from the roost to gain flight speed. Habitats used include pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis (CDFW 2025).	<b>Low.</b> Rare in California but more common in Mexico (CDFW 2025). Agricultural fields of the Project Site are not preferred habitat. CNDDB record >25 years old.
<u>Nyctinomops macrotis</u>	<u>Big free-tailed bat</u>	=	=	<u>SSC</u>	Species prefers rugged rocky canyons and feeds principally on large moths (CDFW 2025).	<b>Low.</b> Rare species in California (CDFW 2025). CNDDB records > 35 years old Preferred habitat not present on the Project Site.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
<u>Taxidea taxus</u>	<u>American badger</u>	=	=	<u>SSC</u>	Widespread but uncommon species found in a variety of habitats. Diet consists of <u>rodents, invertebrates, snakes, lizards, birds, and carrion. Prefers friable soils for digging burrows (CDFW 2025).</u>	<b>Moderate.</b> <u>CNDDDB records &gt; 100 years old. No evidence of the species was found during biological surveys, but soils and prey base on the site provide potentially suitable habitat.</u>
<b>Reptiles</b>						
<u>Phrynosoma mcallii</u>	<u>Flat-tailed horned lizard</u>	=	=	<u>SSC</u>	Species is restricted to areas of fine sand and sparse vegetation in desert washes and desert flats (CDFW 2025). Most common in areas with a high density of ants and fine windblown sand (Nafis 2025).	<b>None.</b> <u>Suitable habitat not present.</u>
<b>Amphibians</b>						
<u>Lithobates pipiens</u>	<u>northern leopard frog</u>	=	=	<u>SSC</u>	Needs permanent water for overwintering, floodplains, and marshes for breeding, and wet meadows for foraging. A very cold-hardy species. California is at the extreme western extent of the species range (Nafis 2025).	<b>None.</b> <u>CNDDDB records &gt;75 years old. This frog is native to California, but most native populations are now extinct (Thomson et al. 2016). The present range appears to be limited to a few locations in the Central Valley and northern California. The Project Site it well outside of the current known range of the species.</u>
<b>Insects</b>						
<u>Danaus plexippus</u>	<u>Monarch butterfly</u>	<u>Proposed Threatened</u>	=	=	Widespread species that feeds on a variety of nectar plants but requires milkweed host plants for reproduction.	<b>Low.</b> <u>Species life cycle requires host plants (milkweed species). No host</u>

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
						plants are present to support reproduction.

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*Page 3.5-17*

Table 3.5-42 summarizes the jurisdictional features present within the disturbance area and their acreages and Figure 3.5-2 depicts their location within the JSA.

*Page 3.5-20*

*Wildlife Movement Corridors*

The pProject sSite does not contain nor is near any wildlife movement corridors, linkages, or Significant Ecological Areas / FWS Critical Habitat. The project area is identified as having “limited connectivity opportunity” and is not categorized as an “essential connectivity area” by the California Essential Habitat Connectivity Project (CDFW 2023).

The project sits within a landscape crossed by paved roads and bordered by existing utility infrastructure, commercial development, and residences. All wildlife moving between the Project Site and adjacent similar habitats must cross paved roads and navigate vehicle traffic. In addition, the agricultural fields of the Project Site and adjacent properties are routinely harvested, disked, and replanted with a variety of rotating crops.

*Habitat Conservation Plans*

The pProject sSite is located within the designated boundaries of the Desert Renewable Energy Conservation Plan and the Imperial Irrigation District Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). However, the pProject sSite is not located within or adjacent to an Area of Critical Environmental Concern designated in the Desert Renewable Energy Conservation Plan.

*Pages 3.5-21 through 3.5-22*

*Birds of Conservation Concern (Fish and Wildlife Conservation Act [16 U.S.C. 2901–2912])*

The Fish and Wildlife Conservation Act directs the Secretary of the Interior to undertake research and conservation activities, in coordination with other Federal, State, international and private organizations, to fulfill responsibilities to conserve migratory nongame birds under existing authorities. The Secretary is required, for all species, subspecies, and migratory nongame birds, to monitor and assess population trends and status; to identify environmental change and human activities; and to identify species in need of additional conservation and identify conservation actions to ensure perpetuation of these species.

The Birds of Conservation Concern (BCC) list updated in 2021 represents the most recent effort by the USFWS to carry out the Fish and Wildlife Conservation Act’s proactive conservation mandate. The overall goal of the BCC 2021 is to identify, by geography, those nongame migratory birds (beyond those already federally listed as threatened or endangered) in greatest need of conservation attention. Because it is mandated by law and produced by the USFWS, federal agencies, international NGOs, and foreign governments view the BCC list as the official U.S. government position on migratory nongame birds of conservation concern (USFWS 2021).

### *Pages 3.5-25 through 3.5-31*

#### **SPECIAL-STATUS PLANT SPECIES**

As previously discussed in Section 3.5.1, the following five special-status plants have been documented within 5-miles of the project area: Chaparral sand-verbena, California satintail, Abrams' spurge, gravel milk-vetch, and hairy stickleaf. These five plants carry CRPR of 1B.1-2B.3 and are considered to have a low potential of occurrence at the pProject sSite. ~~These species were not observed during the reconnaissance level surveys and the most recent documented CNDDB observation was in 1963, thus these species are considered to be extirpated from the area. Therefore, no impacts to these plant species are anticipated to occur with implementation of the proposed project.~~

The biological reconnaissance survey was completed in February 2023, which overlaps the blooming period for Chaparral sand-verbena (blooms January through September), California satintail (blooms September through March), and gravel milk-vetch (blooms February through July). These species were not observed during the survey.

The survey timing did not overlap with the blooming period of Abrams' spurge and hairy stickleaf. Abram's spurge flowers from September through November and occurs in sandy flats within Sonoran and Mojavean desert scrub. Hairy stickleaf flowers from April through May (Jepson Flora Project [JFP] 2024) and from March through May according to the California Native Plant Society Rare Plant Program (CNPS 2024). This plant species occurs in washes, fans, slopes, creosote-bush scrub, and Sonoran Desert scrub (rocky) (JPF 2024, CNPS 2024).

Due to the developed nature of the Project area and high agricultural use, it is unlikely that these plants would be present. These species would be restricted to the area within and around irrigation canals, which are the only areas that aren't routinely disturbed by agricultural operations. The alfalfa fields are routinely disked and disturbed as part of current operations and access roads throughout are used by vehicles and equipment. The last documented occurrence of Abrams' spurge near the Project was in 1904. The last documented occurrence for hairy stickleaf near the Project was in 1961.

The Worker Environmental Awareness Program (WEAP; Mitigation Measure BIO-1) would be implemented prior to construction for construction crews and contractors working onsite. Pre-construction special-status plant surveys (Mitigation Measure BIO-2) would be conducted to ensure no impacts occur to special-status or rare plants. Furthermore, Mitigation Measure BIO-3 (Avoidance of Sensitive Natural Communities) would ensure that project activities remain constrained to previously disturbed land. Implementation of Mitigation Measures BIO-1 through BIO-3 would reduce any potential impacts to a less-than-significant level.

#### **SPECIAL-STATUS WILDLIFE SPECIES**

As previously shown in Table 3.5-1, five special-status species were observed within or directly adjacent to the Project Site at the time of the biological reconnaissance surveys including the following: burrowing owl, long-billed curlew (*Numenius americanus*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), and white-faced ibis (*Plegadis chihi*). In addition, California black rail (*Laterallus jamaicensis coturniculus*) and American badger (*Taxidea taxus*) were determined to have a moderate likelihood of occurrence based on the presence of potentially suitable habitat.

The Project has the potential to impact special-status species through loss of habitat as well as direct and indirect impacts to these species. Direct impacts to special-status species and their habitat may include injury or mortality of individuals during the construction phase of the Project and removal of

habitat through activities such as clearing vegetation, trampling by construction vehicles or personnel, or unauthorized collection.

### **SPECIAL STATUS AND NESTING BIRDS**

Direct impacts on birds; including any nesting birds, special-status birds, and common species that could occur on the Site; include injury, mortality, nest failures, loss of young, loss of nesting or foraging habitat, and disturbance leading to behavioral changes (e.g., site avoidance from increased noise, human activity, dust). Indirect impacts could include introduction of invasive/non-native species, habitat fragmentation, and altered food sources. Potential impacts on these species may be considered significant.

Suitable habitat for burrowing owl is present on the Project Site and discussed separately below.

There is no suitable nesting habitat for northern harrier, white-tailed kite, California black rail (*Laterallus jamaicensis coturniculus*), long-billed curlew, and white-faced ibis. For these species, the primary impact from construction would be displacement from foraging habitat. Foraging habitat primarily occurs in the agricultural fields where raptors hunt for small mammals, lizards, and other small prey and where wading birds, shorebirds, and passerines hunt for invertebrates and feed on vegetation. The arrow-weed present at and below the top of bank of Beech Drain within the vicinity of the Project Site could support foraging habitat for California black rail, but this area is not proposed for disturbance. Implementation of Mitigation Measure BIO-3, Avoidance of Sensitive Natural Communities would prevent adverse impacts to arrow-weed thickets and therefore no loss of potential foraging habitat for California black rail would occur.

Conditions of the Project Area and the mitigation measures addressing impacts to nesting birds, special status birds, and common species known to occur or with potential to occur on the site ensure that any potential impacts to these species will be less than significant.

The Project Site is surrounded by similar land uses of agriculture and mixed industrial development and these highly mobile species would be expected to forage in adjacent similar habitats. The population of any of these species on-site would not represent a substantial component of the region's population and impacts to any individuals would not result in population-level impacts and would be less than significant. Moreover, implementation of Mitigation Measure BIO-11 includes biological protection measures designed to reduce impacts to wildlife. Numerous Applicant proposed measures and best management practices would be in place to minimize impacts to the environment, including to special-status birds, from construction noise and disturbance as well as to minimize impacts to wildlife in general from operations and facility components (e.g., speed limits, vegetation control, water quality protection, etc.).

The agricultural fields of the Project Area and vicinity provide intermittent habitat for wading birds and water birds when fields are flooded or heavily irrigated. The detection of deceased water-affiliated birds at PV solar facilities within desert ecosystems has raised concerns that some species may be confused by the reflective properties of solar panels, mistaking the solar field for a body of water and leading to collisions with panels. An article in the popular science magazine Scientific American dubbed this as the "lake effect hypothesis" (Upton 2014). At present, there are no state or federal guidelines for addressing hypothetical effects from the lake effect (Catalyst Environmental Solutions 2025b). Given the lack of scientific consensus about the reliability of the lake effect hypothesis or how to offset theoretical impacts to avian species, further analysis would be speculative and is not

necessary under CEQA.<sup>1</sup> Nevertheless, the Applicant would implement Mitigation Measure BIO-6 to reduce glint and glare from PV solar panels to minimize the likelihood that birds may mistake panels for surface water.

The WEAP (Mitigation Measure BIO-1) would be implemented prior to construction for construction crews and contractors working onsite. Preconstruction nesting bird surveys (Mitigation Measure BIO-4) would prevent impacts to nesting birds. Mitigation Measure BIO-5 requires biological monitoring during construction of any sensitive or special-status species occupying the construction area, including nesting birds. Mitigation Measure BIO-6 includes application of non-reflective coatings on PV panels to reduce glint and glare that may be confusing to birds or cause collisions. Additionally, general biological protection measures are included as Mitigation Measure BIO-9 through Mitigation Measure BIO-11 for Impact 3.5-4 below. In combination, implementation of Mitigation Measures BIO-1 and BIO-4 through BIO-6 and BIO-9 through BIO-11 would reduce impacts to special-status and nesting birds to a less-than-significant level.

### Burrowing Owls

On October 10, 2024, the California Fish and Game Commission (Commission) approved naming the western burrowing owl as a candidate for potential listing as a protected species under CESA. The Commission provided public notice that burrowing owl is now a candidate species under CESA and as such, receives the same legal protection afforded to a species listed as endangered or threatened under CESA. CDFW has initiated a status review for burrowing owl and a final listing decision is expected in late 2025 or early 2026. CDFW is expected to publish a "Report to the Fish and Game Commission California Endangered Species Act Status Review of Western Burrowing Owl (*Athene cunicularia hypugaea*)" in late 2025, at which time the Commission will make a final determination on the listed status of burrowing owl.

Biologists determined that potential burrowing owl habitat was present within the BSA and vicinity due to the presence of sandy banks along drainage canals and burrowing activity of local communities of ground squirrels during the Biological Reconnaissance Survey in February 2023. Burrows used by burrowing owls are mostly dug by ground squirrels (*Spermophilus beecheyi*), but they may use fox and badger dens, or other burrows made by small ground dwelling rodents. Burrowing owls and occupied burrows were confirmed present on the Project Site during surveys conducted in January and February 2025 (Catalyst Environmental Solutions 2025a). In addition, suitable foraging habitat occurs throughout the Project Site (e.g., agricultural fields) such that impacts on burrowing owls would be potentially significant.

The project has the potential to result in take from direct impacts to burrowing owls, including loss of suitable habitat. Project construction would not destroy or cover the existing burrows; however, it would result in loss of foraging habitat for owls and their prey species and would occur in very close proximity to burrows such that CDFW recommended buffer zones as defined in the CDFG 2012 Staff Report on Burrowing Owl Mitigation [e.g., within 656 feet (approximately 200 meters) of an occupied burrow during the breeding season (February 1 - August 31) and within 165 feet (approximately 50 meters) during the non-breeding season (September 1 - January 31)] could not be applied in most cases. More burrowing owls were observed from the non-breeding to breeding surveys, which may be attributed to not seeing all the individuals in the area during the non-breeding survey and/or the area includes

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<sup>1</sup> See also unpublished decision *Jacumba v. San Diego County Board of Supervisors* (Cal. Ct. App. Jan. 23, 2024) No. D081148, 2024 WL 237632

migrant owls. Resident or migrant owls would likely be displaced due to the close proximity of known burrows to construction activity and later to project infrastructure (e.g., PV panels).

Indirect impacts to burrowing owls are similar to those described above for other birds; however, burrowing owls in close proximity to construction activity may abandon their nests which could result in the loss of eggs or nestlings. Construction would also result in the removal of foraging habitat for burrowing owls outside of the Project Area in nearby similar habitat.

Because the Project Area provides suitable habitat and was found to be occupied by burrowing owls, development of the Project would potentially impact individuals as well as remove the foraging habitat for the species. Therefore, impacts to burrowing owl and its habitat would be potentially significant. Formal consultation with CDFW and a State Incidental Take Permit (ITP) under California Fish and Game Code Section 2081 would be required and is recommended by CDFW (2025). CDFW recommends an ITP due to the potential for incidental take of burrowing owls and burrows in portions of the project work area where the required buffer distances indicated in the CDFW Staff Report (CDFG 2012) are infeasible due to the already small size of the project footprint. Several mitigation measures, as specified in the following paragraph, have been developed in consultation with CDFW to reduce impacts to burrowing owls to a less than significant level.

Mitigation Measure BIO-7 was developed to mitigate potentially significant impacts to a less than significant level and includes specific provisions for the avoidance, minimization, and mitigation of effects to burrowing owls in the Project Area. Specifically, this will mitigate for permanent impacts to nesting, occupied, and satellite burrows and/or burrowing owl habitat such that the habitat acreage, number of burrows and burrowing owls impacted are replaced with (a) permanent conservation of similar vegetation communities (grassland, scrublands, desert, urban, and agriculture) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and (b) sufficiently large acreage, and presence of fossorial mammals. Additionally, MM BIO-1 (WEAP) would be conducted for construction contractors and all on-site personnel to encourage awareness and preservation of the key species and resources with potential to occur on the Project Site. Mitigation Measure BIO-6 would reduce glint and glare on PV panels. Mitigation Measure BIO 9 through Mitigation Measure BIO 11 below include general biological protection measures to prevent and reduce impacts to all species (e.g., waste management, preventing entrapment, anti-collision protocols, etc.). Implementation of these mitigation measures would reduce impacts to burrowing owls to a less-than-significant level.

## **MAMMALS**

### **American Badger**

No American badgers or badger burrows were observed on the Project Site during site visits in February 2023, January 2025, or February 2025; however, the Project Site provides potentially suitable habitat because it contains soils suitable for digging and a prey base of ground squirrels and lizards. Badgers could be present in the same habitats as burrowing owls as both species co-occur with round-tailed ground squirrels. Direct impacts to American badger during construction, if active dens are found on-site, may be significant and require mitigation. Direct impacts include injury or mortality of individuals during the construction phase of the Project and removal of potentially suitable habitat. Potential burrow and foraging habitats would be impacted from the development of the proposed solar facilities. Project construction would result in loss of potential foraging habitat for badgers and their prey species. Post-construction, operations are not expected to significantly impact

American badgers because suitable habitat for badgers would likely not be present on the site post-construction due to the change in land use.

The Worker Environmental Awareness Program (WEAP; Mitigation Measure BIO-1) would be implemented prior to construction for construction crews and contractors working onsite. Mitigation Measure BIO-8 requires pre-construction surveys for badgers. Mitigation Measure BIO-8 also minimizes impacts to badgers through monitoring of any active burrows and removal of inactive burrows to discourage use of the site by badgers during construction. Applicant Proposed Measures such as speed limits are also provided in Section 2.7, Applicant Proposed Measures and Best Management Practices. Implementation of the Mitigation Measure BIO-1, Mitigation Measure BIO-8, Mitigation Measure BIO-11, as well as APMs and BMPs, which will become enforceable via the conditions of approval in the CUP (e.g., the County decision, FEIR Section 2.7), would reduce impacts to American badger to a level of less than significant.

### Bats

Special-status bats have a low likelihood of occurrence based on the minimal roosting habitat in the general area and based on their preferred foraging (Table 3.5-1). There is no roosting habitat for bats on the Project Site. Any bats (special-status or not) visiting the Project Site are likely to be foraging for insects over the agricultural fields and the availability of prey would be seasonally dependent based on whether the field is planted, irrigated, or recently disked. This intermittently available foraging habitat would be removed when vegetation on the parcel is cleared for construction. Impacts to bats would therefore be similar to those described above for foraging birds. Direct impacts to bats could include injury or mortality from strikes with fences, PV panels, or other infrastructure. Indirect impacts include loss of foraging habitat on the parcel and avoidance from anthropogenic effects. Implementation of Mitigation Measure BIO-1 and Mitigation Measure BIO-11 (fence markers to prevent bird or bat strikes on fences) as well as numerous Applicant proposed measures and best management practices would be in place to minimize impacts to special-status bats from construction noise and disturbance as well as to minimize impacts to wildlife in general from operations and facility components (e.g., speed limits, etc.). Implementation of Mitigation Measure BIO-1 and Mitigation Measure BIO-11 as well as numerous APMs and BMPs which will become enforceable via the conditions of approval in the CUP (e.g., the County decision; FEIR Section 2.7) would reduce impacts to bats to a level of less than significant.

### **MONARCH BUTTERFLY**

The USFWS proposed to list the monarch butterfly as a threatened species and designate critical habitat under the Endangered Species Act of 1973, as amended (ESA) on December 12, 2024 (USFWS 2024b). The Project Site is not within monarch overwintering habitat and neither the species nor their host plant (milkweed species) have been mapped on the Project Site. The agricultural fields could potentially provide nectar plants (e.g., alfalfa flowers); however this habitat is intermittently present, highly fragmented, and lacks host plants to support reproduction. Based on the available information, monarch butterfly has a low likelihood of occurrence on the Project Site. The nearest milkweed mapped is 15 miles east of the Project Site and north of the Holtville Airport (Western Monarch Milkweed Mapper 2025).

The primary impact from construction would be displacement from foraging habitat; however, in the unlikely event adult butterflies do occur at the site, construction activities could result in individual injury or mortality of adult butterflies from vehicle strikes and dust, a potentially significant impact. Numerous APMs and BMPs would be in place to minimize impacts to special-status wildlife, from construction



noise, dust, and disturbance as well as to minimize impacts to wildlife in general from operations and facility components. The Worker Environmental Awareness Program (WEAP; Mitigation Measure BIO-1) would be implemented prior to construction for construction crews and contractors working onsite. Implementation of the APMs and BMPs (Section 2.7) as well as Mitigation Measure BIO-1, Mitigation Measure BIO-3 (Avoidance of Sensitive Plant Communities), and Mitigation Measure BIO-11 would reduce risks to individual monarch butterflies by protecting nectar resources provided by native arrowweed. Mitigation Measure BIO-11 also includes guidance on the use of pesticides; including insecticides, herbicides, and fungicides; that will further reduce impacts to all pollinators (USFWS 2023).

The Project Site is surrounded by similar land uses of agriculture and mixed industrial development (see Figure 3.5-1). Agricultural areas in the region undergo regular tilling and replanting including crop rotations that frequently alter the availability and makeup of nectar plants available to monarch butterflies and other pollinators. Clearing of the agricultural fields for construction preparation does not constitute a greater risk to monarch butterflies than any other vegetation removal activities (e.g., mowing and baling grassy hay fields or alfalfa fields; harvesting crops; tilling or disking). Species inhabiting the area are therefore habituated to continually changing foraging opportunities. Monarch butterflies are a mobile species and would be expected to forage in adjacent similar habitats similar to how they would adjust to harvesting, baling, or tilling of fields. Any monarchs on-site would not represent a substantial component of the region's population and impacts to individuals would not result in population-level impacts. With implementation of the APMs and BMPs (FEIR Section 2.7), which will become enforceable via the conditions of approval in the CUP (e.g., the County decision; FEIR Section 2.7), and Mitigation Measures BIO-1, BIO-3, and Mitigation Measure BIO-11, impacts to monarch butterfly would be less than significant.

~~As previously discussed in Section 3.5.1, long-billed curlew and northern harrier were observed within or directly adjacent to the project site at the time of the survey. Direct impacts on 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/non-native species, increase in human activity, increase in dust). Potential impacts on these species may be considered significant. Implementation of Mitigation Measures BIO-1 through BIO-3 would reduce potential impacts on long-billed curlew and northern harrier to a less than significant level. Mitigation Measure BIO-1 requires a Worker Environmental Awareness Program to be implemented prior to construction for construction crews and contractors working onsite. Mitigation Measure BIO-2 requires the clearing of vegetation to take place outside of the breeding season to protect nesting birds. Mitigation Measure BIO-3 requires biological monitoring during construction to ensure that wildlife and vegetation adjacent to the BSA are not harmed.~~

~~Burrowing owls are considered to have a moderate potential to occur within the project site. Direct impacts on 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/non-native species, increase in human activity, increase in dust). Implementation of Mitigation Measures BIO-1, BIO-3, and BIO-4 would reduce potential impacts on burrowing owl to a less than significant level. Mitigation Measure BIO-1 requires a Worker Environmental Awareness Program to be implemented prior to construction for construction crews and contractors working onsite. Mitigation Measure BIO-3 requires biological monitoring during construction to ensure that wildlife and vegetation adjacent to the BSA are not harmed. Mitigation Measure BIO-4 requires a preconstruction take avoidance survey be conducted for burrowing owls.~~

*Page 3.5-31*

**BIO-1**      **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. Qualified biologist resumes shall be provided to the County for review and approval prior to the start of construction. Handouts summarizing potential impacts on special-status biological resources and the potential penalties for impacts on these resources shall be provided to all construction personnel. At a minimum, the education program shall include the following:

*Pages 3.5-31 through 3.5-40*

*Mitigation Measure(s)*

**BIO-1**      **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. Qualified biologist resumes shall be provided to the County for review and approval prior to the start of construction. Handouts summarizing potential impacts on special-status biological resources and the potential penalties for impacts on these resources shall be provided to all construction personnel. At a minimum, the education program shall include 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 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 on 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, which shall be kept on record.

**BIO-2**      **Pre-Construction Plant Surveys.** Prior to the start of construction, a qualified biologist shall conduct a botanical field survey following the methodology described in Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW March 2018). The survey



shall be floristic in nature (i.e., identifying all plant species to the taxonomic level necessary to determine rarity), and shall be inclusive of areas proposed for disturbance and indirectly impacted by the Project. The results of the survey shall be documented in a letter report that will be submitted to Imperial County and CDFW. The survey shall be conducted annually until start of construction to ensure the floristic diversity is accurately captured and effective avoidance, minimization, and mitigation strategies are developed.

If special-status plant species are observed during the preconstruction rare plant survey(s) within the development area of the Project, the Project shall be designed to reduce impacts to these species through the establishment of buffers, to the extent feasible. Buffer distances will be determined by the qualified biologist, typically 50 feet or greater from an identified special-status plant species, unless the Qualified Biologist determines a reduced buffer would suffice to avoid impacts to the species.

If avoidance of special-status plant species is not feasible, a Special-Status Plant Relocation Plan shall be developed and implemented. The Special-Status Plant Relocation Plan shall address mitigation for special-status plants, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible nursery propagation, and planting; salvage and planting of bulbs as feasible; location of on-site receptor sites; land protection instruments for receptor areas; and funding mechanisms.

The Special-Status Plant Relocation Plan shall include methods, monitoring, reporting, success criteria, adaptive management, and contingencies for achieving success. All special-status plant species identified on site shall be mapped onto a site-specific aerial photograph and topographic map and included on the construction, grading, fuel modification, and landscape plans.

Botanical field surveyors will possess the following qualifications and will be approved by Imperial County prior to any botanical field surveys: Knowledge of plant taxonomy and natural community ecology; Familiarity with plants of the region, including special status plants; Familiarity with natural communities of the region, including sensitive natural communities; Experience with the CNDDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards, Experience conducting floristic botanical field surveys as described in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW March 2018), or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor; Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and Experience analyzing the impacts or projects on native plant species and sensitive natural communities.

**BIO-3** **Avoidance of Sensitive Natural Communities.** To the greatest extent practicable, Project work shall avoid impacts to arrow-weed thickets. If arrow-weed thickets cannot be avoided, the Project Applicant shall provide compensatory mitigation for direct impacts consisting of habitat acquisition at a minimum of a 3:1 ratio. Habitat acquisition sites shall be biologically equal or superior to existing conditions and must be conserved and managed in perpetuity. This mitigation measure would be implemented prior to the start of Project-related activities by the Project Proponent.

**BIO-4** **Preconstruction Nesting Bird Survey.** If construction or other project activities are scheduled to occur during nesting 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 preconstruction nesting bird survey shall be conducted by a qualified avian biologist prior to Project-related disturbance within and adjacent to the Project area. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nesting locations and nesting behavior (including but not limited to copulation, carrying food or nesting materials, nest building, agitation, aggressive interaction, feigning injury, or distraction displays). In addition, any clearing of vegetation that may occur is required to take place outside of the breeding season. The survey shall be completed no more than 3 days prior to initial ground disturbance. The nesting bird survey shall include the project area and all suitable areas, including trees, shrubs, bare ground, burrows, cavities, and structures. If an active nest is identified, the biologist shall establish an appropriately sized no-work buffer zone around the nest, that is sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. The size of the no-work buffer zone will be based upon the biologist's best professional judgment, the birds' displayed behavior (agitation or stress), the nesting species, its sensitivity to disturbance, nesting stage and expected types, and the intensity and duration of disturbance. The no-work buffer zone shall be clearly marked in a way that does not alert predators. Construction activities shall not occur within any no-work buffer zones until the young birds have successfully fledged and the nest is deemed inactive by the qualified avian biologist. Qualified avian biologist resumes will be provided to CDFW for review and approval prior to the start of construction.

**BIO-24** ~~**Preconstruction Nesting Bird Survey:** If construction or other project activities are scheduled to occur during the nesting 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 preconstruction nesting bird survey shall be conducted by a qualified avian biologist to ensure that active bird nests, including those for the northern harrier, long-billed curlew, and burrowing owl, will not be disturbed or destroyed. In addition, any clearing of vegetation that may occur is required to take place outside of the breeding season. The survey shall be completed no more than 3 days prior to initial ground disturbance. The nesting bird survey shall include the project area 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.~~

**BIO-35** **Biological Monitoring:** ~~If preconstruction surveys determine either the presence of special status species or sensitive biological resources on the project site, a construction monitor may be needed during construction. If determined necessary, a~~ Construction monitoring shall be conducted by a qualified biologist. Qualified biologist resumes will be provided to CDFW for approval prior to the start of construction. The biologist shall be given authority to execute the following functions:

- Establish construction exclusion zones and make recommendations for implementing erosion control measures in temporary impact areas.

- Ensure all construction activities stay within the staked construction zone and do not go beyond the limits of disturbance.
- Minimize trimming/removal of vegetation to within the project impact area.
- Restrict non-essential equipment to the existing roadways and/or disturbed areas to avoid disturbance to existing adjacent native vegetation.
- Verify permit compliance

During construction, the qualified biologists will act as biological monitors and shall inspect and verify field conditions, as needed, to ensure that wildlife and vegetation adjacent to the BSA are not harmed. The biological monitor shall coordinate with the construction supervisor and construction crew and shall have the authority to stop any activity that has the potential to affect special-status species or remove vegetation.

**BIO-6** **Non-reflective Coatings on Solar Panels.** The Applicant will use non-reflective materials and finishes to the solar panels to reduce potential glare as described in the Glint and Glare Analysis (Appendix C of the EIR). These coatings will create a matte surface that is less likely to resemble the reflective properties of water to birds flying overhead.

**BIO-7** **Burrowing Owl Avoidance, Minimization, and Mitigation.** As recommended by CDFW, Applicant will apply for and obtain an ITP prior to beginning ground disturbing activities. Applicant will comply with all permit conditions required by CDFW to minimize take.

Potential impacts to burrowing owl shall be mitigated per the guidance of the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012) and at minimum including the following:

**Burrowing Owl Protection and Mitigation Plan**

As the Project construction schedule and details are finalized, a qualified biologist will prepare a Burrowing Owl Protection and Mitigation Plan (BOPMP) for submission to CDFW for approval prior to beginning ground disturbing activities that will detail the approved, site-specific methodology proposed to avoid, minimize and mitigate impacts on this species. The goal of the BOPMP is to avoid potential direct and indirect mortality of burrowing owls.

The BOPMP will include, at a minimum: success criteria based on factors such as site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, evidence and causes of mortality, changes in distribution, trends in stressors; remedial measures; detailed survey methodology; exclusion and excavation methods; guidance for artificial burrow construction and placement; active monitoring procedures; identification of wildlife rehabilitation centers or veterinarians capable of and willing to treat burrowing owls in the case of injury of any life stage of burrowing owl (e.g., eggs, nestlings, fledglings, adults); procedures for collection and storage of carcasses; and annual reporting protocols. The BOPMP will include an annual report to CDFW and shall be funded by the Project Applicant.

### **Burrowing Owl Pre-Construction Surveys and Physical Barriers**

A CDFW-approved qualified biologist(s) shall conduct take-avoidance (pre-construction) surveys to identify, flag, and map all potential, known, and/or nesting burrows within (a) 14 calendar days prior to beginning ground-disturbing activities in the work area and (b) 24 hours prior to project construction. Surveys shall include the Project Area and a 500-foot buffer. Technical memoranda that document these survey findings will be submitted to CDFW and Imperial County.

If burrowing owl is identified during the non-breeding season (September 1 through January 31), a 50-meter (165-ft) to 100-meter (328-ft) no-work buffer between active burrows and construction activities shall be established by the qualified biologist. However, the minimum buffer shall be increased depending on the level of construction disturbance and construction activity. 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.

If burrowing owl is identified during the breeding season (February 1 through August 31), then a 100-meter (328-ft) to 200-meter (656-ft) no-work buffer will be established by the qualified biologist in accordance with CDFW Staff Report (CDFG 2012). A qualified biologist shall monitor the burrowing owls for any sign of distress and adjust the buffers as necessary to ensure no take occurs. Construction and disturbance activities within the buffer will be avoided until a qualified biologist determines that the burrow is inactive or until young have fledged.

If active burrows are present within the Project footprint and avoidance is infeasible, measures such as passive relocation methods, destruction of burrows, and construction of artificial burrows described in the following sub-sections shall be implemented upon prior approval by and in coordination with CDFW.

Depending on the level of disturbance, a smaller buffer may be established by a qualified biologist. Burrows will be buffered from development activities to the greatest extent feasible, as determined by a CDFW-approved biologist. Physical barriers, such as fences and visual screens (e.g., a portable chain link fence with shade cloth), will be used to protect identified burrows and visually shield them from work areas when feasible. Flags or markers will be placed near burrows to ensure that construction equipment does not collapse burrows.

### **Burrowing Owl Construction Monitoring**

Monitoring by a qualified biologist shall be performed during ground-disturbing construction activities to avoid disturbance to burrowing owls. Additionally, if any active burrowing owl nests are present within the Project construction area, they must be avoided by establishing a non-disturbance buffer until the young fledge or the nest fails (CDFG 2012). Any nesting owls that are adjacent to the construction area will also be avoided by establishing buffer areas. Buffer areas should be marked using flagging or fencing to facilitate avoidance.

### **Avoidance**

The following avoidance measures may assist in seasonally and spatially avoiding direct impacts and disturbances that could result in take of burrowing owls, nests, or eggs.

- Avoid disturbing occupied burrows during the breeding season, from February 1 through August 31.
- Avoid impacting burrows occupied during the non-breeding season by migratory or nonmigratory resident burrowing owls.
- Avoid direct destruction of burrows through chaining (dragging a heavy chain over an area to remove shrubs), disking, cultivation, and urban, industrial, or agricultural development.
- Do not fumigate, use treated bait or other means of poisoning nuisance animals in areas where burrowing owls are known or suspected to occur (e.g., sites observed with nesting owls, designated use areas).
- Restrict the use of treated grain to poison mammals the months of January and February.

#### **Passive Relocation and Lands Management Planning**

If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident burrowing owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, a CDFW-approved qualified biologist shall implement a passive relocation program in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012). Procedures will also be detailed in the BOPMP.

Passive relocation shall only be done in the non-breeding season, where resident owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012) and a CDFW-approved BOPMP as follows:

- To facilitate identification of replacement burrow sites, a *Burrowing Owl Exclusion Plan* and *Mitigation Lands Management Plan* shall be prepared by the qualified biologist in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (Appendix E and Appendix F of CDFG 2012). The plans shall be approved by CDFW prior to commencing passive relocation.
- All burrows would be covered or excavated, and a one-way door would be installed on occupied burrows. This will allow any animals inside to leave the burrow but will exclude any animals from re-entering the burrow.
- If burrowing owls exhibit signs of stress in attempting to re-enter the burrow, the one-way-door shall be removed to prevent take of the individual.
- A period of at least 1 week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin.
- Only burrows that will be directly impacted by the Project shall be excavated and filled in to prevent their reuse.

- Off-site "replacement burrow site(s)" must consist of a minimum of two suitable, unoccupied burrows for every burrowing owl or pair to be passively relocated.
- The *Mitigation Lands Management Plan* will be developed when off-site or on-site mitigation habitat protection is needed to ensure compliance with and effectiveness of identified management actions for the mitigation lands. The Applicant shall implement the *Mitigation Lands Management Plan* and permanently conserve in a conservation easement offsite habitat suitable for burrowing owl. Land identified to mitigate for passive relocation of burrowing owl may be combined with other offsite mitigation requirements of the Project if the compensatory habitat is deemed suitable to support the species.
- The Applicant may purchase available burrowing owl conservation bank credits from a CDFW-approved conservation bank in lieu of placing offsite habitat into a conservation easement. The final terms of potential land acquisition and/or credits, or some combination thereof (e.g., fees, easements, approvals, documentation, etc.), will be established in consultation with CDFW via the ITP process.

**BIO-8** **American Badger Avoidance and Minimization.** Prior to initial site clearing, a CDFW-approved qualified biologist shall conduct a pre-construction survey for American badgers. The biologist shall conduct the pre-construction survey within 3 days prior to the initiation of ground disturbing activities. If no American badger individuals and/or dens are found during the pre-construction survey, the biologist shall document the findings in a letter report to CDFW, and no further mitigation shall be required. If individuals and/or dens are found, the Applicant shall consult with CDFW and a CDFW-approved qualified biologist to determine an appropriate no-disturbance buffer (typically 50-foot buffer around occupied dens and a 250-foot buffer around natal dens) to avoid impacts to the den. The no-disturbance buffer around natal dens shall remain in place until a qualified biologist determines through non-invasive means that the individuals occupying the den have dispersed. If impacts cannot be avoided and den excavation and exclusion implementation is required, den excavation and exclusion activities shall only take place during the non-breeding season (typically September 1 through January 1) in consultation with CDFW.

**BIO-9** **Avian/Power Line Collision Avoidance and Minimization.** Install bird flight diverters in accordance with the Avian Power Line Interaction Committee (APLIC) guidelines for reducing avian collisions with power lines (Reducing Avian Collisions with Power Lines; APLIC 2012). Details of design components shall be indicated on all construction plans. The Applicant shall monitor for new versions of the APLIC collision guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures. All bird flight diverters shall be maintained for the duration of construction and operation.

**BIO-10** **Avian Electrocution Avoidance and Minimization.** Implement Project-specific design measures in accordance with the APLIC guidelines for minimizing avian electrocutions. The Applicants shall construct and maintain all transmission facilities, towers, poles, and lines in accordance with applicable policies set forth in the most recent APLIC guidelines for minimizing avian electrocutions (Avian Protection Plan Guidelines; APLIC and USFWS 2005). Specific APLIC guidelines to be incorporated

into the design of the transmission lines to minimize avian electrocutions shall include the following:

- Design the tops of structures to be safe for perching raptors.
- Provide 60 inches separation between energized conductors and:
  - energized conductors,
  - grounded or neutral conductors,
  - pole line hardware that could provide a perch or nesting place, and
  - overhead shield wires, including optical ground wire shield wire.
- Ensure that all exposed jumper cables are completely covered with a cover of a qualified insulation rating.
- Ensure insulation of all energized arresters with covers and insulated cables.
- Details of design components shall be indicated on all construction plans. The Applicants shall monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures.

#### **BIO-11 Biological Protection Measures.**

- Fence markers shall be installed to deter or prevent birds and bats from colliding with perimeter/security fencing and maintenance or replacement of these markers will be completed per the manufacturer instruction.
- If encountered, wildlife within the Project Site shall be allowed to escape unimpeded, relocated by a qualified biologist and placed in a designated safe area away from construction activities, or left in place when required by regulations, policies, permits, and/or conditions of approval. If wildlife relocation of common species is required, the qualified biologist approved by CDFW prior to the start of construction shall approve the method of relocation or oversee the relocation. Any relocation of special status species would require additional coverage under an Incidental Take Permit or Biological Opinion.
- Construction personnel trained by the qualified biologist during the WEAP, shall inspect under vehicles and equipment every time the vehicles or equipment are moved to make sure no special status or common wildlife species are present, which could be injured. If an animal is present, site workers shall wait for the individual to move to a safe location. If a special-status species is discovered under equipment or vehicles and does not move on its own, the Applicant shall contact Imperial County, CDFW, and/or USFWS to determine the appropriate action.
- All excavations (e.g., steep-walled holes, or trenches) more than 6 inches deep shall be covered with plywood or similar materials when not in use or fitted with at least one escape ramp constructed of earth dirt fill, wooden planks, or another material that wildlife could ascend to prevent entrapment. All excavations more than 6 inches deep shall be inspected daily for entrapped wildlife before construction activities begin and once immediately before being covered with

plywood. Before excavations are filled, they shall be thoroughly inspected for entrapped wildlife. Any wildlife discovered shall be allowed to escape unimpeded before field activities resume or shall be removed from excavated areas by a qualified biologist and released at a safe nearby location.

- Where habitat will be temporarily disturbed, restore the disturbed area to pre-project condition, including decompacting soil and revegetating.
- All open ends of pipes, culverts, and conduits temporarily installed in open trenches or stored in staging/laydown areas shall be covered/capped at the end of each workday. Any such materials that have not been capped shall be inspected by construction personnel for wildlife before being moved, buried, or handled. Should wildlife become trapped, a qualified biologist shall be notified by construction personnel to remove and relocate the individual(s). If a listed species is discovered inside a pipe, that section of pipe shall not be moved. The Project shall contact CDFW and/or USFWS to determine the appropriate action.
- All food-related trash items (wrappers, cans, bottles, food scraps, cigarettes, etc.), general trash, micro trash (nails, bits of metal and plastic, small construction debris, etc.), and other human-generated debris scheduled to be removed shall be stored in animal-proof containers and removed from the site on a regular basis (weekly during construction, and at least monthly during operations). No deliberate feeding of wildlife or domestic animals shall be allowed.
- New light sources shall be minimized, and lighting shall be designed (e.g., using shielding and/or downcast lights) to limit the lighted area to the minimum necessary.
- Use of chemicals, fuels, lubricants, or biocides shall be in compliance with all local, state, and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation.
- To prevent harassment and mortality of listed, special status, and common wildlife species and destruction of their habitats, no domesticated animals shall be permitted on the site.
- No firearms shall be allowed on the Project Site, unless otherwise approved for security personnel.
- Use only native, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit harmful pesticide residues.
- Protect pollinators and their habitats from pesticides, including insecticides, fungicides, and herbicides. If pesticides are used in areas with flowering plants, lessen their potential harm by adhering to the following guidance:
- Avoid the use of neonicotinoids or other systemic insecticides, including coated seeds due to their ecosystem persistence, systemic nature, and toxicity to pollinators (Xerces Systemic Insecticides List [Xerces Society 2025]).



- Avoid the use of insecticides that target lepidopterans (e.g., moths and butterflies), including biological pesticides (IRAC 2011).
- Use targeted application methods, avoid large-scale broadcast applications, and take precautions to limit off-site movement (e.g., wind drift, discharge from surface water flows).
- If pesticides are used for vector control treatments (e.g., mosquitoes), avoid treatment unless monitoring indicates that the species and numbers exceed a public health threshold. For any mosquito treatments, first employ prevention steps such as reducing standing water. Where possible, draw mosquitoes away from sensitive sites (e.g., using dry ice traps) to limit treatment effects in sensitive habitat areas.

**BIO-4** ~~**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), a minimum 50-meter buffer shall be established by the biological monitor for low-level disturbance. However, the minimum buffer shall be increased depending on the level of construction disturbance (e.g., medium or high). 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.~~

#### *Significance After Mitigation*

The proposed project has the potential to impact special-status wildlife species during construction. However, implementation of Mitigation Measures BIO-1, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8, BIO-9, BIO-10, and BIO-11 ~~through BIO-4~~ would reduce potential impacts to less than significant levels.

#### *Page 3.5-41*

Implementation of Mitigation Measure BIO-3, Avoidance of Sensitive Natural Communities would prevent adverse impacts to arrow-weed thickets. Therefore, the proposed project would not have

substantial adverse effects on sensitive natural communities, and this is considered a less than significant impact.

*Mitigation Measure(s)*

No mitigation measures are required. Although no potentially significant impacts are expected to sensitive natural communities, Mitigation Measure BIO-3, Avoidance of Sensitive Natural Communities, is being adopted as a precautionary measure.

*Significance After Mitigation*

The proposed project is not expected to impact sensitive natural communities. However, implementation of Mitigation Measure BIO-3 would ensure potential impacts are less than significant.

***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, filling, hydrological interruption, or other means?***

~~Based on the PJD, no state or federally protected wetlands exist within the JSA. No state or federally protected wetlands were documented in the PJD for the Project Area.~~ The IID irrigation canals and drains meet the requirements for jurisdictional waters, however none of the jurisdictional features are within the project footprint except for the proposed medium voltage distribution cable. The medium voltage distribution cable would cross Dogwood Lateral 1 in addition to S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Central Main Canal at the existing above-ground pipeline span. The entire span of the medium voltage distribution cable would sit above the canal. Therefore, the proposed project would have no substantial adverse effect on state or federally protected wetlands, and impacts would be less than significant.

*Mitigation Measure(s)*

No mitigation measures are required.

*Significance After Mitigation*

The proposed project is not expected to impact state or federally protected wetlands or waters.

***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?***

Implementation of the full suite of biology mitigation measures (BIO-1 through BIO-8) as well as the mitigation measures (BIO-9 through BIO-11) are designed to minimize and mitigate for impacts to wildlife in the Project Area.

*Page 3.5-42*

security purposes, precluding wildlife from using the site as habitat or for migration. The area to be developed for the solar facilities has suitable habitat for numerous wildlife species, including the

special-status species shown in Table 3.5-1. While the site functions as part of general habitat for wildlife and provides for local movement of terrestrial wildlife, it does not serve as a corridor.

~~burrowing owl, long-billed curlew and northern harrier. Burrowing owls are considered to have a moderate potential to occur within the project site. Long-billed curlews were observed in the alfalfa fields which are located within the survey buffer area west of the proposed Dogwood parasitic solar energy facilities polygon and east of the existing pipeline area. One northern harrier was observed circling over the field immediately east of Beech Drain and south of Willoughby Road. Although this area is within the survey buffer area, it is outside of the project ground disturbance footprint. However, as described under Impact 3.5-1, Mitigation Measures BIO-1 through BIO-4 would reduce impacts to less than significant levels.~~

#### *Mitigation Measure(s)*

No mitigation measures ~~beyond Mitigation Measures BIO-1 through BIO-4~~ are required.

#### *Significance After Mitigation*

The proposed project is not expected to impact wildlife movement.

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#### *Significance After Mitigation*

The proposed project is not expected to conflict with policies or ordinances protecting biological resources.

#### ***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 ~~p~~Project ~~s~~Site is located within the designated boundaries of the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP). However, the project site is not located near or in the vicinity of an Area of Critical Environmental Concern or FWS Critical Habitat. Implementation of the proposed project ~~would result in no impact associated with the potential to~~ would not conflict with the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan or any local conservation plans.

#### *Significance After Mitigation*

The proposed project is not expected to conflict with any habitat conservation plan or local conservation plan.

## Decommissioning/Restoration and Residual Impacts

### *Decommissioning/Restoration*

Project decommissioning activities will require construction vehicles to drive across the ~~p~~Project ~~s~~Site 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. This is a potentially significant

impact; however, implementation of Mitigation Measures BIO-1 through BIO-114 at the time of decommissioning would reduce potential impacts to a less than significant level.

### *Residual*

With the implementation of Mitigation Measures BIO-1 through BIO-114, potential impacts on special-status species would be reduced to less than significant level. Therefore, the proposed project would not result in residual significant and unmitigable impacts related to biological resources.

## Section 3.10 Land Use Planning

### *Page 3.12-9*

A biological resources survey was conducted for the project site. As discussed in Section 3.5, Biological Resources, the proposed project has the potential to impact burrowing owl and bird species. However, with the implementation of Mitigation Measures BIO-1, BIO-6, BIO-7, and BIO-9 through BIO-11 through BIO-4, these impacts would be reduced to a level less than significant. The site is not designated or otherwise identified as critical habitat for any species.

### *Page 3.12-10*

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 proposed project. With incorporation of Mitigation Measures BIO-1 through BIO-411 identified in Section 3.5, Biological Resources, less than significant impacts would result.

## Section 8 References

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## C. California Environmental Quality Act Requirements and Findings Supporting Decision Not to Recirculate

CEQA Section 15088.5(e) requires that an EIR which has been made available for public review, but not yet certified, be recirculated whenever significant new information has been added to the EIR. The entire document need not be recirculated, if revisions are limited to specific portions of the document. The recirculated portions or document must be sent to responsible and trustee agencies for consultation and fresh public notice must be given in the manner provided for a draft EIR. However, new information is not presumed to be significant simply because it is new. Indeed, pursuant to State CEQA Guidelines Section 15088.5:

New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect . . . that the project's proponents have declined to implement. State CEQA Guidelines, § 15088.5(a):

In order to be "significant," the new information requiring recirculation includes, for example, a disclosure showing that:

- (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
- (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
- (3) A feasible project alternative or mitigation measure considerably different from other previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponent decline to adopt it.
- (4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (State CEQA Guidelines, §15088.5(a)(1)-(4); *Laurel Heights II*, 6 Cal.4th at 1120.)

It is common, and in most cases necessary, to amplify and elaborate on the analysis of an EIR. CEQA anticipates this and such amplification does not constitute significant new "information" unless it triggers one of the four categories described in State CEQA Guidelines Section 15088.5(a). State

CEQA Guidelines Section 15088.5(b) provides that "recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR."

The County finds that recirculation of the Draft EIR is not required: (1) because recirculation is not required where the new information added to the EIR merely clarifies, amplifies, or makes insignificant modifications in an adequate EIR (CEQA Guidelines, § 15088.5, subd. (b); and (2) because no "substantial adverse" impact would result from any of the revisions to the portions of the Draft EIR that were not recirculated (CEQA Guidelines, § 15088.5, subd. (e)). Therefore, the County has concluded that recirculation of the Draft EIR is not required.

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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 Dogwood Geothermal Energy Project and to propose mitigation measures, where required, to reduce significant impacts.

## Project Overview

The Dogwood Geothermal Energy Project is located on approximately 125 acres of privately-owned lands in southern Imperial County, California, approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calexico jurisdictional limit. The project site is within portions of three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC.

The project applicant, OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the “Applicants”, and all wholly owned subsidiaries of Ormat Technologies, Inc. [Ormat]) has filed three separate Conditional Use Permits (CUP) applications with the County of Imperial for the construction and operation of various facilities. The three CUP applications are described below. Collectively, these three CUP applications are herein referred to as the “project.”

### 1. Dogwood Geothermal Energy Project – CUP No. 23-0020

The Dogwood Geothermal Energy Project includes a geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 megawatt (MW) solar facility, and medium voltage distribution cable from the proposed solar facility to the geothermal plant. These project components are summarized below.

- a. **ORMAT Energy Converter (Geothermal Energy Production Unit):** The proposed ORMAT Energy Converter (OEC) unit would be a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists of a generator, turbines, a vaporizer, air cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).
- b. **Isopentane Storage Tanks:** Two double-walled 20,000-gallon above-ground storage tanks would be installed for motive fluid (isopentane) storage. Numerous safety and fire prevention measures would be installed on/near the ABST, including the following:
  - Concrete foundations with blast walls separating the tank from the OEC.
  - An automated water suppression system.
  - Concrete containment areas.

- Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
  - A gas detector, which will immediately detect any isopentane leak and notify the control room (manned 24/7).
- c. **Cooling Tower:** A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid. No water is necessary.
- d. **Dogwood Substation:** The proposed Dogwood geothermal plant will require a new substation to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. Pending Imperial Irrigation District (IID) review, no upgrades to off-site transmission facilities are necessary. If upgrades to off-site facilities are later deemed necessary through an IID transmission study, recommendations could include protection upgrades and metering replacements at existing IID substations and/or upgrades to telecommunications, distribution lines, and transmission lines. Such upgrades would use existing infrastructure, easements, right-of-way, and corridors to the extent practicable.

The new Dogwood substation will connect directly to the existing point of interconnection with the IID controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection. A main control building would contain instrumentation and telecommunications equipment located within the within the greater HGEC.

The substation footprint would measure up to 145 feet by 66 feet and would be surrounded by an eight-foot-tall chain link fence with vehicle and personnel access gates. The surface of the substation would be covered by gravel and the substation equipment would be placed onto concrete foundations.

- e. **Parasitic Solar Energy Facility:** A 7 MW solar facility would provide supplemental/auxiliary energy to the proposed Dogwood geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Dogwood geothermal unit (OEC). This energy would not enter the transmission grid.
- f. **Medium Voltage Distribution Line:** The energy generated by the proposed Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the Heber 2 Project site, adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays.

## 2. Heber 2 Solar Energy Project – CUP No. 23-0021

- a. **Parasitic Solar Energy Facility:** A 15 MW solar facility would provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Heber 2 geothermal unit (OEC). This energy would not enter the transmission grid. The energy generated by the solar facility would be collected by an on-site XMD and switch and transmitted via a medium voltage distribution cable (as described above).

### 3. Heber Field Company (HFC) Geothermal Wells and Pipeline Project – CUP No. 23-0022

- a. **Geothermal Production and Injection Wells:** Production wells flow geothermal fluid to the surface, and injection wells are used to inject geothermal fluid from the energy plant back into the geothermal reservoir. Injection ensures the longevity and renewability of the geothermal resource. The Applicant proposes to develop three geothermal production wells, all within the Imperial County Geothermal Overlay Zone. The wells will be sited at three locations within APNs 059-020-001 and 054-250-017. The injection well would be installed within the HGEC, immediately next to the proposed Dogwood OEC.
- b. **Geothermal Fluid Pipeline:** Approximately 4,500 feet (0.85 miles) of geothermal fluid production pipeline are proposed for installation on APN 059-020-001. This new segment of pipeline will connect to an existing pipeline collection point that will deliver the geothermal brine to the proposed Dogwood OEC. The well on APN 054-250-017 would connect to the existing pipeline segment adjacent to the proposed well pad site. The pipeline would be used to transport geothermal fluid from the production wells to the power plants.

## Purpose of an EIR

The purpose of an EIR is to analyze the potential environmental impacts associated with a project. CEQA (Section 15002) states that the purpose of CEQA is to: (1) inform the public and governmental decision makers of the potential significant environmental impacts of a project; (2) identify the ways that environmental damage can be avoided or significantly reduced; (3) prevent significant avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and (4) disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

## Eliminated from Further Review in Notice of Preparation

Based on the Initial Study and Notice of Preparation (IS/NOP) prepared for the proposed project (Appendix A of this EIR), Imperial County (County) has determined that the proposed project would not have the potential to cause significant impacts associated with the following topics: Forestry Resources, Mineral Resources, Population/Housing, Public Services (Schools, Parks and Other Public Facilities), Recreation, Utilities (Wastewater, Stormwater, and Solid Waste), and Wildfire. 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
- Energy
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology/Water Quality
- Land Use and Planning
- Noise and Vibration
- Public Services
- Transportation
- Tribal Cultural Resources

Table ES-3 summarizes existing environmental impacts that were determined to be potentially significant, mitigation measures, and level of significance after mitigation associated with the project. Additional measures would be implemented to further minimize unintended impacts and events as a result of facility construction and operation and are referred to as Applicant Proposed Measures and Best Management Practices. These measures are contained in Section 2.7 of Chapter 2.0, Project Description.

## 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 geothermal and solar farm project, and other geothermal and 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 impacts on IID drains, air quality, and health and safety hazards. Further, comments received during the scoping process include pipeline integrity and safety concerns (in particular, of existing pipelines in the area and integrity of any proposed pipelines, leaking and spillage); current and proposed pest management practices (Pest Management Plan), to mitigate negative impacts to surrounding farmland including insects, vertebrates, weeds, and plant pathogens; and, implementation and monitoring of non-structural water quality best management practices and reporting (pursuant to Operations Management Plan).

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
<b><i>Agricultural Resources</i></b>			
Impact 3.3-1: Conversion of Important Farmlands to non-agricultural use.	Potentially Significant	<p>The following mitigation measures are applicable to the Dogwood Geothermal Energy Project (CUP #23-0020) and Heber 2 Solar Energy Project (CUP #23-0021) only:</p> <p><b>AG-1a. Payment of Agricultural and Other Benefit Fees.</b> Prior to the issuance of a grading permit or building permit (whichever is issued first), one of the following options included below shall be implemented:</p> <p><b>A. Mitigation for Non-Prime Farmland:</b></p> <p><b>Option 1: Provide Agricultural Conservation Easement(s).</b> 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 <u>(as defined in California Civil Code §§815-816)</u> and shall be recorded prior to issuance of any grading or building permits; or</p> <p><b>Option 2: Pay Agricultural In-Lieu Mitigation Fee.</b> 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,</p> <p><b>Option 3: Public Benefit Agreement.</b> The Permittee and County voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that: 1) is consistent with Board Resolution 2023-#17; and 2) must be held by the County in a restricted account to be used by</p>	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
		<p>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 amended by the Board of Supervisors on November 7, 2023: Resolution “Amending the Public Benefit Program for use with Solar Power Plants in Imperial County”), as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy.</p> <p><b>B. Mitigation for Prime Farmland:</b></p> <p><b>Option 1:</b> <del>Provide Agricultural Conservation Easements.</del> <del>Provide Agricultural Conservation Easement(s).</del> 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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits; or</p> <p><b>Option 2:</b> <u>Pay Agricultural In-Lieu Mitigation Fee.</u> 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</p> <p><b>Option 3:</b> <u>Public Benefit Agreement.</u> The Permittee and County voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that 1) is consistent with Board Resolution 2023-#17; and 2) must be held by the County in a restricted account to be used by the County only for such purposes as the stewardship, preservation</p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p>and enhancement of agricultural lands within Imperial County and to implement the goals and objectives of the Agricultural Benefit program (as amended by the Board of Supervisors on November 7, 2023: Resolution “Amending the Public Benefit Program for use with Solar Power Plants in Imperial County”), 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; or</p> <p><b>Option 4: Avoid Prime Farmland.</b> The Permittee must revise their Conditional Use Permit Application/Site Plan to avoid Prime Farmland.</p> <p><b>AG-1b. Site Reclamation Plan.</b> 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 event Permittee fails to perform the Reclamation Plan.</p>	
Impact 3.3-3: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use.	Potentially Significant	<p>The following mitigation measures are applicable to the Dogwood Geothermal Energy Project (CUP #23-0020) Heber 2 Solar Energy Project (CUP #23-0021):</p> <p><b>AG-2 Pest Management Plan.</b> 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</p>	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
		<p>shall maintain a Pest Management Plan until reclamation is complete. The plan shall provide the following:</p> <ol style="list-style-type: none"> <li>1. Monitoring, preventative, and management strategies for weed and pest control during construction activities at any portion of the project (e.g., transmission line);</li> <li>2. Control and management of weeds and pests in areas temporarily disturbed during construction where native seed will aid in site revegetation as follows: <ul style="list-style-type: none"> <li>• 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;</li> <li>• All treatments must be performed by a qualified applicator or a licensed pest control operator;</li> <li>• "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;</li> <li>• Use of "permanent" soil sterilants to control weeds or other pests is prohibited because this would interfere with reclamation;</li> <li>• Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture</li> </ul> </li> </ol>	



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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p>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;</p> <ul style="list-style-type: none"> <li>• Obey all pesticide use laws, regulations, and permit conditions;</li> <li>• Allow access by Agricultural Commissioner staff for routine visual and trap pest surveys, compliance inspections, eradication of exotic pests, and other official duties;</li> <li>• 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;</li> <li>• 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;</li> <li>• 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</li> </ul>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p>long as the original detailed records are available upon request.</p> <ol style="list-style-type: none"> <li>3. A long-term strategy for weed and pest control and management during the operation of the proposed project. Such strategies may include, but are not limited to: <ul style="list-style-type: none"> <li>• Use of specific types of herbicides and pesticides on a scheduled basis.</li> </ul> </li> <li>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.</li> <li>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.</li> </ol>	
<b>Air Quality</b>			
Impact 3.4-1: Conflict with or obstruct implementation of the applicable air quality plan.	Less than Significant	<p><b>AQ-1 Fugitive Dust Control.</b> 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.</p> <p><b>ICAPCD Standard Measures for Fugitive Dust (PM<sub>10</sub>) Control</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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</li> </ul>	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
		<p>paving, chemical stabilizers, dust suppressants, and/or watering.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul> <p><b>Standard Mitigation Measures for Construction Combustion Equipment</b></p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> <li>• Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel-powered equipment.</li> <li>• Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.</li> <li>• Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.</li> <li>• When commercially available, replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).</li> </ul> <p><b>AQ-2 Construction Equipment.</b> All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 4 Final California Emission Standards for Off-road Compression-Ignition Engines as specified in CCR, Title 13, section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 4 Final engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide NOX and particulate matter emissions that are equivalent to Tier 4 engine. Drill rig engines shall meet a minimum of Tier 4 Interim California Emission Standards. A list of the construction equipment, including all off-road equipment utilized at the project site 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<sub>x</sub> analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed the significance thresholds. The Planning and</p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p>Development Services Department and ICAPCD shall verify implementation of this measure.</p> <p><b>AQ-3 Dust Suppression.</b> The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. All unpaved roads associated with construction shall be effectively stabilized of dust emissions using stabilizers/suppressant before the commencement of all construction phases. This will be conducted monthly at a rate of 0.1 gallon/ square yard of chemical dust suppressant. 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).</p> <p><b>AQ-4 Dust Suppression Management Plan.</b> Prior to any earthmoving activity, the applicant shall submit <del>an construction</del> <u>Enhanced Dust Control Plan</u> and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.</p> <p><b>AQ-5 Operational Dust Control Plan.</b> 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.</p> <p><b>AQ-6 Speed Limit.</b> During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on unpaved roads to 15 miles per hour or less.</p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
<b>Biological Resources</b>			
Impact 3.5-1: Potential impacts on special-status species	Potentially Significant	<p><b>BIO-1 Worker Environmental Awareness Program.</b> 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. <u>Qualified biologist resumes shall be provided to the County for review and approval prior to the start of construction.</u> Handouts summarizing potential impacts on special-status biological resources and the potential penalties for impacts on these resources shall be provided to all construction personnel. At a minimum, the education program shall include the following:</p> <ul style="list-style-type: none"> <li>• the purpose for resource protection;</li> <li>• a description of special-status species including representative photographs and general ecology;</li> <li>• occurrences of USACE, RWQCB, and CDFW regulated features in the project area;</li> <li>• regulatory framework for biological resource protection and consequences if violated</li> <li>• sensitivity of the species to human activities;</li> <li>• avoidance and minimization measures designed to reduce the impacts on special-status biological resources</li> <li>• environmentally responsible construction practices;</li> <li>• reporting requirements;</li> <li>• the protocol to resolve conflicts that may arise at any time during the construction process; and</li> <li>• workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed, which shall be kept on record.</li> </ul>	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
		<p><b>BIO-2 Pre-Construction Plant Surveys:</b> Prior to the start of construction, a qualified biologist shall conduct a botanical field survey following the methodology described in Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW March 2018). The survey shall be floristic in nature (i.e., identifying all plant species to the taxonomic level necessary to determine rarity), and shall be inclusive of areas proposed for disturbance and indirectly impacted by the Project. The results of the survey shall be documented in a letter report that will be submitted to Imperial County and CDFW. The survey shall be conducted annually until start of construction to ensure the floristic diversity is accurately captured and effective avoidance, minimization, and mitigation strategies are developed.</p> <p>If special-status plant species are observed during the preconstruction rare plant survey(s) within the development area of the Project, the Project shall be designed to reduce impacts to these species through the establishment of buffers, to the extent feasible. Buffer distances will be determined by the qualified biologist, typically 50 feet or greater from an identified special-status plant species, unless the Qualified Biologist determines a reduced buffer would suffice to avoid impacts to the species.</p> <p>If avoidance of special-status plant species is not feasible, a Special-Status Plant Relocation Plan shall be developed and implemented. The Special-Status Plant Relocation Plan shall address mitigation for special-status plants, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible nursery propagation, and planting; salvage and planting of bulbs as feasible; location of on-site receptor sites; land protection instruments for receptor areas; and funding mechanisms.</p> <p>The Special-Status Plant Relocation Plan shall include methods, monitoring, reporting, success criteria, adaptive management, and contingencies for achieving success. All special-status plant species identified on site shall be mapped onto a site-specific aerial</p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><u>photograph and topographic map and included on the construction, grading, fuel modification, and landscape plans.</u></p> <p><u>Botanical field surveyors will possess the following qualifications and will be approved by Imperial County prior to any botanical field surveys: Knowledge of plant taxonomy and natural community ecology; Familiarity with plants of the region, including special status plants; Familiarity with natural communities of the region, including sensitive natural communities; Experience with the CNDDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards, Experience conducting floristic botanical field surveys as described in <i>Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities</i> (CDFW March 2018), or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor; Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and Experience analyzing the impacts or projects on native plant species and sensitive natural communities.</u></p> <p><b>BIO-3 Avoidance of Sensitive Natural Communities.</b> <u>To the greatest extent practicable, Project work shall avoid impacts to arrow-weed thickets. If arrow-weed thickets cannot be avoided, the Project Applicant shall provide compensatory mitigation for direct impacts consisting of habitat acquisition at a minimum of a 3:1 ratio. Habitat acquisition sites shall be biologically equal or superior to existing conditions and must be conserved and managed in perpetuity. This mitigation measure would be implemented prior to the start of Project-related activities by the Project Proponent.</u></p> <p><b>BIO-4 Preconstruction Nesting Bird Survey.</b> <u>If construction or other project activities are scheduled to occur during nesting 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 preconstruction nesting bird survey shall be conducted by a qualified avian biologist prior to Project-related disturbance</u></p>	



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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><u>within and adjacent to the Project area. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nesting locations and nesting behavior (including but not limited to copulation, carrying food or nesting materials, nest building, agitation, aggressive interaction, feigning injury, or distraction displays). In addition, any clearing of vegetation that may occur is required to take place outside of the breeding season. The survey shall be completed no more than 3 days prior to initial ground disturbance. The nesting bird survey shall include the project area and all suitable areas, including trees, shrubs, bare ground, burrows, cavities, and structures. If an active nest is identified, the biologist shall establish an appropriately sized no-work buffer zone around the nest, that is sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. The size of the no-work buffer zone will be based upon the biologist's best professional judgment, the birds' displayed behavior (agitation or stress), the nesting species, its sensitivity to disturbance, nesting stage and expected types, and the intensity and duration of disturbance. The no-work buffer zone shall be clearly marked in a way that does not alert predators. Construction activities shall not occur within any no-work buffer zones until the young birds have successfully fledged and the nest is deemed inactive by the qualified avian biologist. Qualified avian biologist resumes will be provided to CDFW for review and approval prior to the start of construction.</u></p> <p><del><b>BIO-2 Preconstruction Nesting Bird Survey:</b> 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 preconstruction nesting bird survey shall be conducted by a qualified avian biologist to ensure that active bird nests, including those for the northern harrier, long billed curlew, and burrowing owl, will not be disturbed or destroyed. In addition, any clearing of vegetation that may occur is required to take place outside of the breeding season. The survey shall be completed no</del></p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><del>more than 3 days prior to initial ground disturbance. The nesting bird survey shall include the project area 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.</del></p> <p><b>BIO-35 Biological Monitoring:</b> <del>If preconstruction surveys determine either the presence of special status species or sensitive biological resources on the project site, a construction monitor may be needed during construction. If determined necessary, a</del>Construction monitoring shall be conducted by a qualified biologist. <u>Qualified biologist resumes will be provided to CDFW for approval prior to the start of construction.</u> The biologist shall be given authority to execute the following functions:</p> <ul style="list-style-type: none"> <li>• Establish construction exclusion zones and make recommendations for implementing erosion control measures in temporary impact areas.</li> <li>• Ensure all construction activities stay within the staked construction zone and do not go beyond the limits of disturbance.</li> <li>• Minimize trimming/removal of vegetation to within the project impact area.</li> <li>• Restrict non-essential equipment to the existing roadways and/or disturbed areas to avoid disturbance to existing adjacent native vegetation.</li> <li>• <u>Verify permit compliance</u></li> </ul> <p>During construction, <u>the qualified biologists will act as</u> biological monitors <u>and</u> shall inspect and verify field conditions, as needed, to</p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p>ensure that wildlife and vegetation adjacent to the BSA are not harmed. The biological monitor shall coordinate with the construction supervisor and construction crew and shall have the authority to stop any activity that has the potential to affect special-status species or remove vegetation.</p> <p><b>BIO-6 Non-reflective Coatings on Solar Panels.</b> The Applicant will use non-reflective materials and finishes to the solar panels to reduce potential glare as described in the Glint and Glare Analysis (Appendix C of the EIR). These coatings will create a matte surface that is less likely to resemble the reflective properties of water to birds flying overhead. <b>BIO-7 Burrowing Owl Avoidance, Minimization, and Mitigation.</b> As recommended by CDFW, Applicant will apply for and obtain an ITP prior to beginning ground disturbing activities. Applicant will comply with all permit conditions required by CDFW to minimize take.</p> <p>Potential impacts to burrowing owl shall be mitigated per the guidance of the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012) and at minimum including the following:</p> <p><b><u>Burrowing Owl Protection and Mitigation Plan</u></b></p> <p>As the Project construction schedule and details are finalized, a qualified biologist will prepare a Burrowing Owl Protection and Mitigation Plan (BOPMP) for submission to CDFW for approval prior to beginning ground disturbing activities that will detail the approved, site-specific methodology proposed to avoid, minimize and mitigate impacts on this species. The goal of the BOPMP is to avoid potential direct and indirect mortality of burrowing owls.</p> <p>The BOPMP will include, at a minimum: success criteria based on factors such as site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, evidence and causes of mortality, changes in distribution, trends in stressors; remedial measures; detailed survey methodology; exclusion and excavation methods; guidance for artificial burrow</p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><u>construction and placement; active monitoring procedures; identification of wildlife rehabilitation centers or veterinarians capable of and willing to treat burrowing owls in the case of injury of any life stage of burrowing owl (e.g., eggs, nestlings, fledglings, adults); procedures for collection and storage of carcasses; and annual reporting protocols. The BOPMP will include an annual report to CDFW and shall be funded by the Project Applicant.</u></p> <p><b><u>Burrowing Owl Pre-Construction Surveys and Physical Barriers</u></b></p> <p><u>A CDFW-approved qualified biologist(s) shall conduct take-avoidance (pre-construction) surveys to identify, flag, and map all potential, known, and/or nesting burrows within (a) 14 calendar days prior to beginning ground-disturbing activities in the work area and (b) 24 hours prior to project construction. Surveys shall include the Project Area and a 500-foot buffer. Technical memoranda that document these survey findings will be submitted to CDFW and Imperial County.</u></p> <p><u>If burrowing owl is identified during the non-breeding season (September 1 through January 31), a 50-meter (165-ft) to 100-meter (328-ft) no-work buffer between active burrows and construction activities shall be established by the qualified biologist. However, the minimum buffer shall be increased depending on the level of construction disturbance and construction activity. 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.</u></p> <p><u>If burrowing owl is identified during the breeding season (February 1 through August 31), then a 100-meter (328-ft) to 200-meter (656-ft) no-work buffer will be established by the qualified biologist in accordance with CDFW Staff Report (CDFG 2012). A qualified biologist shall monitor the burrowing owls for any sign of distress and adjust the buffers as necessary to ensure no take occurs. Construction and disturbance activities within the buffer will be</u></p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><u>avoided until a qualified biologist determines that the burrow is inactive or until young have fledged.</u></p> <p><u>If active burrows are present within the Project footprint and avoidance is infeasible, measures such as passive relocation methods, destruction of burrows, and construction of artificial burrows described in the following sub-sections shall be implemented upon prior approval by and in coordination with CDFW.</u></p> <p><u>Depending on the level of disturbance, a smaller buffer may be established by a qualified biologist. Burrows will be buffered from development activities to the greatest extent feasible, as determined by a CDFW-approved biologist. Physical barriers, such as fences and visual screens (e.g., a portable chain link fence with shade cloth), will be used to protect identified burrows and visually shield them from work areas when feasible. Flags or markers will be placed near burrows to ensure that construction equipment does not collapse burrows.</u></p> <p><b><u>Burrowing Owl Construction Monitoring</u></b></p> <p><u>Monitoring by a qualified biologist shall be performed during ground-disturbing construction activities to avoid disturbance to burrowing owls. Additionally, if any active burrowing owl nests are present within the Project construction area, they must be avoided by establishing a non-disturbance buffer until the young fledge or the nest fails (CDFG 2012). Any nesting owls that are adjacent to the construction area will also be avoided by establishing buffer areas. Buffer areas should be marked using flagging or fencing to facilitate avoidance.</u></p> <p><b><u>Avoidance</u></b></p> <p><u>The following avoidance measures may assist in seasonally and spatially avoiding direct impacts and disturbances that could result in take of burrowing owls, nests, or eggs.</u></p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> <li>• <u>Avoid disturbing occupied burrows during the breeding season, from February 1 through August 31.</u></li> <li>• <u>Avoid impacting burrows occupied during the non-breeding season by migratory or nonmigratory resident burrowing owls.</u></li> <li>• <u>Avoid direct destruction of burrows through chaining (dragging a heavy chain over an area to remove shrubs), disking, cultivation, and urban, industrial, or agricultural development.</u></li> <li>• <u>Do not fumigate, use treated bait or other means of poisoning nuisance animals in areas where burrowing owls are known or suspected to occur (e.g., sites observed with nesting owls, designated use areas).</u></li> <li>• <u>Restrict the use of treated grain to poison mammals the months of January and February.</u></li> </ul> <p><b><u>Passive Relocation and Lands Management Planning</u></b></p> <p><u>If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident burrowing owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, a CDFW-approved qualified biologist shall implement a passive relocation program in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012). Procedures will also be detailed in the BOPMP.</u></p> <p><u>Passive relocation shall only be done in the non-breeding season, where resident owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012) and a CDFW-approved BOPMP as follows:</u></p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> <li>• <u>To facilitate identification of replacement burrow sites, a Burrowing Owl Exclusion Plan and Mitigation Lands Management Plan shall be prepared by the qualified biologist in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (Appendix E and Appendix F of CDFG 2012). The plans shall be approved by CDFW prior to commencing passive relocation.</u></li> <li>• <u>All burrows would be covered or excavated, and a one-way door would be installed on occupied burrows. This will allow any animals inside to leave the burrow but will exclude any animals from re-entering the burrow.</u></li> <li>• <u>If burrowing owls exhibit signs of stress in attempting to re-enter the burrow, the one-way-door shall be removed to prevent take of the individual.</u></li> <li>• <u>A period of at least 1 week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin.</u></li> <li>• <u>Only burrows that will be directly impacted by the Project shall be excavated and filled in to prevent their reuse.</u></li> <li>• <u>Off-site "replacement burrow site(s)" must consist of a minimum of two suitable, unoccupied burrows for every burrowing owl or pair to be passively relocated.</u></li> <li>• <u>The Mitigation Lands Management Plan will be developed when off-site or on-site mitigation habitat protection is needed to ensure compliance with and effectiveness of identified management actions for the mitigation lands. The Applicant shall implement the Mitigation Lands Management Plan and permanently conserve in a conservation easement offsite habitat suitable for burrowing owl. Land identified to mitigate for passive relocation of burrowing owl may be combined with other</u></li> </ul>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><u>offsite mitigation requirements of the Project if the compensatory habitat is deemed suitable to support the species.</u></p> <ul style="list-style-type: none"> <li><u>The Applicant may purchase available burrowing owl conservation bank credits from a CDFW-approved conservation bank in lieu of placing offsite habitat into a conservation easement. The final terms of potential land acquisition and/or credits, or some combination thereof (e.g., fees, easements, approvals, documentation, etc.), will be established in consultation with CDFW via the ITP process.</u></li> </ul> <p><b>BIO-8 American Badger Avoidance and Minimization.</b> <u>Prior to initial site clearing, a CDFW-approved qualified biologist shall conduct a pre-construction survey for American badgers. The biologist shall conduct the pre-construction survey within 3 days prior to the initiation of ground disturbing activities. If no American badger individuals and/or dens are found during the pre-construction survey, the biologist shall document the findings in a letter report to CDFW, and no further mitigation shall be required. If individuals and/or dens are found, the Applicant shall consult with CDFW and a CDFW-approved qualified biologist to determine an appropriate no-disturbance buffer (typically 50-foot buffer around occupied dens and a 250-foot buffer around natal dens) to avoid impacts to the den. The no-disturbance buffer around natal dens shall remain in place until a qualified biologist determines through non-invasive means that the individuals occupying the den have dispersed. If impacts cannot be avoided and den excavation and exclusion implementation is required, den excavation and exclusion activities shall only take place during the non-breeding season (typically September 1 through January 1) in consultation with CDFW.</u></p> <p><b>BIO-9 Avian/Power Line Collision Avoidance and Minimization.</b> <u>Install bird flight diverters in accordance with the Avian Power Line Interaction Committee (APLIC) guidelines for reducing avian</u></p>	



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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><u>collisions with power lines (Reducing Avian Collisions with Power Lines; APLIC 2012). Details of design components shall be indicated on all construction plans. The Applicant shall monitor for new versions of the APLIC collision guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures. All bird flight diverters shall be maintained for the duration of construction and operation.</u></p> <p><b>BIO-10 Avian Electrocutation Avoidance and Minimization.</b> Implement Project-specific design measures in accordance with the APLIC guidelines for minimizing avian electrocutions. The Applicants shall construct and maintain all transmission facilities, towers, poles, and lines in accordance with applicable policies set forth in the most recent APLIC guidelines for minimizing avian electrocutions (Avian Protection Plan Guidelines; APLIC and USFWS 2005). Specific APLIC guidelines to be incorporated into the design of the transmission lines to minimize avian electrocutions shall include the following:</p> <ul style="list-style-type: none"> <li>• <u>Design the tops of structures to be safe for perching raptors.</u></li> <li>• <u>Provide 60 inches separation between energized conductors and:</u> <ul style="list-style-type: none"> <li>○ <u>energized conductors,</u></li> <li>○ <u>grounded or neutral conductors,</u></li> <li>○ <u>pole line hardware that could provide a perch or nesting place, and</u></li> <li>○ <u>overhead shield wires, including optical ground wire shield wire.</u></li> </ul> </li> <li>• <u>Ensure that all exposed jumper cables are completely covered with a cover of a qualified insulation rating.</u></li> </ul>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> <li>• <u>Ensure insulation of all energized arresters with covers and insulated cables.</u></li> <li>• <u>Details of design components shall be indicated on all construction plans. The Applicants shall monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures.</u></li> </ul> <p><b><u>BIO-11 Biological Protection Measures.</u></b></p> <ul style="list-style-type: none"> <li>• <u>Fence markers shall be installed to deter or prevent birds and bats from colliding with perimeter/security fencing and maintenance or replacement of these markers will be completed per the manufacturer instruction.</u></li> <li>• <u>If encountered, wildlife within the Project Site shall be allowed to escape unimpeded, relocated by a qualified biologist and placed in a designated safe area away from construction activities, or left in place when required by regulations, policies, permits, and/or conditions of approval. If wildlife relocation of common species is required, the qualified biologist approved by CDFW prior to the start of construction shall approve the method of relocation or oversee the relocation. Any relocation of special status species would require additional coverage under an Incidental Take Permit or Biological Opinion.</u></li> <li>• <u>Construction personnel trained by the qualified biologist during the WEAP, shall inspect under vehicles and equipment every time the vehicles or equipment are moved to make sure no special status or common wildlife species are present, which could be injured. If an animal is present, site workers shall wait for the individual to move to a safe</u></li> </ul>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><u>location. If a special-status species is discovered under equipment or vehicles and does not move on its own, the Applicant shall contact Imperial County, CDFW, and/or USFWS to determine the appropriate action.</u></p> <ul style="list-style-type: none"> <li>• <u>All excavations (e.g., steep-walled holes, or trenches) more than 6 inches deep shall be covered with plywood or similar materials when not in use or fitted with at least one escape ramp constructed of earth dirt fill, wooden planks, or another material that wildlife could ascend to prevent entrapment. All excavations more than 6 inches deep shall be inspected daily for entrapped wildlife before construction activities begin and once immediately before being covered with plywood. Before excavations are filled, they shall be thoroughly inspected for entrapped wildlife. Any wildlife discovered shall be allowed to escape unimpeded before field activities resume or shall be removed from excavated areas by a qualified biologist and released at a safe nearby location.</u></li> <li>• <u>Where habitat will be temporarily disturbed, restore the disturbed area to pre-project condition, including decompacting soil and revegetating.</u></li> <li>• <u>All open ends of pipes, culverts, and conduits temporarily installed in open trenches or stored in staging/laydown areas shall be covered/capped at the end of each workday. Any such materials that have not been capped shall be inspected by construction personnel for wildlife before being moved, buried, or handled. Should wildlife become trapped, a qualified biologist shall be notified by construction personnel to remove and relocate the individual(s). If a listed species is discovered inside a pipe, that section of pipe shall not be moved. The Project shall contact CDFW and/or USFWS to determine the appropriate action.</u></li> </ul>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> <li>• <u>All food-related trash items (wrappers, cans, bottles, food scraps, cigarettes, etc.), general trash, micro trash (nails, bits of metal and plastic, small construction debris, etc.), and other human-generated debris scheduled to be removed shall be stored in animal-proof containers and removed from the site on a regular basis (weekly during construction, and at least monthly during operations). No deliberate feeding of wildlife or domestic animals shall be allowed.</u></li> <li>• <u>New light sources shall be minimized, and lighting shall be designed (e.g., using shielding and/or downcast lights) to limit the lighted area to the minimum necessary.</u></li> <li>• <u>Use of chemicals, fuels, lubricants, or biocides shall be in compliance with all local, state, and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation.</u></li> <li>• <u>To prevent harassment and mortality of listed, special status, and common wildlife species and destruction of their habitats, no domesticated animals shall be permitted on the site.</u></li> <li>• <u>No firearms shall be allowed on the Project Site, unless otherwise approved for security personnel.</u></li> <li>• <u>Use only native, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit harmful pesticide residues.</u></li> <li>• <u>Protect pollinators and their habitats from pesticides, including insecticides, fungicides, and herbicides. If</u></li> </ul>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><u>pesticides are used in areas with flowering plants, lessen their potential harm by adhering to the following guidance:</u></p> <ul style="list-style-type: none"> <li><u>Avoid the use of neonicotinoids or other systemic insecticides, including coated seeds due to their ecosystem persistence, systemic nature, and toxicity to pollinators (Xerces Systemic Insecticides List [Xerces Society 2025]).</u></li> <li><u>Avoid the use of insecticides that target lepidopterans (e.g., moths and butterflies), including biological pesticides (IRAC 2011).</u></li> <li><u>Use targeted application methods, avoid large-scale broadcast applications, and take precautions to limit off-site movement (e.g., wind drift, discharge from surface water flows).</u></li> <li><u>If pesticides are used for vector control treatments (e.g., mosquitoes), avoid treatment unless monitoring indicates that the species and numbers exceed a public health threshold. For any mosquito treatments, first employ prevention steps such as reducing standing water. Where possible, draw mosquitoes away from sensitive sites (e.g., using dry ice traps) to limit treatment effects in sensitive habitat areas.</u></li> </ul> <p><del><b>BIO-4 Burrowing Owl Avoidance and Minimization.</b> 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.</del></p> <ul style="list-style-type: none"> <li><del>• If burrowing owl is identified during the non-breeding season (September 1 through January 31), a minimum 50-meter buffer shall be established by the biological monitor for low-level disturbance. However, the minimum buffer shall be increased</del></li> </ul>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p><del>depending on the level of construction disturbance (e.g., medium or high). 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.</del></p> <ul style="list-style-type: none"> <li><del>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.</del></li> </ul>	
<b>Cultural Resources</b>			
Impact 3.6-2: Impact on archaeological resources	Potentially Significant	<p><b>CUL-1 Evaluate Significance of Find (Unknown Archaeological Resources).</b> 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.</p> <p>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</p>	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 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.	
Impact 3.6-3: Impact on human remains	Potentially Significant	<p><b>CUL-2 Human Remains.</b> If subsurface deposits believed to be human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist who meets the Secretary of the Interior's Standards for prehistoric and historic archaeology and is familiar with the resources of the region, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:</p> <ul style="list-style-type: none"> <li>• If the find includes human remains, or remains that are potentially human, the professional archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Imperial County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented.</li> <li>• If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC may mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed</li> </ul>	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
		(§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the Imperial County Planning and Development Services Department, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.	
<b>Energy</b>			
Impact 3.7-1: Wasteful, inefficient, or unnecessary consumption of energy resources, during project construction of operation.	Less than Significant	<p><b>ENG-1 Energy Conservation Control Measures.</b> The project applicant shall implement all the following applicable energy conservation control measures during construction of the project:</p> <ul style="list-style-type: none"> <li>• Idling times on all diesel-fueled commercial vehicles over 10,000 pounds shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure 13 CCR §2485). Clear signage to this effect shall be provided for construction workers at all access points.</li> <li>• Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written policy as required by 13 CCR §2449 ("CARB Off-Road Diesel Regulations").</li> <li>• All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.</li> <li>• Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used</li> </ul>	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
		if feasible. Diesel engines shall only be used if electricity is not available, and it is not feasible to use propane or natural gas.	
<b>Geology and Soils</b>			
Impact 3.8-2: Possible risks to people and structures caused by strong seismic ground shaking.	Potentially Significant	<p><b>GEO-1 Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.</b> 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:</p> <ul style="list-style-type: none"> <li>• Site preparation</li> <li>• Soil bearing capacity</li> <li>• Appropriate sources and types of fill</li> <li>• Potential need for soil amendments</li> <li>• Structural foundations</li> <li>• Grading practices</li> <li>• Soil corrosion of concrete and steel</li> <li>• Erosion/winterization</li> <li>• Seismic ground shaking</li> <li>• Liquefaction</li> <li>• Expansive/unstable soils</li> </ul> <p>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</p>	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
		for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicants. 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 3.8-5: Substantial soil erosion or the loss of topsoil.	Potentially Significant	Implement Mitigation Measure GEO-1 and Mitigation Measure HYD-1.	Less than Significant
Impact 3.8-6: 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 3.8-7: 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 3.8-9: Impact on paleontological resources	Potentially Significant	<b>GEO-2 Paleontological Resources.</b> In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project	Less than Significant

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.	
<b>Hazards and Hazardous Materials</b>			
Impact 3.10-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Potentially Significant	<p><b>HAZ-1 Isopentane Management Measures.</b> A certified fire protection engineer survey and analysis of current and proposed fire suppression and detection equipment will be performed to evaluate the current systems performance and coverage of protection prior to construction. This analysis will evaluate proposed fire suppression and detection equipment in conjunction with existing equipment and be reviewed and approved by the Imperial County Fire Department and OES prior to building permits approval. The following measures will be required for the project:</p> <ol style="list-style-type: none"> <li>1. All isopentane storage tanks will be protected by approved automatic fire suppression equipment. All automatic fire suppression will be installed and maintained to the current adapted fire code and regulation.</li> <li>2. An approved automatic fire detection system will be installed as per the California Fire Code. All fire detection systems will be installed and maintained to the current adapted fire code and regulations.</li> <li>3. Fire department access roads and gates will be in accordance with the current adapted fire code and the facility will maintain a Knox Box for access on site.</li> <li>4. Applicants will provide product containment areas(s) for both product and water run-off in case of fire applications and retained for removal.</li> <li>5. Each tank will be equipped with an automated water suppression system.</li> </ol>	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
		<p>6. Each tank will be equipped with two flame detectors and one gas detector (for a total of 4 flame detectors and 2 gas detectors for the two tanks).</p> <ul style="list-style-type: none"> <li>a. In the case of an isopentane leak, the gas detector(s) will detect it immediately and send a notification to the operator at the control room (manned 24/7) to mobilize fixing the leak.</li> <li>b. In case of a fire, the flame detector(s) will detect it and immediately start the automatic fire suppression system.</li> <li>c. In case of a fire, there will also be a horn and strobe system that will turn on automatically to alert the plant employees.</li> </ul> <p>7. Concrete containment areas will be constructed for the isopentane tanks.</p> <p>8. Isopentane vessels will rarely be filled to 90 percent capacity.</p> <p>9. Isopentane safety-control measures will be established.</p> <p>10. A blast wall will be built between the two proposed isopentane vessels.</p> <p>11. Diking and impoundment of the proposed isopentane tanks shall be installed to minimize the magnitude and extent of a tank failure.</p>	
<b>Hydrology/Water Quality</b>			
Impact 3.11-1: Violation of water quality standards.	Potentially Significant	<p><b>HYD-1 Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration.</b> 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</p>	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
		<p>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:</p> <ul style="list-style-type: none"> <li>• Soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching)</li> <li>• Sediment control practices (e.g., temporary sediment basins, fiber rolls)</li> <li>• Temporary and post-construction on- and off-site runoff controls</li> <li>• Special considerations and BMPs for water crossings and drainages</li> <li>• 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</li> <li>• Waste management, handling, and disposal control practices</li> <li>• Corrective action and spill contingency measures</li> <li>• Agency and responsible party contact information</li> <li>• 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</li> </ul> <p>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</p>	

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

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		<p>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.</p> <p><b>HYD-2 Incorporate Post-Construction Runoff BMPs into Project Drainage Plan.</b> 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.</p> <p><b>HAZ-1 Isopentane Management Measures.</b></p>	
Impact 3.11-3: Result in substantial erosion or siltation on- or off-site.	Potentially Significant	Implement Mitigation Measure HYD-1.	Less than Significant
Impact 3.11-4: Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.	Potentially Significant	Implement Mitigation Measure HYD-2.	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
Impact 3.11-5: 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.	Potentially Significant	Implement Mitigation Measure HYD-1.	Less than Significant
Impact 3.11-6: 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
<b><i>Tribal Cultural Resources</i></b>			
Impact 3.16-1: Cause a substantial adverse change in the significance of a tribal cultural resource.	Potentially Significant	<b>TCR-1</b> If previously unidentified tribal cultural resources are identified during construction activities, construction work within 100 feet of the find shall be halted and directed away from the discovery until a Secretary of the Interior qualified archaeologist and tribal representative assesses the significance of the resource. The archaeologist, in consultation with Imperial County and any interested Tribes, shall make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are determined to be a tribal cultural resource as defined in PRC Section 21074.	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).

The proponent does not have control of an alternate site; if control were viable, the proponent would have to re-initiate the application process as a new project. Similar to the proposed project site, an alternate site would require environmental review once the proponent has prepared sufficient project description information. At present, the proponent does not have control of an alternate site. This alternative would be the most complex, costly, and time-consuming alternative to implement. It is unknown if the environmental impacts associated with this Alternative would be less than the proposed project because it would be speculative to evaluate an unsecured alternate site. This is primarily due to the fact that the proponent does not have control of an alternate site. Therefore, an alternative site was eliminated from further consideration in this EIR.

### 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 and Alternative 2: Reduced Project Site. 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)(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 geothermal and solar energy facilities. The No Project/No Development Alternative would not meet the project objectives.

### Alternative 2: Reduced Project Site

The purpose of Alternative 2 is to avoid the Prime Farmland located within the project site. As discussed in Section 3.3, Agricultural Resources, implementation of the project would result in the temporary conversion of approximately 106.88 acres of land currently under or available for agricultural production to non-agricultural uses, as described below:

- Dogwood Geothermal Energy Project (CUP #23-0020): Approximately 5.31 acres of the Dogwood parasitic solar facility footprint are classified as Prime Farmland and 34.67 acres are classified as Farmland of Statewide Importance.
- Heber 2 Solar Energy Project (CUP #23-0021): Approximately 17.63 acres of the Heber 2 parasitic solar facility footprint are classified as Prime Farmland and 49.27 acres are classified as Farmland of Statewide Importance.

This alternative would avoid approximately 22.94 acres of Prime Farmland on the project site (5.31 acres on Dogwood parasitic solar facility footprint and 17.63 acres on the Heber 2 parasitic solar facility footprint). The size and MW output of the solar facilities would be slightly reduced under this alternative.

### Environmentally Superior Alternative

Table ES-2 provides a qualitative comparison of the impacts for each alternative compared to the proposed project. As noted on Table ES-2, 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: agricultural resources, air quality, biological resources, cultural resources, hydrology/water quality, tribal cultural resources, and utilities/service systems.

**Table ES-2. Comparison of Alternative Impacts to Proposed Project**

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Reduced Project Site
Aesthetics	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Agricultural Resources	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact
Air Quality	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Less Impact
Biological Resources	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact (Avoid)	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact
Cultural Resources	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact (Avoid)	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact

**Table ES-2. Comparison of Alternative Impacts to Proposed Project**

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Reduced Project Site
Energy	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Geology and Soils	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact (Avoid)	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Similar Impact
GHG Emissions	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Hazards and Hazardous Materials	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Similar Impact
Hydrology/ Water Quality	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact (Avoid)	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact

**Table ES-2. Comparison of Alternative Impacts to Proposed Project**

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Reduced Project Site
Land Use/Planning	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Noise	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Public Services	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Transportation	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Tribal Cultural Resources	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact

Table ES-2. Comparison of Alternative Impacts to Proposed Project

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Reduced Project Site
Utilities/Service Systems	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Less Impact

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# 1 Introduction

This environmental impact report (EIR) has been prepared to meet the requirements of the California Environmental Quality Act (CEQA) for purposes of evaluating the potential environmental impacts, mitigation measures, and alternatives associated with the proposed Dogwood Geothermal Energy 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 125 acres of privately-owned lands in southern Imperial County, California, approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calexico jurisdictional limit. The project site is within portions of three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC.

The project applicant, OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the “Applicants”, and all wholly owned subsidiaries of Ormat Technologies, Inc. [Ormat]) has filed three separate Conditional Use Permits (CUP) applications with the County of Imperial for the construction and operation of various facilities. The three CUP applications are described below. Collectively, these three CUP applications are herein referred to as the “project.”

### 1. Dogwood Geothermal Energy Project – CUP No. 23-0020

The Dogwood Geothermal Energy Project includes a geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 megawatt (MW) solar facility, and medium voltage distribution cable from the proposed solar facility to the geothermal plant. These project components are summarized below.

- a. **ORMAT Energy Converter (Geothermal Energy Production Unit):** The proposed ORMAT Energy Converter (OEC) unit would be a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists of a generator, turbines, a vaporizer, air cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).
- b. **Isopentane Storage Tanks:** Two double-walled 20,000-gallon above-ground storage tanks would be installed for motive fluid (isopentane) storage. Numerous safety and fire prevention measures would be installed on/near the ABST, including the following:
  - Concrete foundations with blast walls separating the tank from the OEC.
  - An automated water suppression system.
  - Concrete containment areas.

- Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
  - A gas detector, which will immediately detect any isopentane leak and notify the control room (manned 24/7).
- c. **Cooling Tower:** A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid. No water is necessary.
- d. **Dogwood Substation:** The proposed Dogwood geothermal plant will require a new substation to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. Pending Imperial Irrigation District (IID) review, no upgrades to off-site transmission facilities are necessary. If upgrades to off-site facilities are later deemed necessary through an IID transmission study, recommendations could include protection upgrades and metering replacements at existing IID substations and/or upgrades to telecommunications, distribution lines, and transmission lines. Such upgrades would use existing infrastructure, easements, right-of-way, and corridors to the extent practicable.

The new Dogwood substation will connect directly to the existing point of interconnection with the IID controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection. A main control building would contain instrumentation and telecommunications equipment located within the within the greater HGEC.

The substation footprint would measure up to 145 feet by 66 feet and would be surrounded by an eight-foot-tall chain link fence with vehicle and personnel access gates. The surface of the substation would be covered by gravel and the substation equipment would be placed onto concrete foundations.

- e. **Parasitic Solar Energy Facility:** A 7 MW solar facility would provide supplemental/auxiliary energy to the proposed Dogwood geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Dogwood geothermal unit (OEC). This energy would not enter the transmission grid.
- f. **Medium Voltage Distribution Line:** The energy generated by the proposed Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the Heber 2 Project site, adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays.

## 2. Heber 2 Solar Energy Project – CUP No. 23-0021

- a. **Parasitic Solar Energy Facility:** A 15 MW solar facility would provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Heber 2 geothermal unit (OEC). This energy would not enter the transmission grid. The energy generated by the solar facility would be collected by an on-site XMD and switch and transmitted via a medium voltage distribution cable (as described above).



### 3. Heber Field Company (HFC) Geothermal Wells and Pipeline Project – CUP No. 23-0022

- a. **Geothermal Production and Injection Wells:** Production wells flow geothermal fluid to the surface, and injection wells are used to inject geothermal fluid from the energy plant back into the geothermal reservoir. Injection ensures the longevity and renewability of the geothermal resource. The Applicant proposes to develop three geothermal production wells, all within the Imperial County Geothermal Overlay Zone. The wells will be sited at three locations within APNs 059-020-001 and 054-250-017. The injection well would be installed within the HGEC, immediately next to the proposed Dogwood OEC.
- b. **Geothermal Fluid Pipeline:** Approximately 4,500 feet (0.85 miles) of geothermal fluid production pipeline are proposed for installation on APN 059-020-001. This new segment of pipeline will connect to an existing pipeline collection point that will deliver the geothermal brine to the proposed Dogwood OEC. The well on APN 054-250-017 would connect to the existing pipeline segment adjacent to the proposed well pad site. The pipeline would be used to transport geothermal fluid from the production wells to the power plants.

#### 1.1.1 Agency Roles and Responsibilities

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

##### County of Imperial

Implementation of the project would involve the following approvals by the County of Imperial:

1. **Approval of CUPs.** Implementation of the project would require the approval of CUPs by the County to allow for the construction and operation of the proposed facilities. The following CUPs are under consideration for approval as evaluated in this EIR:
  - CUP 23-0020 (Dogwood Geothermal Plant and Solar Energy Facility)
  - CUP 23-0021 (Heber 2 Solar Energy Facility)
  - CUP 23-0022 (HFC Geothermal Wells and Pipeline)

The project parcels are currently zoned as A-2-G-SPA and A-2-G-U.

Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone:

- n) Oil, gas and geothermal exploration meeting requirements specified in Division 17*
- s) Solar energy extraction generation provided that is for on-site consumption only*

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:

- y) Electrical generation plants (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*
- z) Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*
- bb) Facilities for the transmission of electrical energy (100-200 kv)*
- ii) Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*

*rr) Major Geothermal projects per Division 17*

*ww) Resource extraction and energy development as per Division 17*

*aaa) Solar energy electrical generator*

2. **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 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 consult 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<sub>10</sub>) in the Imperial Valley, the State Implementation Plan (SIP) for particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and verification of Rule 801 compliance.

#### IMPERIAL IRRIGATION DISTRICT

- Prior to construction, the Applicant will submit project plans to IID Water Department Engineering Services to concur that the Project would not disturb any IID drains, canals, or facilities in the Project area. If IID determines otherwise, a comprehensive IID hydraulic drainage system analysis may be required.
- Prior to construction, the Applicant will submit electrical plans, electrical panel size and location, operating voltage, electrical loads, an AutoCAD file of the site plan, construction schedule, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project.
- Prior to construction, the Applicant will submit the required documents to obtain an encroachment permit from IID to utilize the existing canals to provide water for construction activities.

## 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 retail 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 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.

## 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 Sections 1251–1387)

The Federal Water Pollution Control Act (33 United States Code [USC] §§1251-1387), otherwise known as the CWA, is a comprehensive statute aimed at restoring and maintaining the chemical, physical and biological integrity of the nation's waters. Enacted originally in 1948, the Act was amended numerous times until it was reorganized and expanded in 1972. It continues to be amended almost every year. Primary authority for the implementation and enforcement of the CWA rests with the U.S. Environmental Protection Agency (EPA). In addition to the measures authorized before 1972, the Act authorizes water quality programs, requires federal effluent limitations and state water quality standards, requires permits for the discharge of pollutants into navigable waters, provides enforcement mechanisms, and authorizes funding for wastewater treatment works construction grants and state revolving loan programs, as well as funding to states and tribes for their water quality programs. Provisions have also been added to address water quality problems in specific regions and specific waterways.

Important for wildlife protection purposes are the provisions requiring permits to dispose of dredged and fill materials into navigable waters. Permits are issued by the United States Army Corps of Engineers (USACE) under guidelines developed by EPA pursuant to Section 404 of the CWA.

### 1.2.8 Federal Clean Water Act and California Porter-Cologne Water Quality Control Act

The project is located within the Colorado River Basin RWQCB, Region 7. The CWA and the California Porter-Cologne Water Quality Control Act require that Water Quality Control Plans (more commonly referred to as Basin Plans) be prepared for the nine state-designated hydrologic basins in California. The Basin Plan serves to guide and coordinate the management of water quality within the region.

### 1.2.9 Federal Endangered Species Act

The ESA (16 USC 1531-1544) provides protection for plants and animals whose populations are dwindling to levels that are no longer sustainable in the wild. The Act sets out a process for listing species, which allows for petition from any party to list a plant or animal. Depending on the species, USFWS or the National Marine Fisheries Service (NMFS) will determine whether listing the species is warranted. If it is warranted, the species will be listed as either threatened or endangered. The

difference between the two categories is one of degree, with endangered species receiving more protections under the statute.

### 1.2.10 National Historic Preservation Act

Federal regulations (36 Code of Federal Regulations [CFR] Part 800.2) define historic properties as "any prehistoric or historic district, site, building, structure, or object included, or eligible for inclusion in, in the National Register of Historic Places (NRHP)." The term "cultural resource" is used to denote a historic or prehistoric district, site, building, structure, or object, regardless of whether it is eligible for the NRHP.

### 1.2.11 California Endangered Species Act

CESA is enacted through Government Code Section 2050. Section 2080 of the California Fish and Game Code (FGC) prohibits "take" of any species that the commission determines to be an endangered species or a threatened species. Take is defined in Section 86 of the FGC as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

CESA allows for take incidental to otherwise lawful development projects. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species populations and their essential habitats.

### 1.2.12 California Lake and Streambed Program (Fish and Game Code Section 1602)

CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the FGC (Section 1602) requires an entity to notify CDFW of any proposed activity that may substantially modify a river, stream, or lake.

## 1.3 Purpose of an EIR

The purpose of an EIR is to analyze the potential environmental impacts associated with a project. CEQA (Section 15002) states that the purpose of CEQA is to: (1) inform the public and governmental decision makers of the potential, significant environmental impacts of a project; (2) identify the ways that environmental damage can be avoided or significantly reduced; (3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and (4) disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

## 1.4 EIR Process

### 1.4.1 Availability of Reports

The Draft EIR ~~will be~~was distributed to various federal, state, regional, local agencies and interested parties ~~for a 50-day public review period~~, in accordance with Section 15087 of the CEQA Guidelines. The initial public comment period for the Draft EIR was from August 14, 2024 to October 2, 2024. This comment period was extended for 45 days to be from October 1, 2024 to November 11, 2024. Further,

in response to the one request for extension, submitted by California Unions for Reliable Energy (CURE's)/Adams Broadwell, the public comment period was extended again from November 23, 2024 to January 13, 2025. In total, the public comment period lasted from August 14, 2024 to January 13, 2025, totaling 152 days. The Draft EIR and documents incorporated by reference ~~will be~~ were made available for public review at the County of Imperial Planning and Development Services Department, 801 Main Street, El Centro, California 92243. Documents ~~are~~ were available for review during regular business hours.

Luis Valenzuela, Planner II

**County of Imperial, Planning and Development Services Department**

801 Main Street

El Centro, California 92243

Comments received during the public review period of the Draft EIR ~~will be~~ have been reviewed and responded to in ~~the~~ this Final EIR. The Final EIR will be reviewed by the Imperial County Planning Commission and Board of Supervisors as a part of the procedure to certify the Final 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 Dogwood Geothermal Energy Project on January 19, 2024. 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 January 19, 2024. 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
- Imperial Irrigation District
- Imperial County Air Pollution Control District
- Walter and Toni Holtz
- Heber Geothermal Royalty Owners Group

The comments submitted on the NOP during the public review and comment period are included as Appendix A to this EIR.

### Assembly Bill 52 Compliance

In accordance with Assembly Bill (AB) 52, Imperial County, as the CEQA lead agency, sent an AB 52 consultation request letter to the Campo Band of Mission Indians and Fort Yuma-Quechan Indian Tribe on January 19, 2024. No responses were received from the Campo Band of Mission Indians or Fort Yuma-Quechan Indian Tribe.



## Scoping Meeting and Environmental Evaluation Committee

During the NOP public review period, the Dogwood Geothermal Energy Project was discussed as an informational item at the County's Environmental Evaluation Committee meeting on February 8, 2024.

Additionally, a virtual scoping meeting for the general public as well public agencies was held on February 8, 2024, 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 January 19, 2024. 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 written comment letter was received during the scoping meeting and is included as Appendix A to this EIR.

### 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
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology/Water Quality
- Land Use and Planning
- Noise and Vibration
- Public Services
- 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, Mineral Resources, Population/Housing, Public Services (Schools, Parks and Other Public Facilities), 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 geothermal and solar farm project, and other geothermal and 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 impacts on IID drains, air quality, and health and safety hazards. Further, comments received during the scoping process include pipeline integrity and safety concerns (in particular, of existing pipelines in the area and integrity of any proposed pipelines, leaking and spillage); current and proposed pest management practices (Pest Management Plan), to mitigate negative impacts to surrounding farmland including insects, vertebrates, weeds, and plant pathogens; hazards associated with storage of isopentane; fire suppression; and, implementation and monitoring of non-structural water quality best management practices and reporting (pursuant to Operations Management Plan).



### 1.4.5 Document Organization

The structure of the ~~Draft-Final~~ EIR is identified below. The ~~Draft-Final~~ EIR is organized into ~~10-14~~ chapters, including the Executive Summary.

- **Chapter 0.1 Introduction and Summary** describes the CEQA requirements and content of the Final EIR.
  - **Chapter 0.2 Responses to Comment Letters Received on the Draft EIR** provides copies of the comment letters received and individual responses to written comments.
  - **Chapter 0.3 Errata to the Draft EIR** identifies the location of, or contains revisions to, information included in the Draft EIR dated August 2024, based upon additional or revised information required to prepare a response to a specific comment.
  - **Chapter 0.4 Mitigation Monitoring and Reporting Program** identifies the mitigation measures, timing, and responsibility for implementation of the measures.
- 
- 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 Dogwood Geothermal Energy Project. This chapter also defines the goals and objectives of the proposed project, provides details regarding the individual components that together comprise the project, and identifies the discretionary approvals required for 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; agricultural resources; air quality; biological resources; cultural resources; energy; geology and soils; GHG emissions; hazards and hazardous materials; hydrology/water quality; land use and planning; noise and vibration; public services; transportation; tribal cultural resources; 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 Dogwood Geothermal Energy Project. This chapter also defines the goals and objectives of the proposed project, provides details regarding the individual components that together comprise the project, and identifies the discretionary approvals required for implementation of the project.

OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the “Applicants”, and all wholly owned subsidiaries of Ormat Technologies, Inc. [Ormat]) have filed three separate Conditional Use Permit (CUP) applications with the County of Imperial for the construction and operation of various facilities. The three CUP applications consist of the following:

**1) Dogwood Geothermal Energy Project (OrHeber 3, LLC) – CUP No. 23-0020**

- One (1) twenty-five (25) net megawatt (MW) Integrated Two Level Unit (ITLU) Air Cooled ORMAT Energy Converter (OEC) generating unit
- Two (2) 20,000-Gallon Isopentane Above Ground Storage Tanks for Motive Fluid Storage
- One (1) Project substation for transmission to the grid
- Ancillary and auxiliary facilities (including, compressed air system and fire prevention system)
- A seven (7) MW solar photovoltaic (PV) facility dedicated to the Dogwood geothermal plant
- Medium voltage distribution cable from the Dogwood solar facility to Dogwood geothermal plant (OEC). The cable would be co-located along an existing above ground pipeline.

**2) Heber 2 Solar Energy Project (Second Imperial Geothermal Company) – CUP No. 23-0021**

- A fifteen (15) MW solar PV facility dedicated to the Heber 2 geothermal plant

**3) Heber Field Company (HFC) Geothermal Wells and Pipeline Project (Heber Field Company, LLC) – CUP No. 23-0022**

- Three (3) geothermal production wells
- One (1) new geothermal injection well
- Brine pipelines (approximately 4,500 linear feet)

Collectively, these three CUP applications are herein referred to as the “project” for purposes of evaluation in this EIR.

### 2.1 Project Location

The project site is located on approximately 125 acres of privately-owned lands in southern Imperial County, California, approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calexico jurisdictional limit (Figure 2-1). The project site is within portions of three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017 (Figure 2-2). Table 2-1 identifies the assessor parcel numbers (APN) associated with the project site, the APN acreage, project site component approximate acreage, General Plan land use

designation, and zoning. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC (Figure 2-3). An overview of the project site and proposed facilities are shown in Figure 2-3.

Interstate 8 (I-8; Kumeyaay Highway), located approximately 4.5 miles directly north, provides primary highway access to the site. Dogwood Road stems off I-8 and provides immediate site access. From the south, Willoughby Road runs west-east approximately 1,700 feet from the site and connects to Dogwood Road, providing immediate site access.

**Table 2-1. Project Assessor Parcel Numbers, Project Component Site Acreages, General Plan Land Use, and Zoning**

APN	APN Acreage	Site Component Acreage	General Plan Land Use	Zoning
054-250-031	39.93	~5.68	Heber Specific Plan Area	A-2-G-SPA
059-020-001	246.61	~117.59	Urban	A-2-G-U
054-250-017	160.08	~2	Heber Specific Plan Area	A-2-G-SPA
<b>Total</b>	446.62	~125.27	--	--

### 2.1.1 Dogwood Geothermal Energy Project (CUP #23-0020)

The Dogwood Geothermal Energy Project would be located on APNs 054-250-031, 059-020-001, and 054-250-017 (Figure 2-3). The proposed geothermal power plant would be located within the existing fenceline of the HGEC, operated by the Second Imperial Geothermal Company, a subsidiary of ORMAT which includes the Heber 2, Heber South, and Goulds 2 geothermal energy facilities located at 855 Dogwood Road, Heber, CA (APN 054-250-31). The development area for the Dogwood geothermal plant is completely disturbed from existing energy generation operations and devoid of any vegetation, surface waters, or existing facilities that would require relocation or demolition.

The proposed geothermal power plant is approximately one mile south of the City of Heber jurisdictional limit and approximately half a mile west from the City of Calexico jurisdictional limit. The proposed geothermal power plant is generally located north of Jasper Road and west of South (S) Dogwood Road.

As shown in Figure 2-3, the proposed 7 MW parasitic solar photovoltaic facility would be located southeast of the HGEC in the central portion of APN 059-020-001. Currently, APN 059-020-001 is used for the cultivation of crops, specifically alfalfa.

### 2.1.2 Heber 2 Solar Energy Project (CUP #23-0021)

As shown in Figure 2-3, the proposed Heber 2 solar energy facility 15 MW parasitic solar PV facility would be located southeast of the HGEC in the northern portion of APN 059-020-001.

Figure 2-1. Regional Location

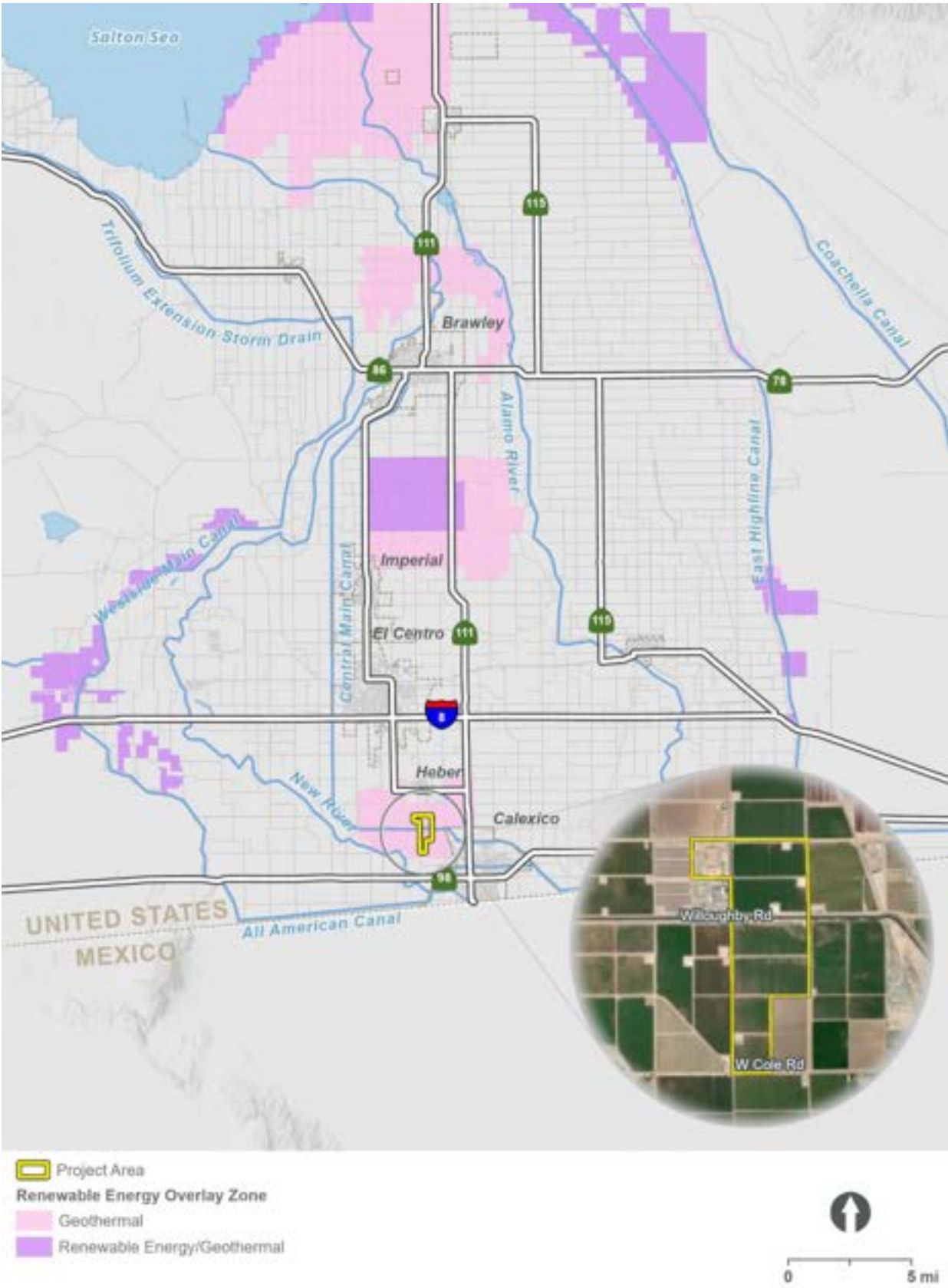




Figure 2-2. Project Location



Figure 2-3. Project Overview





### 2.1.3 HFC Geothermal Wells and Pipeline Project (CUP #23-0022)

The new geothermal production wells and associated pipeline(s) (approximately 4,500 linear feet) will be split between two parcels. As shown in Figure 2-3, two of these wells would be located within APN 059-020-001 with a small segment of pipeline (approximately 1,000 feet) developed within APN 059-020-001 connecting to the existing pipeline network. A third well would be installed adjacent to an existing geothermal well approximately 1,500 feet due east of the HGEC (APN 054-250-017). APN 054-250-017 is currently used for the cultivation of crops, specifically alfalfa. The new injection well would be located adjacent to the proposed Dogwood geothermal plant within the HGEC.

### 2.1.4 Renewable Energy Overlay Zone

In 2016, the County adopted the Imperial County Renewable Energy and Transmission Element, which includes a renewable overlay zone (RE Overlay). 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 (Imperial County 2021).

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.

As shown in Figure 2-1, the project site is located within the Geothermal Overlay Zone, which is considered as part of the RE Overlay Zone. Therefore, no General Plan Amendment or Rezone would be required to implement the proposed project.

## 2.2 Project Objectives

- Develop a geothermal power plant with minimal disturbance footprint and environmental impacts by siting the facility on an existing disturbed industrial site.
- Develop clean, renewable geothermal energy in the Heber Geothermal Zone pursuant to the Imperial County General Plan.
- Utilize a location that is in close proximity to existing energy generation facilities and electrical transmission system.
- Develop supporting renewable energy solar PV facilities to support the geothermal power plant operations.
- Use proven and established PV technology that is efficient and requires low maintenance.
- Provide renewable baseload energy and capacity to assist the State of California with meeting the objectives of Senate Bill 100 (100% Clean Energy Act of 2018) and the State's Renewables Portfolio Standard program.
- Minimize and mitigate any potential impact to sensitive environmental resources within the project area.

## 2.3 Project Facilities

### 2.3.1 Dogwood Geothermal Energy Project (CUP #23-0020)

The Dogwood Geothermal Energy Project includes a 25 net MW geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 MW solar facility, and medium voltage distribution cable from the proposed solar facility to the geothermal plant. The medium voltage distribution cable would be co-located along an existing above ground pipeline for the majority of its length. Co-location with the existing and proposed above ground pipeline would occur west of Dogwood Road where the existing pipeline is present, and a short span of new pipeline is proposed (discussed under Section 2.3.1.6). The medium voltage cable would connect from the XMD and Switch area within the solar site proposed east of Dogwood Road via a trench (which would be re-covered) until it joins with the proposed segment of new pipeline immediately west of Dogwood Road (which in turn will connect to the existing pipeline in which it would then be co-located). These project components are described in detail below and shown in Figure 2-4.

#### 2.3.1.1 ORMAT Energy Converter (Geothermal Energy Production Unit)

The proposed ORMAT Energy Converter (OEC) unit (Figure 2-5) would be a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. As shown in Figure 2-6, the OEC system consists of a generator, turbines, a vaporizer, air cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).

#### 2.3.1.2 Isopentane Storage Tanks

Two double-walled 20,000-gallon above-ground storage tanks (ABST) would be installed for motive fluid (isopentane) storage. Numerous safety and fire prevention measures would be installed on/near the ABST, including the following:

- Concrete foundations with blast walls separating the tank from the OEC.
- An automated water suppression system.
- Concrete containment areas.
- Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
- A gas detector, which will immediately detect any isopentane leak and notify the control room (manned 24/7).

#### 2.3.1.3 Cooling Tower

A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid. No water is necessary.

Figure 2-4. Dogwood Geothermal Energy Project Components



**Figure 2-5. Example Pictures of Proposed ORMAT Energy Converters (OECs)**



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#### 2.3.1.4 Dogwood Substation

A new substation will be required to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. Pending Imperial Irrigation District (IID) review, no upgrades to off-site transmission facilities are necessary. If upgrades to off-site facilities are later deemed necessary through an IID transmission study, recommendations could include protection upgrades and metering replacements at existing IID substations and/or upgrades to telecommunications, distribution lines, and transmission lines. Such upgrades would use existing infrastructure, easements, right-of-way, and corridors to the extent practicable.

The new Dogwood substation will connect directly to the existing point of interconnection with the IID controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection. A main control building would contain instrumentation and telecommunications equipment located within the greater HGEC.

The substation footprint would measure up to 145 feet by 66 feet and would be surrounded by an eight-foot-tall chain link fence with vehicle and personnel access gates. The surface of the substation would be covered by gravel and the substation equipment would be placed onto concrete foundations.

#### 2.3.1.5 Parasitic Solar Energy Facility

A 7 MW solar facility would provide supplemental/auxiliary energy to the proposed Dogwood geothermal plant. The solar facility is classified as *behind-the-meter* and would provide supplemental energy directly to the Dogwood geothermal unit (OEC). This energy would not enter the transmission grid. The solar facility will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy and to allow more geothermal energy to enter the grid.

#### 2.3.1.6 Medium Voltage Distribution Line

As shown in Figure 2-4, the energy generated by the proposed Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the Heber 2 solar energy facility site, adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays.

### 2.3.2 Heber 2 Solar Energy Project (CUP #23-0021)

#### 2.3.2.1 Parasitic Solar Energy Facility

A 15 MW solar facility would provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant (Figure 2-7). The solar facility is classified as *behind-the-meter* and would provide supplemental energy directly to the Heber 2 geothermal unit (OEC). This energy would not enter the transmission grid. The solar facility will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy and to allow more geothermal energy to enter the grid.



Figure 2-7. Heber 2 Solar Energy Project Components



The energy generated by the solar facility would be collected by an on-site XMD and switch and transmitted along via a medium voltage distribution cable (as described above in Section 2.3.1.6 and shown in Figure 2-4).

### 2.3.3 HFC Geothermal Production Wells and Pipeline Project (CUP #23-0022)

#### 2.3.3.1 Geothermal Production and Injection Wells

Production wells flow geothermal fluid to the surface, and injection wells are used to inject geothermal fluid from the energy plant back into the geothermal reservoir. Injection ensures the longevity and renewability of the geothermal resource. The Applicant proposes to develop three geothermal production wells, all within the Imperial County Geothermal Overlay Zone. The wells will be sited at three locations within APNs 059-020-001 and 054-250-017. Three well locations are shown in Figure 2-8, however, these are identified as preliminary locations and may be ultimately located within APNs 059-020-001 and 054-250-017. The injection well would be installed within the HGEC, immediately next to the proposed Dogwood OEC.

During well installation, each well pad would accommodate a drilling rig, support equipment, portable bathroom, baker tanks, and project vehicles. Each well pad would be prepared to create a level pad for the drill rig and a graded surface for the support equipment. A typical well pad is shown in Figure 2-9. Stormwater runoff from undisturbed areas around the constructed drill pads would be directed into ditches surrounding the drill pad and back onto undisturbed ground, consistent with BMPs for storm water identified in “Drilling and Operating Geothermal Wells in California” (CalGem PR7S). The site would be graded to prevent fugitive stormwater runoff off the well pad and has been designed to withstand a 100-year storm event.

Each well would be drilled with a rotary drill rig similar to those used to drill oil and gas wells. The production wells would each be drilled and cased to a design depth of approximately 5,000 feet. A typical profile of a geothermal production well is shown in Figure 2-10. Following the cementing of the surface casing, blowout prevention equipment (BOPE) would be installed. During drilling operations, a minimum of 10,000 gallons of cool water and 12,000 pounds of inert, non-toxic barite (barium sulfate) would be stored at each well pad (as appropriate for the type of material) for use in preventing uncontrolled well flow, as necessary.

Once the well is completed, a well head will be installed and connected to the pipeline network to convey geothermal fluids. A motor control building would be installed next to the well head to provide system controls, sensors, and treatment systems. During normal well field operations, total geothermal fluid production rates are expected to be approximately 15,150 gallons per minute (gpm) at 280°F. Injection would occur at the same approximate levels (i.e., 15,150 gpm) but at lower temperatures of near 170°F.

#### 2.3.3.2 Geothermal Fluid Pipeline

Approximately 4,500 feet (0.85 miles) of geothermal fluid production pipeline are proposed for installation on APN 059-020-001. This new segment of pipeline will connect to an existing pipeline collection point that will deliver the geothermal brine to the proposed Dogwood OEC. As shown in Figure 2-8, the well on APN 054-250-017 would connect to the existing pipeline segment adjacent to the proposed well pad site. A typical well pad is shown in Figure 2-9. The pipeline would be used to transport geothermal fluid from the production wells to the power plants.

Construction of the pipeline network would begin by vertically auguring nominal 24-inch diameter holes into the ground about three to five feet deep at approximately 30-foot intervals along the pipeline route. Two holes for pipeline supports would be drilled at each anchor point. Dirt removed from the holes would be cast on the ground adjacent to each hole. The steel pipe “sleeper” would be placed in the hole and concrete poured to fill the hole slightly above the ground surface.

After the anchor points are installed, approximately 30-foot-long steel pipe sections would be delivered and placed along the pipeline construction corridor. A small crane would lift the pipe sections onto the pipe supports and temporary pipe jacks so that they could be welded together into a solid pipeline.

Once welded and the welds tested, the pipe would be jacketed with insulation and an aluminum sheath (appropriately colored, likely covert green, to blend with the area).

When completed, the top of the new geothermal pipelines would average three to four feet above the ground surface to accommodate terrain undulations and to facilitate movement of wildlife. Electrical power and instrumentation cables for the wells would then either be installed in steel conduit constructed along the pipe or hung by cable from pipe along the pipeline route.

Figure 2-8. HFC Geothermal Wells and Pipeline Project Components



Figure 2-9. Typical Well Pad Layout to Drill a Geothermal Production Well

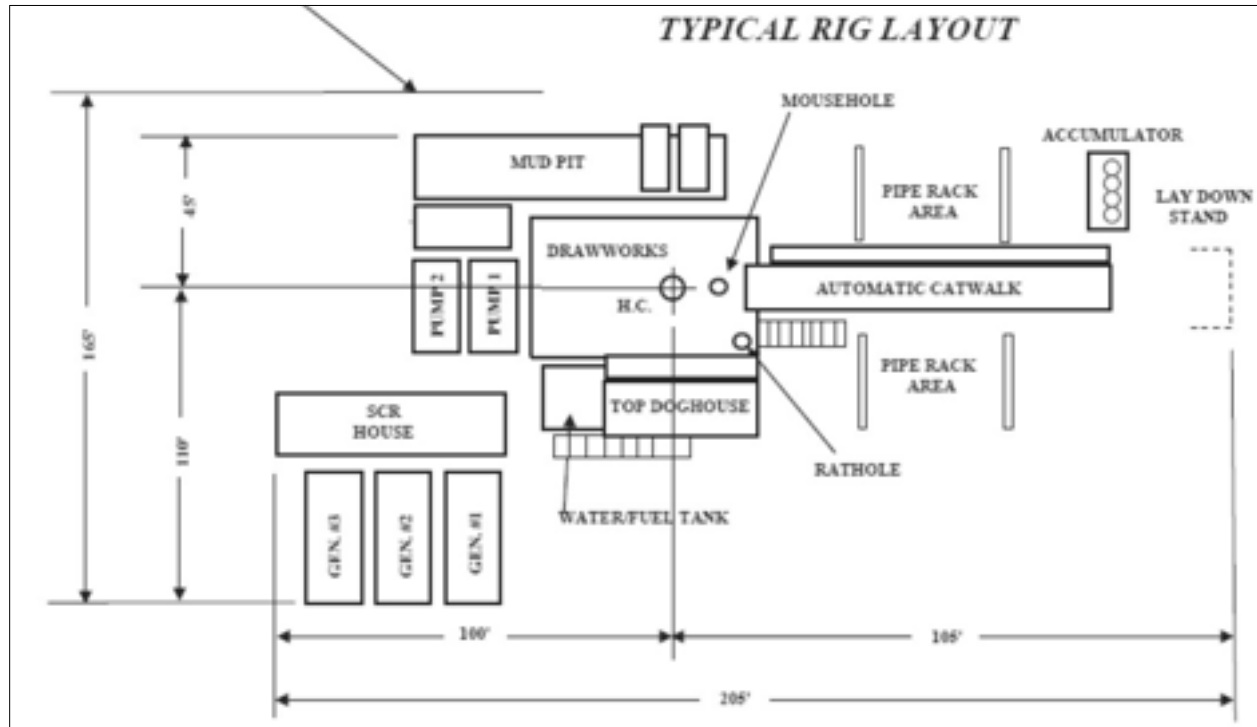
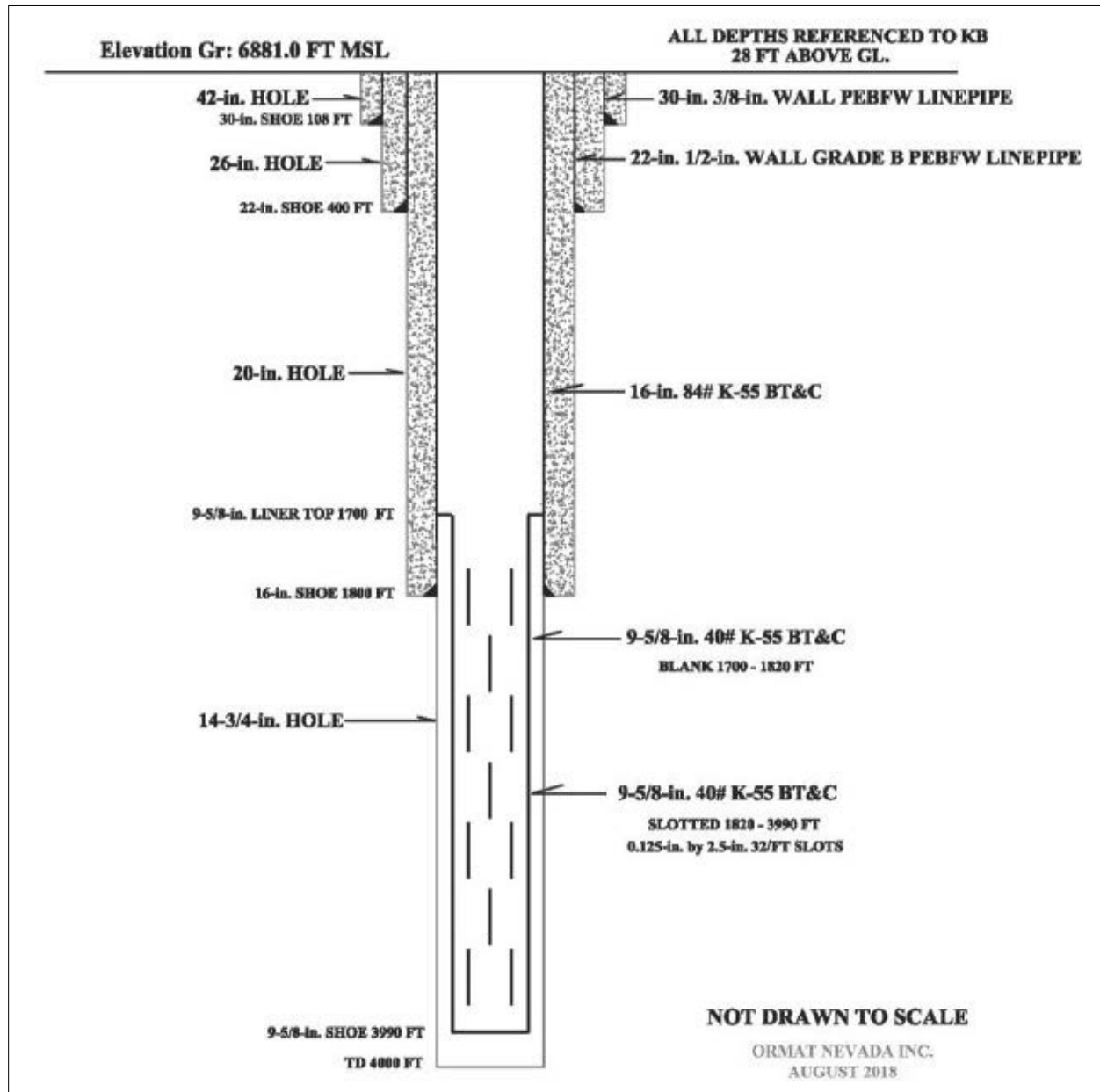


Figure 2-10. Profile of a Geothermal Production Well





## 2.4 Site Construction

### 2.4.1 Site Preparation

The Dogwood geothermal plant would be developed within the existing HGEC and would not require significant site preparation. The sites for the solar facilities and geothermal production wells are presently used for agricultural cultivation and would require earthwork.

For the well pads, a 200-foot by 200-foot (40,000 square feet) area would be cleared and a chain-link security fence would be installed around each well pad construction site. Site preparation activities for the well pads would include clearing, earthwork, drainage and grading necessary for safe operations and for fire prevention. Clearing would include removal of organic material, stumps, brush and slash, which would either be removed and taken to an appropriate dump site or left onsite. Topsoil would be stripped (typically to the rooting depth) and salvaged during the construction of all pads, as feasible. Salvaged topsoil (and cleared organic material, stumps, brush and slash, if saved) would be stockpiled on the pads for use during final reclamation of disturbed areas. During site preparation, topsoil would only be removed where necessary and the soil would be amended as needed for stability.

To ensure the proposed facilities are situated on safe and stable surfaces, minor excavation and compaction activities would be performed. The top 18 inches of the project site's exposed soil would be removed, extending approximately five feet beyond the proposed facilities. A minimum of 18 inches of Caltrans Class 2 aggregate based will be placed and compacted to the appropriate density (ASTM D1557). On-site soil that has been piled during excavation will be used as backfill material, as necessary. Only soil that is free of debris and deleterious matter would be used as backfill material. The proposed facilities would be placed on shallow-spread footers and wall footers to support the structures. All site preparation and fill placement activities will be monitored by a qualified geotechnical engineer to detect undesirable materials and/or site conditions that may arise during site preparation.

### 2.4.2 Construction Schedule

Construction of the proposed facilities is anticipated to take up to 35 months, beginning in the first quarter of 2025. Facility construction would include site preparation activities, but no demolition of existing structures/buildings will occur. Table 2-2 provides a breakdown of the proposed construction schedule by phase and duration. Some construction activities will occur concurrently as facilities are installed simultaneously, as noted by the Phase Duration column not summing Activity Durations perfectly.

**Table 2-2. Project Construction Process/Phasing**

Construction Phase	Construction Activity	Activity Duration	Phase Duration
Site Preparation	Construction Kick-off/Staging	1 week	2 months
	Demolition/Site Clearing	1 week	
	Site Preparation/Rough Grading	2 weeks	
	Fine/Pad Grading, Excavation for Underground Conduit/Utilities, Stormwater	1 month	
Project Construction	Well Pad Construction	3 months	16 months
	Parasitic Solar Construction	6 months	
	Medium Voltage Distribution Cable	4 months	
	OEC Installation	6 months	
	Landscaping, Lighting, Architectural Finishes	1 month	
Well Drilling & Pipeline Interconnection	Well Drilling and Completion	4 months	12 months
	Flow Testing	4 months	
	Pipeline Install and Interconnection	4 months	
Substation Development & Interconnection	Project Substation Development	3 months	4 months
	Interconnection with grid	2 weeks	
	Testing	2 weeks	
Testing & Operational	Testing Phase	2 weeks	1 month
	All Facilities Operational	2 weeks	

### 2.4.3 Construction Equipment

Construction of the proposed facilities would require heavy and light duty equipment, as well as hand tools. Table 2-3 provides a breakdown of the construction equipment to be used in each phase of project development, by estimated quantity and usage (days; hours per day). Additionally, Table 2-4 below provides estimates for the number of daily vehicle trips the construction phase will require, by number of trips and estimated trip length(s).



Construction activities will be limited to 7:00am through 7:00pm. Construction noise from project development will not exceed the County threshold of 75 decibels at any time of day (Imperial County Codified Ordinances § 90702.00 – Sound Level Limits).

**Table 2-3. Project Construction Phases and Equipment**

Construction Phase	Equipment	Quantity	Engine Hp	No. Days Used	No. Hours Operated Per Day
Site Preparation (Plant Site and Solar Fields) (2 months)	Heavy Duty Trucks	3	402	30	5
	Excavator	1	97	30	8
	Roller	2	200	30	8
	Light-Duty Truck	8	350	30	4
Project Construction (16 months)	Aerial Man Lifts	8	63	160	6
	Excavator	1	97	40	8
	Crane	2	231	160	6
	Forklift	1	89	40	8
	Forklift	6	89	245	8
	Generator Set	1	84	320	8
	Grader	1	187	30	8
	Heavy Duty Trucks	2	402	90	8
	Rubber Tired Loader	1	203	30	8
	Backhoe	1	97	30	8
	Welders	15	46	245	6
	Light Duty Truck	1	350	40	4
	Light Duty Truck	15	350	245	4
Well Drilling and Pipe Interconnection (12 months)	Light Tower	2	27	90	12
	Drill Rug	1	500	180	24
	Rig Mud Pump	1	500	180	24
	Rig Generator	1	415	180	24
	Heavy Duty Trucks (Mob/Demobilization)	8	450	24	8
	Crane	2	231	24	5
	Backhoe	1	97	24	6
	Forklift	1	89	24	6
	Vacuum Truck	1	385	24	10
	Concrete Truck	1	428	3	4
	Concrete Pumper	1	100	3	4
	Light Duty Truck	4	350	24	4

Construction Phase	Equipment	Quantity	Engine Hp	No. Days Used	No. Hours Operated Per Day
Substation Development and Interconnection (4 months)	Crane	1	231	80	8
	Drill/Bore Rig	1	221	80	8
	Aerial Lift	2	63	80	8
	Heavy Duty Trucks (Delivery)	2	402	20	4
	Backhoe	1	97	14	8
	Forklift	1	89	80	8
	Ditch Digger	1	13	20	8
	Generator Set	2	84	80	8
	Light Duty Truck	5	350	80	4
Testing (1 month)	Generator	1	671	30	24
	Light Tower (27 hp)	2	27	30	12
	Light Tower (9 hp)	2	9	30	12
	Pump (115 hp)	1	115	30	24
	Pump (415 hp)	1	415	30	24
	Light Duty Truck	1	350	30	4

**Table 2-4. Construction Vehicle Trips**

Construction Phase	Trip Type	Number of Trips Per Day	Trip Length (miles) <sup>2</sup>
Site Preparation (Plant Site and Solar Fields) (2 months)	Workers <sup>1</sup>	46	10.2
	Vendors	10	11.9
	Haul	8	20
Project Construction (16 months)	Workers <sup>1</sup>	46	10.2
	Vendors	40	225
	Haul	2	20
Well Drilling and Pipe Interconnection (12 months)	Workers <sup>1</sup>	46	10.2
	Vendors	10	11.9
	Haul	0	20
Substation Development and Interconnection (4 months)	Workers <sup>1</sup>	46	10.2
	Vendors	10	11.9
	Haul	0	20
Testing (1 month)	Workers <sup>1</sup>	46	10.2
	Vendors	4	11.9
	Haul	0	20

Notes:

- 1 The daily trip rates used for determining the projects' construction worker trip generation are based on the 10th Edition of ITE Trip Generation manual for General Light Industrial workers. A maximum of 15 workers are assumed for this conservative estimate.
- 2 Trip lengths consist of default CalEEMod values with exception of vendors for delivery of project equipment during construction, with deliveries of solar panels, geothermal equipment, etc. assumed to originate at Port of Long Beach, approximately 225 miles from project site.

## 2.4.4 Construction Personnel and Equipment

Project construction would likely require a maximum of 35 workers, with an average of 10 to 20 workers after grading and excavation. After construction is complete, the facilities would be staffed and maintained by 1-2 onsite employees.

## 2.4.5 Water Use

A Water Quality Management Plan (WQMP) was prepared for both the construction and operations phases of the project. The WQMP includes numerous "good housekeeping" and preventative maintenance, employee training, safe handling/storage, and spill response measures to prevent and minimize any unintended releases.

Water required for facility construction activities, including grading and dust control, will be obtained from the Applicant's existing contract with IID. Up to 5,000 gallons per day (gpd) of water will be required for the first 2-4 months of development of the facility. Approximately 2,000 gpd will be consumed during the remaining development schedule of approximately 12-18 months. Thus, approximately 1.1 million gallons of water (10.1 acre-feet) will be used on-site during construction. Once operating, up to approximately 325 gpd (0.36 acre-feet per year) of non-potable water will be required and provided by the Applicant's existing IID contract/allocation. Water required for well drilling would typically average 50,000 gpd. Water necessary for these activities would be obtained from local irrigation canals in conformance with IID requirements. Alternatively, a temporary pipeline from the respective irrigation canal could be used for water delivery to well sites. Any temporary pipeline would be laid on the surface immediately adjacent to the access road. The project OEC is air cooled and will not require additional water resources. The project will not require additional water from the IID for operations and will be covered under the existing contract.

## 2.5 Operations and Maintenance

Once the project is complete, the facilities will be staffed with 1-2 full-time employees. The project would require routine maintenance and unscheduled maintenance as needed. The solar facilities will be monitored remotely with visitation on an as needed basis and security personnel will perform periodic site visits.

## 2.6 Restoration of the Project Site

At the end of the permitted or useful life of the energy facilities, the Applicant will prepare a Site Reclamation and Restoration Plan that establishes the plan and protocol for dismantling, removing, abandoning, transporting, and disposing of the energy facilities, as well as the plan for performing site restoration activities after the facilities are removed. Further, within three years of the cessation of operations, all plant facilities will be dismantled, all wells capped or abandoned as required by the County and CalGEM and the land involved be made compatible with the surrounding uses or as requested by the County Planning Director. A Bond, Letter of Credit, or other forms of security acceptable to Imperial County in the amount of \$1,000,000 in addition to that of the amount set by

CalGEM, will be filed with the County that guarantees restoration of the land to its condition prior to the permitted power plant, solar facility, well pad and brine pipeline development.

The general objective of the final reclamation phase is to return the site as close as possible to the conditions prior to geothermal development. A Preliminary Reclamation Plan and Cost Estimate was provided by the Applicant to the County to confirm feasibility of reclamation. Reclamation activities would be planned and conducted in accordance with County requirements.

## 2.7 Applicant Proposed Measures and Best Management Practices

All project and contractor personnel will be informed of the Applicant's policy regarding environmental protection, safety plans, and emergency response protocols. Collectively, these measures minimize unintended impacts and events as result of facility construction and operation.

### 2.7.1 Surface and Ground Water Quality

- A Water Quality Management Plan (WQMP) was prepared for both the construction and operations phases of the Project (Appendix A). The WQMP includes numerous "good housekeeping" and preventative maintenance, employee training, safe handling/storage, and spill response measures to prevent and minimize any unintended releases.
- The site will be designed and prepared to provide adequate stormwater conveyance and/or infiltration.
- Any spills or unintended releases of chemicals used during Project construction and/or operation will be cleaned up with the appropriate materials (i.e., absorbent pads, foams/gels) and the affected area remediated to prevent contact with groundwater resources.
- No vehicle fueling or maintenance will take place on exposed soil.

### 2.7.2 Wildlife

- Speed limits of 5 mph will be observed on the site in order to minimize dust, avoid collision, and incidental mortality of local wildlife.

### 2.7.3 Vegetation

- Vegetation control, including invasive species eradication, will be implemented to prevent growth under or near the proposed facilities.

### 2.7.4 Air Quality

- The project will adhere to the Imperial County Air Pollution Control District's (ICAPCD) Regulation VIII, Fugitive Dust Rules, which are designed to mitigate PM<sub>10</sub> emissions during construction.
- The Applicants shall submit a Construction Dust Control Plan and notify the ICAPCD 10 days prior to the start of any construction activities.
- Any equipment breakdown resulting in air emissions shall be reported to ICAPCD and promptly corrected (within 24 hours when possible).

- To minimize unnecessary emissions, Project equipment and worker vehicles shall be turned off when not in use and not left idling.
- Water shall be applied to the development site and during preparation and construction to control fugitive dust.
- Earth moving work shall be completed in phases (as necessary) to minimize the amount of disturbed area at one time.
- Construction vehicles and heavy equipment that use non-surfaced facility roads and areas will be restricted to 5 mph to control fugitive dust.
- During windy conditions, barriers shall be constructed and/or additional watering will occur to minimize fugitive dust.
- Vehicle access shall be restricted to the disturbance area via signage and/or fencing.
- Equipment shall be operated according to best practices and maintained according to design specifications.
- Construction equipment shall be equipped with an engine designation of EPA Tier 3 (Tier 3) if commercially available and feasible. If a Tier 3 engine is not certified for a particular piece of equipment or not commercially available, then the equipment shall be either equipped with a Tier 2 engine or equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels. Prior to the issuance of a grading permit, ORMAT will submit a list of all construction equipment, including off road equipment, by make, model, year, horsepower, expected/actual hours of use, and EPA to the County Planning and Development Services Department and ICAPCD.
- The project shall implement the following measures as part of its construction Best Management Practices (BMPs): providing Valley Fever awareness training for workers; providing respirators to workers when requested, including the provision of necessary training; use of closed-cab earth-moving vehicles equipped with HEPA-filtered air systems; employee testing for Valley Fever as needed; and conducting earth-moving activities downwind of workers when possible.

### 2.7.5 Cultural Resources

- The project site is entirely disturbed from cultivation and the probability of encountering an unanticipated cultural resource is low. As a safeguard, project construction personnel will monitor areas during surface disturbing activities. In the event any potential cultural or archaeological resources (e.g., bones, ceramics) are discovered, all construction affecting the discovery site will be suspended immediately until a qualified archaeologist has reviewed the findings. An Unanticipated Discoveries Plan will be prepared prior to resuming construction.

### 2.7.6 Waste Management

- Workers will be required to properly dispose of all refuse and trash to prevent any litter on the Project site.
- During construction, portable chemical sanitary facilities will be used by all construction personnel. These facilities will be serviced by a local contractor.

- All construction wastes, liquid and solid, will be disposed of in compliance with all appropriate local, state, and federal disposal regulations.
- Solid wastes will be disposed of in an approved solid waste disposal site in accordance with Imperial County Environmental Health Department requirements. Waste will be routinely collected and disposed of at an authorized landfill by a licensed disposal contractor.

### 2.7.7 Fire Prevention

An Emergency Response Plan covering possible emergencies (e.g. blow-outs, major fluid spills, impacts due to earthquakes, and other emergencies) shall be maintained. At least one Emergency Coordinator, responsible for coordinating all emergency response measures, will be on call and able to quickly reach the project at all times. The Emergency Coordinator shall be thoroughly familiar with all aspects of the Emergency Response Plan and have the authority to commit the resources needed to carry out the contingency plan. Adequate personnel and equipment shall be available to respond to emergencies and to ensure compliance with CUP conditions, including appropriate first aid employee training and other provisions during Project construction and operation. All construction equipment will be equipped with exhaust spark arresters.

In addition, Safety Data Sheets for all known chemicals of concern will be maintained and available to workers and first responders. Personnel will not be allowed to smoke outside of designated areas and a list of emergency phone numbers will be available onsite. In addition to the above-described actions, the following will be enforced;

- Adequate firefighting equipment (i.e., a shovel, a Pulaski, standard fire extinguisher[s], and an ample water supply) will be kept readily available at each active construction site.
- Vehicle catalytic converters (on vehicles that enter and leave the construction site on a regular basis) will be inspected often and cleaned of all flammable debris.
- All cutting/welding torch use, electric-arc welding, and grinding operations will be conducted in an area free from vegetation. An ample water supply and shovel will be on hand to extinguish any fires created from sparks. At least one person in addition to the cutter/welder/grinder will be at the work site to promptly detect fires created by sparks.
- The isopentane tanks will be equipped with an automated water suppression system.
- The isopentane tanks will include a concrete foundation and additional concrete containment areas.
- The isopentane tanks will be equipped with two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system and the horn and strobe system.
- The isopentane tanks will be equipped with a gas detector, which will immediately detect any isopentane leak and notify the control room (manned by 24/7).
- A survey and analysis of the proposed fire suppression and detection equipment will be performed by a certified fire protection engineer to evaluate the proposed fire response system's performance. An evaluation of the proposed fire suppression and detection equipment in conjunction with existing equipment will also occur. A full report of findings will be provided to Imperial County Fire Department for review.

- An approved automatic fire detection system shall be installed as per the California Fire Code as adopted by the Imperial County Code. All fire detection systems shall be installed and maintained to the current fire code and regulations adopted by Imperial County.
- Fire Department access roads and gates will be in accordance with the current fire code adopted by Imperial County and the facility will maintain a Knox Box or a similar, Department-approved device for Site access.

### 2.7.8 Noise

- Diesel equipment used for drilling within 1,000 feet of any residence shall have hospital-type mufflers. Well venting and testing at these wells shall be accompanied by the use of an effective muffling device or “silencer.”

### 2.7.9 Geotechnical and Geologic Hazards

- A formal geotechnical investigation of the site’s soil characteristics, seismic conditions, stormwater infiltration, site stability, and potential for liquefaction will be developed.

### 2.7.10 Public Health and Safety

- The project site is fenced to prevent unauthorized people from accessing and tampering with the geothermal facilities, and to prevent wildlife from entering the facility.
- Signage, such as “No Trespassing” warnings, will continue to be posted at the site to provide notice to unauthorized people to keep out.
- A Hazardous Materials Business Plan (HMBP) will be prepared and submitted to the California Department of Toxic Substances Control (CDTSC), as the Certified Unified Program Agency (CUPA) for Imperial County.
- The Applicants will designate an employee to serve as the on-call Emergency Coordinator who fully comprehends the ERP and would be prepared to enact the ERP in the event of an emergency.
- Minor leaks or spills of fluids from construction equipment will be quickly contained and cleaned up.
- All hazardous materials will be used, transported, and disposed of in accordance with applicable safe handling and disposal regulations.

### 2.7.11 Traffic and Transportation

- Project personnel will coordinate that movement of any required oversized load on Imperial County roads with the Imperial County Department of Public Works (ICDPW) and/or on State highways with the California Department of Transportation (Caltrans) and the El Centro California Highway Patrol office. Transportation of oversized equipment will be minimized to the greatest extent feasible. Oversized equipment and/or large vehicles which impose greater than legal loads on riding surfaces, including bridges, shall require a transportation permit.
- The project shall consider traffic safety in transporting equipment and materials to the permitted facilities to include temporary signs warning motorists on adjacent roadways and

flagmen shall be used when equipment is being brought to and from the plant and wellfield sites.

- The project shall coordinate with DPW for any requested dedication of rights-of-way needed for Dogwood Road for the consideration of existing and any future road needs.
- The project shall file for an encroachment permit for any work or proposed work in the affected County or Caltrans Road rights-of-way and for any and all new, altered or unauthorized existing driveway(s) to access the lot or lots and for any proposed road crossings.

## 2.8 Required Project Approvals

### 2.8.1 Imperial County

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

1. **Approval of CUPs.** Implementation of the project would require the approval of CUPs by the County to allow for the construction and operation of the proposed facilities. The following CUPs are under consideration for approval as evaluated in this EIR:
  - CUP 23-0020 (Dogwood Geothermal Plant and Solar Energy Facility)
  - CUP 23-0021 (Heber 2 Solar Energy Facility)
  - CUP 23-0022 (HFC Geothermal Wells and Pipeline)

The project parcels are currently zoned as A-2-G-SPA and A-2-G-U.

Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone:

*n) Oil, gas and geothermal exploration meeting requirements specified in Division 17*

*s) Solar energy extraction generation provided that is for on-site consumption only*

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:

*y) Electrical generation plants (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*

*z) Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*

*bb) Facilities for the transmission of electrical energy (100-200 kv)*

*ii) Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*

*rr) Major Geothermal projects per Division 17*

*ww) Resource extraction and energy development as per Division 17*

*aaa) Solar energy electrical generator*

2. **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)

## 2.8.2 Discretionary Actions and Approvals by Other Agencies

Responsible Agencies are those agencies that have discretionary approval over one or more actions involved with development of the project. Trustee Agencies are state agencies that have discretionary approval or jurisdiction by law over natural resources affected by a project. These agencies may include, but are not limited to the following:

- California RWQCB – Notice of Intent for General Construction Permit, CWA 401 Water Quality Certification
- ICAPCD – Fugitive Dust Control Plan, Rule 801 Compliance
- CDFW (Trustee Agency) – ESA Compliance, Section 1600 Streambed Alteration Agreement
- USFWS – ESA Compliance
- USACE – Section 404 of the CWA Permit

## 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 3.17 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. Existing environmental conditions are based on the time at which the NOP was published on January 19, 2024. 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, as well as potential sensitive receptors in the viewshed of the proposed project, and relevant state and local plans and policies regarding the protection of scenic resources. Effects to the existing visual character of the project area as a result of project-related facilities are considered and mitigation is proposed based on the anticipated level of significance. The information provided in this section is summarized from the *Visual Resources Baseline & Sensitivity Report* prepared by Catalyst Environmental Solutions and the *Glint and Glare Assessment* prepared by SWCA Environmental Consultants. These reports are included as Appendix B and C of this EIR, respectively.

### 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. Looking south from the Project site there is a partial view of the Sierra de Los Cucapah Mountain range. The Cucapah mountains add minimal scenic value to the area and run south to Mexico. Across the international border located approximately 12 miles southwest of the Project, Mount Signal is visible from the entire Imperial Valley.

#### Project Site

The proposed facilities would be located on APN 054-250-31; APN 059-020-001; APN 054-250-017, near the existing Heber Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA. The HGEC is comprised of three stand-alone geothermal power plants: Heber 2, Heber South, and Goulds 2, and is completely devoted to geothermal energy generation. All proposed facilities are located within the Imperial County Geothermal Overlay Zone that allows for Major Geothermal Projects to be permitted via a Conditional Use Permit (CUP) process. Surrounding land uses in the project vicinity are primarily for industrial facilities, energy facilities, and agricultural cultivation. Solar energy facilities and agricultural cultivation are directly west; a construction/aggregates company is adjacent to the south; agricultural operations are present to the north and east; and, geothermal well pads and pipelines are present throughout the local vicinity. Imperial Irrigation District (IID) irrigation canals are also present throughout the project vicinity.

Interstate 8 (I-8), located approximately 4.5 miles directly north, provides primary highway access to the HGEC. Dogwood Road stems off of I-8 and provides immediate access to the project site. From the south, Willoughby Road runs west-east approximately 1,700 feet from the site and connects to Dogwood Road, providing immediate site access. Significant transmission lines and towers are present along Dogwood Road.

The Dogwood Project would be located within the existing HGEC in an area currently used for materials storage and is completely devoid of any vegetation or surface water features. The proposed solar facility sites are presently used for agriculture cultivation. The proposed well pads would also be located in areas presently used for agriculture. The solar facility sites would be located immediately southeast of the HGEC. The new geothermal production wells and associated pipelines will be split between two parcels. Two of these wells would be located within the solar energy sites with a small segment of pipeline developed within the solar sites connecting to the existing pipeline network to the west. A third well would be installed adjacent to an existing geothermal well approximately 1,500 feet east of the HGEC (APN 054-250-017).

The area is characteristically flat with minimal elevation changes throughout the project area. The primary contributor to the otherwise flat project area would be the New River which runs to the south along the project area. Views in this area are characterized by sparse development and agricultural land with minimal topographic features. Residences, transmission lines, sparse vegetation such as trees, and transportation corridors such as roads are discernable throughout the project area.

### 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 (Imperial County 2021).

### Scenic Highways

According to the Conservation and Open Space Element, no State scenic highways have been designated in Imperial County (Imperial County 2016). According to the Caltrans California Scenic Highway Mapping System, 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 (Caltrans 2018). The nearest road segment considered eligible for a State scenic highway designation is the segment of the Sunset Cliffs Boulevard/State Route 98 west of Ocotillo. The project site is located approximately 29 miles east of Ocotillo; therefore, it would not be visible from the project site.

### Light, Glare, and Glint

Glare is considered a continuous source of brightness, relative to diffused light, whereas glint is a direct redirection of the sun beam in the surface of a PV solar module. Glint is highly directional, since its origin is purely reflective, whereas glare is the reflection of diffuse irradiance; it is not a direct reflection of the sun.

The proposed project is located in a rural undeveloped area of Imperial County. 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. Nighttime light which is currently emitted from the existing HGEC facility.

## Visual Character

Field surveys were conducted on March 9, 2023, to locate and document visually sensitive areas. During the survey, field staff photographed the existing conditions and visibility of the project area from various potential Key Observation Points (KOPs).

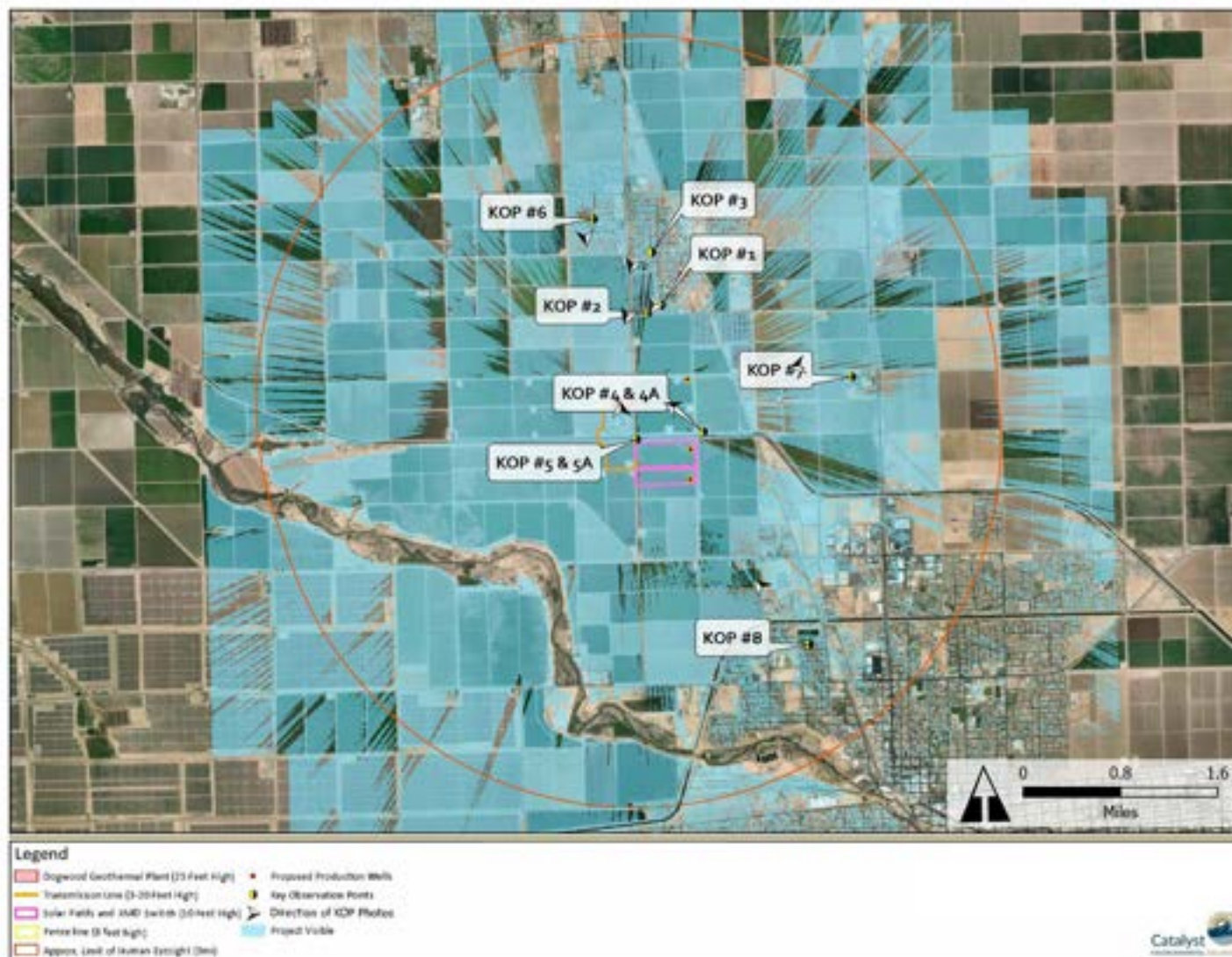
The assessment of existing visual conditions were made based on professional judgment that considered sensitive receptors and sensitive viewing areas in the project vicinity. A total of eight locations were identified as KOPs. Figure 3.2-1 depicts the photo-documented KOP and the direction to which the photographs were taken. The existing visual character of the project site is dominated by agricultural uses. Existing features within the project site and surrounding area contributing to the existing visual form are existing solar farms, local roads, and overhead utilities.

The viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Landscape elements are considered higher or lower in visual importance based on their proximity to the viewer, which contribute to a project area's overall viewshed. Generally, the closer a resource is to the viewer, the more dominant, and therefore visually important, it is to the viewer.

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Figure 3.2-1. KOPs and View Direction



Source: Appendix B of this EIR



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*KOP 1: View from Heber Elementary School*

KOP 1 is Heber Elementary School located at 1052 Heber Avenue, Heber, CA approximately 0.66 miles northeast of the project at the closest edge (Figure 3.2-2). The primary view is located on the corner of 14<sup>th</sup> Street and Heber Avenue, the major transportation corridor to Heber Elementary School, looking south/southwest down Heber Avenue. The view is representative of views from the nearest traffic and resident dense location with a view of the project. The view is characteristically residential with Heber Avenue serving as the main viewing corridor. Residential buildings obstruct the view of the existing HGEC. There is a mountain range present in the background but has low scenic quality, and views of Mount Signal are completely obstructed by residential buildings. Existing transmission lines are visible in the distance along the horizon and some vegetation provides screening of the project area.

*KOP 2: View from Closest Residence to the North*

Views from KOP 2 represent the closest residence to the north located at 20 East Fawcett Road approximately 0.5 miles from the project site (Figure 3.2-3). The project site as well as the existing HGEC are visible from this location. The existing view is characteristically flat in the foreground and middle ground, consisting primarily of tan and green agricultural land. Existing transmission lines heading southbound along Dogwood Road are present in front of the existing Heber 2 facility. The existing facility appears as dark low lying uniform squares and rectangles against the horizon. Sparse trees are present off to the west. Mount Signal is visible off to the west.

**Figure 3.2-2. KOP 1**



*Source: Appendix B of this EIR*

**Figure 3.2-3. KOP 2**



*Source: Appendix B of this EIR*

### *KOP 3: View from Heber Childrens Park*

KOP 3 is located at Heber Childrens Park, 39 Crane Lane, Heber, CA approximately 1 mile north/northeast of the project site (Figure 3.2-4). The area is characterized by a park with a primary-colored recreational structure, open space, and a comparatively medium density of trees. The area is also characterized by residential building structures, transparent fencing in the foreground, and solid white fencing in the background. Local transmission lines and streetlights are visible throughout the foreground. The view of the current project location or any of its associated facilities or transmission lines is completely obstructed by neighborhood residences and surrounding vegetation in the foreground.

### *KOP 4: View from Closest Residence to the South/Southeast*

KOP 4 is from the closest residence approximately 0.75 miles south/southeast of the project site located at 104 Jasper Road, Heber, CA (Figure 3.2-5). From the closest edge of KOP 4 looking to the west/northwest, the existing geothermal facilities and transmission lines area visible in background. The view from KOP 4 is characteristically flat with an agricultural field in the middle ground. In the foreground, vegetation, chain-link fencing, and transmission lines are present. These features provide a combined moderate obstruction of the existing power plant area.

### *KOP 4A: View from Closest Residence to the South/Southeast*

KOP 4A is from the closest residence approximately 0.25 miles south/southeast of the project site located at 104 Jasper Road, Heber, CA (Figure 3.2-6). The landscape is characteristically flat and agricultural with vertical distribution line poles and visually soft lines to connect them. An IID water canal is present in the immediate foreground. Beyond the canal, low-lying vegetation that are shades of tan and green, a vertical water pump, and existing transmission lines are present. In the background, Mount Signal is visible with sparse buildings and vegetative figures in front of it along the horizon.

### *KOP 5: View from Intersection of Dogwood Road and Willoughby Road*

KOP 5 is located at the intersection of Dogwood Road and Willoughby Road approximately 1,000 feet south of the Heber 2 facility (Figure 3.2-7). Looking toward the project site, medium density transmission lines and poles are present in the foreground, reducing in apparent size as they continue north along Dogwood Road. Additionally, an IID canal is present in the foreground with a bridge connecting both sides of Dogwood Road. Dense vegetative features in front of the project area provide screening from the road so that only the tops of the geothermal plants are visible.



**Figure 3.2-4. KOP 3**



*Source: Appendix B of this EIR*

**Figure 3.2-5. KOP 4**



*Source: Appendix B of this EIR*

**Figure 3.2-6. KOP 4a**



*Source: Appendix B of this EIR*

**Figure 3.2-7. KOP 5**



*Source: Appendix B of this EIR*

*KOP 5A: View from Intersection of Dogwood Road and Willoughby Road*

KOP 5A is located at the intersection of Dogwood Road and Willoughby Road and looks south toward the proposed solar facilities, directly across Willoughby Road (Figure 3.2-8). The area is characteristically flat agricultural land. There are limited features visible from KOP 5A with minimal transmission lines and no vegetation obstructing the view in the foreground aside from flat green/tan grassland. Existing transmission lines, sparse buildings and thin, dense, vegetation is visible approximately 1 mile away and further.

*KOP 6: View from Margarito “Tito” Huerta Jr. Park*

KOP 6 is located at the furthest edge of Margarito “Tito” Huerta Jr. Park at the intersection of West Hawk Street and Palm Avenue, approximately 1.25 miles north of the proposed geothermal facility (Figure 3.2-9). The area is characterized by dense residential buildings and some vegetative features with Palm Avenue serving as a viewing corridor to the project area. Transmission lines can be seen in the middle ground. The Heber 2 geothermal units can be seen in the background facing south down Palm Avenue. Residences and vegetation provide some screening of the existing geothermal units.

*KOP 7: View from Mountain View Cemetery*

KOP 7 is located at 895 Scaroni Road, Calexico, CA approximately 2.3 miles southeast of the project site (Figure 3.2-10). Looking northwest from the back of the cemetery, the tops of the Heber 1 site are visible however Heber 2 facilities are not visible from this KOP. The area is characterized by expansive and flat agricultural land present in the foreground. Some chain link fencing as well as northbound transmission lines are present. Existing structural features such as generation plants and buildings as well as sparse vegetative features such as trees are present along the horizon.

*KOP 8: View from Las Casitas Park*

KOP 8 is located at 600 JM Ostrey Street, Calexico, CA southeast of the project site (Figure 3.2-11). Facing northwest toward the project, the project area is not visible from the highest point in Las Casitas Park. The area is characterized by vegetative features and a soccer field with multiple goals throughout the foreground and middle ground. An earthen berm in the background provides a level visual barrier, completely obstructing the view of the project area. Vertical transmission poles and the tops of vegetative features are visible behind the berm providing additional screening of the project area.



**Figure 3.2-8. KOP 5a**



*Source: Appendix B of this EIR*

**Figure 3.2-9. KOP 6**



*Source: Appendix B of this EIR*



**Figure 3.2-10. KOP 7**



*Source: Appendix B of this EIR*

**Figure 3.2-11. KOP 8**



*Source: Appendix B of this EIR*

### 3.2.2 Regulatory Setting

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

#### State

##### *California Department of Transportation*

Caltrans manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to the scenic corridor.

#### Local

##### *Imperial County General Plan*

The Imperial County General Plan contains policies for the protection and conservation of scenic resources and open spaces within the County. These policies also provide guidance for the design of new development. The Conservation and Open Space Element of the General Plan provides specific goals and objectives for maintaining and protecting the aesthetic character of the region. Table 3.2-1 provides an analysis of the 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.

##### *Imperial County Land Use Ordinance, Title 9*

The County's Land Use Ordinance Code provides specific direction for lighting requirements.

#### **DIVISION 17: RENEWABLE ENERGY RESOURCES, SECTION 91702.00 – SPECIFIC STANDARDS FOR ALL RENEWABLE ENERGY PROJECTS**

- (R) Lights should be directed or shielded to confine direct rays to the project site and muted to the maximum extent consistent with safety and operational necessity.

**Table 3.2-1. Consistency with Applicable General Plan Conservation and Open Space Policies**

General Plan Policies	Consistency with General Plan	Analysis
<b>Goal 5:</b> The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.	Consistent	As described in Section 3.2.3, the proposed project would result in changes to the existing visual character of the project site. However, the proposed project would not result in a significant deterioration in the visual character of the project site or surrounding area from public viewpoints.
<b>Objective 5.1:</b> Encourage the conservation and enhancement of the natural beauty of the desert and mountain landscape.	Consistent	<p>As described in Section 3.2.3, The project's facilities are consistent in nature to the landscapes existing visual character. The development of the Dogwood Project will be built within and directly adjacent to ongoing operations at the HGEC. The combined solar facilities would be visible but would add an overall weak contrast to the existing character of the landscape. Views from most of the key KOPs used in the analysis of aesthetic impacts indicate weak to no contrast with the existing setting.</p> <p>The Imperial County General/Zoning Plan allows for Major Geothermal Projects on the project site and, taking into account the existing power plants, the proposed project would not substantially impact the visual character of the site or its surroundings.</p>

Source: County of Imperial 2016

### 3.2.3 Impacts and Mitigation Measures

#### Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to aesthetics are considered significant if any of the following occur:

- Have a substantial adverse effect on a scenic vista
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality

- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

## Methodology

The analysis prepared for this report relied on the *Visual Resources Baseline & Sensitivity Report* (Appendix B of this EIR) and the *Glint and Glare Analysis* (Appendix C of this EIR).

The methods used to determine the project site's existing conditions and the subsequent change with the implementation of the project was determined using aerial and ground level imagery in conjunction with aerial topography. Field surveys were conducted in March 2023 to locate and document visually sensitive areas. During the survey field staff photographed the existing conditions and visibility of the project area from various potential KOPs. The locations of the eight KOPs in relation to the project site are presented in Figure 3.2-1.

Three aspects of the project were considered for visual impact analysis performed in ESRI's ArcGIS Pro geospatial desktop tool; these include the proposed geothermal facility (approximately 25 feet tall) and the two solar facilities (approximately 10 feet tall, aggregated into one square). The blue area in Figure 3.2-1 represents visibility based on the topography of the area. This means the Dogwood solar arrays, Heber 2 solar arrays, Dogwood OEC, and distribution line are all visible from that location at 6 feet off ground surface (human height) with no natural existing topographical obstructions. The extent of the model extends to 3 miles which is the maximum distance of human sight.

The following steps were taken in analyzing visual impacts of the project:

1. Describe the existing visual setting, including any sensitive viewer groups (i.e., baseline conditions);
2. Identify key viewpoints for visual assessment;
3. Describe or depict the visual appearance of the project at the KOPs.
4. Assess the visual changes that would be introduced by the project and the viewer response based on defined attributes which are neither good nor bad. Change in visual character cannot be described as having good or bad attributes until compared with viewer responses to the change;
5. Determine the degree of visual impact;
6. Proposed methods to minimize adverse impacts

## 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 land (with exception of proposed facilities within the existing HGEC) 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. Therefore, impacts to a scenic vista are considered less than significant during construction.

Upon project operation, and with implementation of the proposed infrastructure, the overall visual character of the project site would change. However, given that there are no scenic resources or vistas within proximity to the project site, project operation would not have a substantial adverse effect on a scenic vista. Impacts are considered less than significant.

*Mitigation Measure(s)*

No mitigation measures are required.

***Impact 3.2-2 Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?***

The project site is not located within a state scenic highway corridor, nor are there any state scenic highways located in proximity to the project site (Caltrans 2018). The nearest road segment considered eligible for a State scenic highway designation is the segment of the Sunset Cliffs Boulevard/State Route 98 west of Ocotillo. The project site is located approximately 29 miles east of Ocotillo; therefore, it would not be visible from the project site. 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 project's facilities are consistent in nature to the landscape's existing visual character. The development of the Dogwood Project will be built within and directly adjacent to ongoing operations at the HGEC. The combined solar facilities would be visible but would add an overall weak contrast to the existing character of the landscape. Views from most of the key KOPs used in the analysis of aesthetic impacts indicate weak to no contrast with the existing setting.

During the construction phase, a crane may be visible to travelers on Dogwood Road or in the vicinity of the project site. This impact would not substantially degrade public views in the area, which already include energy facilities and transmission lines. Moreover, crane use is anticipated to be temporary (less than nine months) and would be removed from the project site after construction of the proposed facilities is complete; resulting in a less than significant impact.

The Imperial County General/Zoning Plan allows for Major Geothermal Projects on the project site and, taking into account the existing power plants, the proposed project would not substantially impact the visual character of the site or its surroundings. Therefore, impacts associated with degrading the existing visual character or quality of the project site are considered less than significant.

A discussion of the potential impacts of the project at KOP 1 through KOP 8 are discussed below:

**KOP 1: View from Heber Elementary School.** The north side of the Dogwood solar facility and the gen-tie lines would be detectable against the current landscape but contribute an overall weak to moderate level of contrast. From a level elevation, the Dogwood solar facility would appear as a generally dark uniform rectangle in the background of the KOP. Portions of the landscape obstructed by the Dogwood solar facility would be the bottom half of existing transmission lines, and the silhouettes of indistinguishable building structures in the background. The proposed medium voltage distribution line associated with the project would be co-located (attached via trays) with the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the Dogwood OEC. The proposed medium voltage distribution line would generally blend with existing linear features, such as transmission lines, in the project vicinity.

**KOP 2: View from Closest Residence to the North.** Approximately half of the Dogwood Project's northside and the combined solar facilities would be visible from KOP 2. The project would contribute an overall weak to moderate level of visual contrast against the existing view. The Dogwood Project would generally blend in shape, scale, and color with the existing Heber 2 facility and surrounding features. The combined solar facilities would be the most prominent portion of the project from KOP 2. The combined solar facilities would blend in against the background of dark space vegetative features and surrounding facilities as a dark metallic horizontal bar. The combined solar facilities would not obscure the mountain view. The view of Mount Signal would remain unobscured by the proposed project.

**KOP 3: View from Heber Childrens Park.** The view of the project site including its associated facilities or transmission lines would remain completely obstructed by existing neighborhood residencies and surrounding vegetation. Therefore, the proposed project would not contrast with the existing landscape of KOP 3.

**KOP 4: View from Closest Residence to the South/Southeast.** The overall contrast of the project on the surrounding landscape from KOP 4 would be weak. The Dogwood Project would only be partially visible from KOP 4. The visibility of the project area from KOP 4 is partially obstructed by vegetation in the foreground. The size and color of the Dogwood Project would be consistent with the existing facilities and would not deviate from the silhouette line of buildings to the north/northwest. The proposed medium voltage distribution line associated with the project would be co-located (attached via trays) with the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the Dogwood OEC. The proposed medium voltage distribution line would generally blend with existing linear features, such as transmission lines, in the project vicinity.

**KOP 4A: View from Closest Residence to the South/Southeast.** The proposed solar facilities would present a moderate to strong contrast to the existing landscape. The combined solar facilities would be prominent features and be visually bold against the overall landscape character visible from KOP 4A. The rectangular shape of solar panels would contribute a generally uniform and symmetrical rectangle form across the view of the foreground. Portions of the sparse building and vegetative features in the background of the landscape would be obstructed. The proposed medium voltage distribution line associated with the project would be co-located (attached via trays) with the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the Dogwood OEC. The proposed medium voltage distribution line would generally blend with existing linear features, such as transmission lines, in the project vicinity.



**KOP 5: View from Intersection of Dogwood Road and Willoughby Road.** The Dogwood Project would present a weak contrast to the existing landscape. The dense vegetative features in front of the Dogwood Project would provide screening so that only the rectangular tops of the facility would be visible. The Dogwood Project would obstruct the current view of the existing Heber 2 facility however it would only increase the relative size of the existing form at the top of the vegetation line. The project would assimilate color, line, and texture to the existing setting. The proposed medium voltage distribution line associated with the project would be co-located (attached via trays) with the existing and proposed pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the Dogwood OEC. The proposed medium voltage distribution line would generally blend with existing linear features, such as transmission lines, in the project vicinity.

**KOP 5A: View from Intersection of Dogwood Road and Willoughby Road.** The combined solar facilities would result in a moderate to strong contrast with the existing character of the surrounding landscape. The combined solar facilities would add a prominent rectangular in form with vertical features underneath to the foreground of an otherwise flat area. The combined solar facilities would appear dark and metallic against an otherwise green and tan area. The existing transmission lines, sparse buildings and thin, dense, vegetation would mostly be obstructed by the combined solar facilities.

**KOP 6: View from Margarito “Tito” Huerta Jr. Park.** The project would add a weak level of contrast with the existing character of the surrounding landscape. From this KOP, the Dogwood Project would be situated behind the existing Heber 2 facility and is almost completely obstructed. The tops of the facility would be partially visible in the background. However, they would significantly assimilate with the existing form, color, line, and texture of the existing facility landscape. The proposed medium voltage distribution line associated with the project would be co-located (attached via trays) with the existing and proposed pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the Dogwood OEC. The proposed medium voltage distribution line would generally blend with existing linear features, such as transmission lines, in the project vicinity. The combined solar facilities would not be visible from KOP 6 and therefore would not contribute to the contrast of the landscape.

**KOP 7: View from Mountain View Cemetery.** The project would have no contrast with the existing characteristic landscape of KOP 7. The view of the project site or any of its associated facilities would be completely obstructed by existing buildings, vegetative features, and transmission lines along the horizon. The project would blend in with the current energy generation activities (i.e., geothermal, solar, production wells, pipelines, etc.) in the immediate vicinity.

**KOP 8: View from Las Casitas Park.** The project would have no contrast with the existing characteristic landscape of KOP 8. The view of the project site or any of its associated facilities would be completely obstructed by the earthen berm, existing buildings, vegetative features, and transmission lines along the horizon. The project would blend in with the current energy generation activities (i.e., geothermal, solar, production wells, pipelines, etc.) in the immediate vicinity.

#### *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 proposed project would include new sources of nighttime lighting. In addition, this discussion also considers potential glare- and glint-related impacts generated by the proposed solar arrays. This discussion considers each issue under the associated headings below.

**NIGHTTIME LIGHTING**

Minimal lighting would be required for project operation and would be limited to safety and security functions. All lighting would be directed downward and shielded to confine direct rays to the project site and muted to the maximum extent consistent with safety and operational necessity (Title 9, Division 17, Chapter 2: Specific Standards for all Renewable Energy Projects, of the County's Zoning Ordinance).

If additional lighting should be required for nighttime maintenance, portable lighting equipment would be used. Based on these considerations, and the distance to potential viewers, the proposed project is not anticipated to create a new source of substantial light which would adversely affect nighttime views in the project area, and the impact is considered less than significant.

**GLARE AND GLINT**

A glint and glare assessment (Appendix C of this EIR) was conducted to analyze the potential glint and glare impacts from the project's solar panels.

The analysis focused on potential glare effects on observation points (OPs) and linear travel routes. An inventory of visual receptors was conducted by reviewing publicly available geographic information system (GIS) data to determine OPs from airport landing and take-off points, residences, travel routes, recreation areas, Heber Elementary School, and the Mountain View Cemetery. Aircraft landing and approach were considered at four airports. Although the project is not located on airport property and therefore is not subject to Federal Aviation Administration jurisdiction under Federal Aviation Regulations Part 77 to protect airspace safety and is located beyond the 2-mile final approach as defined in the Interim Solar Policy, the project applicant has sought to voluntarily apply Federal Aviation Administration ocular hazard standards (78 Federal Register 63276).

Analysis for the project was conducted using the GlareGauge model (also known as Solar Glare Hazard Analysis Tool [SGHAT]) developed by Forge Solar and the U.S. Department of Energy's Sandia National Laboratories to evaluate potential glare.

The OPs and route receptors used in the analysis consist of 16 residences, three parks (Margarito Huerta Jr. Park, Herber Childrens Park, and Las Casitas Park), Mountain View Cemetery, Herber Elementary School, and a main travel route (Imperial Avenue).

According to the glint and glare assessment (Appendix C of this EIR), the project has the possibility to create low-potential afterimage (green ocular impact) glare at the Holtville Airport East Runway. The OP will have the potential to experience glare up to 290 minutes per year; the glare would occur from the middle of November to the end of January, between the hours of 4:00 p.m. and 5:00 p.m., for approximately 5 minutes per day from 1.4 to 2.0 miles along the approach path.

The project solar arrays may produce temporary glare during daytime views. However, the face of the solar panels sits in a fixed position toward the east that directs glare away from potential receptors (motorists and residents) along Dogwood Road. The relative impact identified from the potentially sensitive KOP locations shows the solar facilities provide a weak overall contrast and impact to the



existing geothermal and solar area. The geothermal facility would not create a source of glare as there are no reflective surfaces and the building color will assimilate to surrounding facilities. Therefore, the project would have a less than significant impact on daytime views of the area.

*Mitigation Measure(s)*

No mitigation measures are required.

### 3.2.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

At the end of the project's useful life, all equipment and facilities will be properly decommissioned and dismantled. The project site is relatively flat and primarily characterized by a level elevation. Therefore, 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 potential substantial glare and glint impacts on roadway travelers are less than significant and would not require mitigation measures. Impacts related to substantial alteration of a scenic vista and damage to designated scenic corridor would have no impact, therefore 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-project) conditions following site decommissioning. Based on these conclusions, implementation of the project would not result in residual significant unmitigable impacts on the visual character of the project area 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 (Section 3.3.1). 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 to 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 2022, agriculture contributed a total of \$2.6 billion to the county economy. Vegetable and melon crops were the single largest production category by dollar value (\$1.1 billion). Livestock represented the second largest category (\$616 million) and. Field crops ranked third with \$640 million (Imperial County Agricultural Commissioner 2022).

#### Important Farmland

According to the California Department of Conservation's (DOC) California Important Farmland Finder and as shown in Figure 3.3-1, portions of the project site contain Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Urban and Build-Up Land (California Department of Conservation 2020). Table 3.3-1 provides an acreage breakdown for the project site.

As shown in Figure 3.3-1, Prime Farmland and Farmland of Statewide Importance on the project site is located in APNs 054-250-017 and 059-020-001. A sliver of Unique Farmland occurs along the Central Main Canal, located on the northern portion of APN 059-020-001. All Urban and Built-Up land is located within the HGEC (APN 054-250-31) and is not considered agricultural lands under the FMMP.

Figure 3.3-1. Important Farmlands Map





**Table 3.3-1. Farmland Mapping and Monitoring Program Designation within the Project Boundary**

California Important Farmland Type	Acres
Farmland of Statewide Importance	281.91
Prime Farmland	118.49
Unique Farmland	4.17
*Urban and Built-Up Land	42.04
<b>**Total</b>	<b>446.61</b>

\* Not considered agricultural lands under the FMMP.

\*\* Total refers to the total farmland acreage and does not include Urban and Built-Up lands.

#### Williamson Act Contract Land

As of December 31, 2018, all Williamson Act contracts in Imperial County have been terminated. The project site is not located on Williamson Act contracted land.

### 3.3.2 Regulatory Setting

This section identifies and summarizes 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 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), a non-regulatory program 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 unless specified.

**Prime Farmland.** Farmland with the best combination of physical and chemical features 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 four years prior to the mapping date.

**Farmland of Statewide Importance.** Farmland 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 four years prior to the mapping date.

**Unique Farmland.** Farmland of lesser quality soils than Prime Farmland or Farmland of Statewide Importance, used to produce the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

**Farmland of Local Importance.** Farmland that is of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

**Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

**Urban and Built-up Land.** Land 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.** Defined as perennial water bodies with an extent of at least 40 acres.

**Other Land.** 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.

## Local

### *Imperial County General Plan Agricultural Element*

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 project, 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 and Farmland of Statewide Importance 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 project structures on the site, as well as restoration of the site to its pre-project condition. Therefore, the proposed project would not permanently convert Prime Farmland or Farmland of Statewide Importance 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 geothermal plant and solar facilities and associated infrastructure adjacent to agricultural lands surrounding the project site. Project development would not include a residential component that would induce urbanization adjacent to the project.  Furthermore, with the approval of the CUPs, 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.



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

General Plan Policies	Consistency with General Plan	Analysis
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 geothermal plant and solar facilities adjacent to agricultural lands surrounding the project site. Neither construction nor operation of the proposed project 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 and geothermal production facilities 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 and geothermal 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 General Plan, or for necessary public facilities.	Consistent	Upon approval of the CUPs, the proposed project would be an allowable use within an applicable agricultural zone, and the existing zoning of the project site would be consistent 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 the CUPs, 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. Existing nuisance issues such as noise, dust, and odors from existing agricultural use would not impact the project given the general lack of associated sensitive uses (e.g., residences). Likewise, with mitigation measures proposed in other resource sections (e.g., air quality, noise, etc.) project-related activities would not adversely affect adjacent agricultural operations.



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

General Plan Policies	Consistency with General Plan	Analysis
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

CUP = conditional use permit; RE = renewable energy

### *Imperial County “Right to Farm” Ordinance*

Adopted by the County Board of Supervisors on Aug 7th, 1990, as ordinance 1031, the Right to Farm Ordinance enhances and encourages residents’ right to farm in Imperial County. Where farmland or agricultural lands exists adjacent to non-farmland or non-agricultural lands complaints are common due to the inherent nature of agricultural activities. The ordinance defines when an agricultural operation is a nuisance and requires mandatory disclosure of agricultural property adjacent to properties for sale. The goal of the ordinance is to promote good neighbor policies and ensure the continued economic viability of the County’s agricultural industry. The agriculture industry is one of the most important economic drivers of the County and its continued growth and investment is of great importance.

### 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 CEQA checklist 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.

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.

## 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 106.88 acres of land currently under or available for agricultural production to non-agricultural uses, as described below:

- Dogwood Geothermal Energy Project (CUP #23-0020): As shown in Table 3.3-3, approximately 5.31 acres of the Dogwood parasitic solar facility footprint are classified as Prime Farmland and 34.67 acres are classified as Farmland of Statewide Importance.
- Heber 2 Solar Energy Project (CUP #23-0021): As shown in Table 3.3-3, approximately 17.63 acres of the Heber 2 parasitic solar facility footprint are classified as Prime Farmland and 49.27 acres are classified as Farmland of Statewide Importance.

The loss of agricultural land designated as Prime Farmland and Farmland of Statewide Importance, is typically considered a significant impact under CEQA.

**Table 3.3-3. Project Impacts on Important Farmland**

Project Component	Prime Farmland (acres)	Farmland of Statewide Importance (acres)
Dogwood Parasitic Solar Facility	5.31	34.67
Heber 2 Parasitic Solar Facility	17.63	49.27
<b>Total</b>	<b>22.94</b>	<b>83.94</b>

The Imperial County General Plan adopted the Renewable Energy and Transmission Element Update as part of the California Energy Commission Renewable Energy Grant Program. The program aims to facilitate future development of renewable energy projects. Under the Renewable Energy and Transmission Element Update, the County Land Use Ordinance, Division 17, includes a renewable energy overlay zone which allows for the operation of renewable energy projects with an approved CUP.

The entire project site falls within the Geothermal Overlay Zone, which allows for the conversion of agricultural land for geothermal energy production with an approved CUP. Despite this, conversion of agricultural land classified as Prime Farmland and Farmland of Statewide Importance is considered a significant impact under CEQA. Implementation of Mitigation Measure AG-1a would reduce the impact associated with the temporary conversion of important farmlands to non-agricultural uses to a level less than significant.

As discussed in Chapter 2, Project Description, the project applicant would be required to restore the project site to preexisting conditions following project operations; therefore, agricultural uses would be possible in the future. Given that the project facilities would be constructed near the existing grade, restoration of the project site, specifically on the solar facilities (APN 059-020-001), to facilitate future cultivated agriculture would generally be feasible. However, implementation of the project would replace existing agricultural uses within the solar facilities during the term of the CUPs and until the site is restored. Additionally, although the project applicant is proposing agriculture as the proposed end use, it is possible that project-related activities (e.g., soil disturbance) and subsequent restoration of the solar fields could result in a net reduction in Prime Farmland and Farmland of Statewide Importance within the solar facilities. These acreage reductions could occur through alterations in soil productivity. As a condition of project approval (CUP condition) a reclamation plan will be prepared for the project site, specifically on the solar facilities (APN 059-020-001). The reclamation plan will provide guidance and performance criteria to ensure that no net reduction in Important Farmland occurs. Implementation of Mitigation Measure AG-1b would reduce long-term impacts to a level less than significant by ensuring compliance with a site Reclamation Plan documenting procedures by which the project site will be returned to its current agricultural conditions.

#### *Mitigation Measure(s)*

The following mitigation measures are applicable to the Dogwood Geothermal Energy Project (CUP #23-0020) and Heber 2 Solar Energy Project (CUP #23-0021) only:

**AG-1a. Payment of Agricultural and Other Benefit Fees.** Prior to the issuance of a grading permit or building permit (whichever is issued first), one of the following options included below shall be implemented:

#### **A. 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 (as defined in California Civil Code §§815-816) 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: 1) is consistent with Board Resolution 2023-#17; and 2) 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 amended by the Board of Supervisors on November 7, 2023: Resolution “Amending the Public Benefit Program for use with Solar Power Plants in Imperial County”), as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy.

**B. Mitigation for Prime Farmland:**

**Option 1: Provide Agricultural Conservation Easements.** ~~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 (as defined in California Civil Code §§815-816) 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 1) is consistent with Board Resolution 2023-#17; and 2) 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 amended by the Board of Supervisors on November 7, 2023: Resolution “Amending the Public Benefit Program for use with Solar Power Plants in Imperial County”, 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; or

**Option 4: Avoid Prime Farmland.** The Permittee must revise their Conditional Use Permit 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 event Permittee fails to perform the Reclamation Plan.

### *Significance after Mitigation*

With the implementation of Mitigation Measure AG-1a, potential impacts on valuable farmlands would be minimized through provision of an agricultural conservation easement, payment into the County agricultural fee program, or entering into a public benefit agreement. With implementation of Mitigation Measure AG-1b, potential impacts on valuable farmlands would be minimized by ensuring the project applicants adhere to the terms of a site Reclamation Plan documenting procedures by which the project site will be returned to its current agricultural conditions. These mitigation measures would reduce the impact on Important Farmlands, including Prime Farmland, 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.** As of December 31, 2018, all Williamson Act contracts in Imperial County have been terminated. 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.

**Agricultural Zoning.** The project would be constructed on land currently zoned A-2-G-SPA and A-2-G-U. Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone:

- n) Oil, gas and geothermal exploration meeting requirements specified in Division 17*
- s) Solar energy extraction generation provided that is for on-site consumption only*

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:

- y) Electrical generation plans (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*
- z) Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*
- bb) Facilities for the transmission of electrical energy (100-200 kv)*
- ii) Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*
- rr) Major Geothermal projects per Division 17*
- ww) Resource extraction and energy development as per Division 17*
- aaa) Solar energy electrical generator*

Upon approval of a CUPs, 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 designations of the site. Additionally, operation of the proposed project 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, impacts are considered to be less than significant.



*Mitigation Measure(s)*

No mitigation measures 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.

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.

The project would include development of solar facilities adjacent to productive agricultural lands; however, the solar facilities are located in proximity to existing industrial uses such as the HGEC. Development of the project would not contribute to a "leapfrogging" pattern of development. Also, the use of the agricultural land is not considered permanent given that the project applicant will be conditioned to restore the project site back to agricultural use. In this context, the project would be consistent with applicable General Plan policies and is considered less than significant.

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. No modifications to roadways are proposed in the project area that would otherwise affect other agricultural operations in the area. Furthermore, existing nuisance issues such as noise, dust, and odors from existing agricultural use would not impact the project given the general lack of associated sensitive uses (e.g., residences). Likewise, with mitigation measures proposed in other resource sections (e.g., air quality, noise, etc.) project-related activities would not adversely affect adjacent agricultural operations. 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 solar facilities, 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 (deeper rooting crops, orchards, etc.) that may be grown within the project site in the future. 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 their lifespan. The reclamation plan includes restoration of the site to pre-project conditions.



Additionally, there is the potential that weeds or other pests may occur within the solar fields 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)*

- 1) The following mitigation measures are applicable to the Dogwood Geothermal Energy Project (CUP #23-0020) Heber 2 Solar Energy Project (CUP #23-0021) and Heber Field Company (HFC) Geothermal Wells and Pipeline Project (Heber Field Company, LLC) – (CUP No. 23-0022)

**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 project. 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 the implementation of Mitigation Measures AG-1a, AG-1b and AG-2, the project applicant would be required to adhere to the terms of the comprehensive reclamation plan that would restore the project site to their existing conditions and reintroduce agricultural uses on the site following decommissioning of the project (after their use for solar generation activities) and implement a pest management plan. Compliance with these measures would reduce this impact to a level less than significant.

### 3.3.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

As required by Mitigation Measure AG-1b, the project applicant shall adhere to the terms of the site reclamation plan that is required to be submitted to Imperial County to return the property to its existing agricultural condition. 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 solar facilities, 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. This is considered a significant impact attributable to the project. However, implementation of Mitigation Measures AG-1b and AG-2 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 CUPs, would generally be consistent with applicable federal, state, regional, and local plans and policies. Following the proposed use (e.g., geothermal and solar facilities), the project would be decommissioned and project site restored to facilitate agricultural cultivation. Based on these circumstances, the project would not result in any residual significant and unmitigable impacts to agricultural resources.

## 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 Imperial County Air Pollution Control District's (ICAPCD) 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 and Greenhouse Gas Technical Report* prepared by Catalyst Environmental Solutions. This report is included in Appendix D of this EIR.

### 3.4.1 Existing Conditions

#### Regional Setting

The proposed 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.

The lack of clouds and atmospheric moisture creates strong diurnal and seasonal temperature variations ranging from an average summer maximum of 108 degrees Fahrenheit (° F) down to a winter morning minimum of 38° F. The most pleasant weather occurs from about mid-October to early May when daily highs are in the 70s and 80s with very infrequent cloudiness or rainfall. Imperial County experiences rainfall on an average of only four times per year (>0.10 inches in 24 hours). The local area usually has three days of rain in winter and one thunderstorm day in August. The annual rainfall in this region is less than three inches per year.

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<sub>10</sub>), and fine particulate matter (PM<sub>2.5</sub>) 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<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>) 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 <sub>2</sub>	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 <sub>3</sub>	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (N <sub>2</sub> O) 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 <sub>10</sub> and PM <sub>2.5</sub>	Power plants, steel mills, chemical plants, unpaved roads and parking lots, woodburning 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 <sub>2</sub>	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: CARB 2023

### *Toxic Air Contaminants*

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals.



Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many 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. Additionally, diesel engines emit a complex mixture of air pollutants composed of gaseous and solid material. The solid emissions in diesel exhaust are known as diesel particulate matter (DPM). In 1998, California identified DPM as a TAC based on its potential to cause cancer, premature death, and other health problems (e.g., asthma attacks and other respiratory symptoms). Those most vulnerable are 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 known cancer risk from outdoor air pollutants. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

### 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<sub>3</sub>], PM<sub>10</sub> and PM<sub>2.5</sub> and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> 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<sub>3</sub> and PM<sub>10</sub> under State standards. Under federal standards, the Imperial County portion of the SSAB is in nonattainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The area is currently in attainment or unclassified status for CO, NO<sub>2</sub>, and SO<sub>2</sub>.

**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 <sub>3</sub>	Nonattainment	Nonattainment
PM <sub>10</sub>	Nonattainment	Attainment
PM <sub>2.5</sub>	Attainment	Nonattainment
CO	Attainment	Unclassified/attainment
NO <sub>2</sub>	Attainment	Unclassified/attainment
SO <sub>2</sub>	Attainment	Unclassified/attainment
Sulfates	Attainment	Unclassified

Pollutant	State Designation	Federal Designation
Lead	Attainment	Unclassified/attainment
Hydrogen Sulfide	Unclassified	Unclassified

Source: CARB 2022a

### 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.

There are numerous sensitive receptors in proximity to the project components. Table 3.4-3 summarizes the sensitive receptors in the vicinity of the project site and distance to the nearest project components.

**Table 3.4-3. Sensitive Receptors in Proximity to Project Components**

Sensitive Receptor	Nearest Project Component	Distance to Nearest Project Component (Feet)
Residence (104 Jasper Rd.)	Heber 2 Solar Facility	540
Residence (600 Dogwood Rd.)	Dogwood Solar Facility	2,900
Residential Area (E. Fawcett Rd.)	Production Well	2,985
Heber Elementary School	Production Well	3,400
Residences (153, 175, 195 E. Cole Blvd.)	Dogwood Solar Facility	3,825

### 3.4.2 Regulatory Setting

This section identifies and summarizes 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<sub>2</sub>, SO<sub>2</sub>, Pb, and PM (including both PM<sub>10</sub>, and PM<sub>2.5</sub>) are the six criteria air pollutants. Ozone is a secondary pollutant, nitrogen oxides (NO<sub>x</sub>) 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.

### *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<sub>10</sub> (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.).

**Table 3.4-4. Ambient Air Quality Standards**

Air Pollutant	Averaging Time	California Standard	National Standard
O <sub>3</sub>	1-hour	0.09 ppm	--
	8-hour	0.070 ppm	0.070 ppm
PM <sub>10</sub>	24-hour Mean	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
		20 µg/m <sup>3</sup>	--
PM <sub>2.5</sub>	24-hour Mean	--	35 µg/m <sup>3</sup>
		12 µg/m <sup>3</sup>	9 µg/m <sup>3</sup>
CO	1-hour	20 ppm	35 ppm
	8-hour	9 ppm	9 ppm
NO <sub>2</sub>	1-hour Mean	0.18 ppm	100 ppb
		0.030 ppm	0.053 ppm
SO <sub>2</sub>	1-hour	0.25 ppm	75 ppb
	24-hour	0.04 ppm	--
Pb	30-day Rolling 3-month	1.5 µg/m <sup>3</sup>	-- 0.15 µg/m <sup>3</sup>
Sulfates	24-hour	25 µg/m <sup>3</sup>	No federal standard
Hydrogen Sulfide	1-hour	0.03 ppm	
Vinyl Chloride	24-hour	0.01 ppm	
Visibility-reducing particles	8-hour	Extinction coefficient of 0.23 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<sub>2</sub> – nitrogen dioxide; O<sub>3</sub> – ozone; Pb – lead; PM<sub>2.5</sub> – particulate matter less than 2.5 microns in diameter; PM<sub>10</sub> – particulate matter less than 10 microns in diameter; ppb – parts per billion; ppm – parts per million; SO<sub>2</sub> – sulfur dioxide; µg/m<sup>3</sup> – micrograms per cubic meter



### *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<sub>10</sub>.** Imperial Valley is classified as nonattainment for federal and state PM<sub>10</sub> standards. As a result, ICAPCD was required to develop a PM<sub>10</sub> Attainment Plan. The final plan was adopted by ICAPCD on August 11, 2009 (ICAPCD 2009).
- **2013 Imperial County Plan for 2006 24-hour PM<sub>2.5</sub> for Moderate Nonattainment Area.** U.S. EPA designated Imperial County as nonattainment for the 2006 24-hr PM<sub>2.5</sub> standard, effective December 14, 2009. The 2013 PM<sub>2.5</sub> SIP demonstrates attainment of the 2006 PM<sub>2.5</sub> 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<sub>3</sub> 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<sub>x</sub>



emissions within the O<sub>3</sub> 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<sub>10</sub>.** Imperial Valley is classified as nonattainment for federal and state PM<sub>10</sub> 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<sub>2.5</sub>.** U.S. EPA designated Imperial County as nonattainment for the 2018 24-hr PM<sub>2.5</sub> standard. The 2018 PM<sub>2.5</sub> SIP concluded that the majority of the PM<sub>2.5</sub> emissions resulted from transport in nearby Mexico. Specifically, the SIP demonstrates attainment of the 2006 PM<sub>2.5</sub> NAAQS “but for” transport of international emissions from Mexicali, Mexico. In accordance with the CCAA, the PM<sub>2.5</sub> 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 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<sub>10</sub> and O<sub>3</sub>.

**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<sup>1</sup> or obscure an observer's view to a degree equal to or greater than smoke does as compared to No.1 on the Ringelmann Chart, for a period or aggregated period of more than three minutes in any hour.

**Rule 403 – General Limitations on the Discharge of Air Contaminants.** Rule 403 sets forth limitations on emissions of pollutants, including particulate matter, from individual sources.

**Rule 407 – Nuisance.** Rule 407 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

**Rule 801 – Construction and Earthmoving Activities.** Rule 801 aims to reduce the amount of PM<sub>10</sub> 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<sub>10</sub> 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

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<sup>1</sup> The Ringelmann scale is a scale for measuring the apparent density or opacity of smoke.

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 General Plan Policies**

Applicable Policies	Consistency Determination	Analysis
<b><i>Conservation and Open Space Element</i></b>		
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.



Applicable Policies	Consistency Determination	Analysis
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 (Mitigation 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 (Mitigation Measure AQ-1). Therefore, the proposed project is consistent with this objective.

Source: County of Imperial 2016

### 3.4.3 Impacts and Mitigation Measures

#### 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<sub>3</sub> 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 proposed 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 (NO<sub>x</sub>) or reactive organic gases (ROGs); less than 150 pounds per day of PM<sub>10</sub> or SO<sub>x</sub>; or less than 550 pounds per day of CO or PM<sub>2.5</sub>.

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 NO<sub>x</sub> or ROG or greater; 150 pounds per day of PM<sub>10</sub> or SO<sub>x</sub> or greater; or 550 pounds per day of CO or PM<sub>2.5</sub> 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 <sub>x</sub> and ROG	Less than 137 pounds per day	137 pounds per day and greater
PM <sub>10</sub> and SO <sub>2</sub>	Less than 150 pounds per day	150 pounds per day and greater
CO and PM <sub>2.5</sub>	Less than 550 pounds per day	550 pounds per day and greater
<b>Level of Significance</b>	<b>Less than Significant</b>	<b>Significant Impact</b>

Source: ICAPCD 2017b

CO – carbon monoxide; NO<sub>x</sub> – nitrogen oxide; O<sub>3</sub> – ozone; Pb – lead; PM<sub>2.5</sub> – particulate matter less than 2.5 microns in diameter; PM<sub>10</sub> – particulate matter less than 10 microns in diameter; ROG – reactive organic gas; SO<sub>x</sub> – sulfur oxide.

## CONSTRUCTION

For construction projects, the Air Quality Handbook indicates that the significance threshold for NO<sub>x</sub> 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<sub>10</sub> 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 <sub>10</sub>	150 pounds per day
ROG	75 pounds per day
NO <sub>x</sub>	100 pounds per day
CO	550 pounds per day

Source: ICAPCD 2017b

CO – carbon monoxide; NO<sub>x</sub> – nitrogen oxide; PM<sub>10</sub> – particulate matter less than 10 microns in diameter; ROG – reactive organic gas.

## Methodology

Construction of the project was assumed to commence in the first quarter of 2025 and was estimated to take up to 35 months to complete. The project would result in both short-term and long-term emissions of air pollutants associated with construction and operations. 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.

Construction and operational emissions were estimated using the latest version of California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operation of a variety of land use projects. The model utilizes widely accepted federal and state models for emission estimates and default data from sources such as U.S. EPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as the California Energy Commission (CEC). Default CalEEMod inputs were used for modeling where project-specific details were not readily ascertainable (e.g., fleet mix and trip length).

In addition, the power generating unit will generate power by taking geothermal energy (e.g., heat) to vaporize liquid isopentane, which is the motive fluid that powers the turbines to create electricity. Accordingly, the primary air pollutant from the facility operations is isopentane, which is a VOC. Specifically, isopentane would be the motive fluid used to drive the turbines for the project. Although the motive fluid system is a “closed loop” with no routine emissions into the atmosphere, nearly all of the project’s operational ROG emissions comes from fugitive emissions of isopentane that leaks from pipes, seals, flanges, valves, and other connections and the vapor recovery system. Accordingly, the isopentane emissions due to maintenance, purging, and fugitive leaks are summarized as follows:

- **Maintenance Isopentane Emissions** - Occasionally, isopentane must be evacuated from a portion of an OEC for maintenance or repair. The OECs are divided into zones that can be isolated and evacuated for maintenance while the isopentane remains in the rest of the system. To evacuate the isopentane from a zone for maintenance, the isopentane liquid and vapor are removed using the VRMU (with a 95 percent control efficiency) and held in the storage tanks. Any remaining vapors are purged from the zone using nitrogen and passes through the VRMU. The unit is not opened to the atmosphere until the vapor concentration is less than 20 percent of the lower explosion limit for isopentane. Maintenance isopentane emissions are estimated based on site-specific emission factors derived from previous actual emissions data.
- **Purging Isopentane Emissions** - Over time impurities build up in the motive fluid (MF). These impurities include non-condensable gases (NCG’s) which decrease the operating efficiency of the units. NCGs are purged from the system using the existing VRMU. During the purging, vapors from the OECs pass through a knock-out drum and chiller to separate the condensable gases from the NCGs. The remaining gases are passed through an activated carbon bed to collect hydrocarbons before being vented to the atmosphere. The facility’s current air permit requires the VRMU to achieve 95 percent hydrocarbon capture efficiency.
- **Fugitive Isopentane Emissions** - Fugitive isopentane emissions occur from leaks in seals, flanges, pumps, valves, and other components. It is not feasible to measure fugitive emissions directly, but fugitive emissions leaks can be quantified based on the addition of isopentane to



the system to make up for the lost fluid. ORMAT tracks fluid additions, and the fluid additions that are not attributed to known non-fugitive cause are counted as fugitive emissions.

Per the Heber 2 Authority to Construct (ATC) #2217A-6 issued by the ICAPCD, site specific isopentane maintenance, purging, and fugitive emissions were calculated based on worst-case quarterly emissions from the years 2019 and 2020. Maintenance and fugitive emissions were also adjusted for the decreased complexity of the new units as compared to the existing units associated with the 2019 and 2020 reported emissions (i.e., the number of seals, flanges, pumps, valves, etc. associated with the project equipment is significantly less than the existing equipment). As such, the ICAPCD applies a 50 percent reduction factor to 50 percent emission reduction factor to account for the approximately 50 percent fewer potential sites for leaks and equipment failure. The emissions have been converted into a per 1,000-gallon factor by using the existing system volume. As summarized in Table 3.4-8, the resulting project-specific emission factors are 0.23 lbs/day/1,000 gallons for maintenance,  $1.45 \times 10^{-5}$  lbs/day/1,000 gal for purging and 0.60 lbs/day/1,000 gal for fugitive. These emission factors are assumed to be consistent with project operations.

**Table 3.4-8. Project-Specific Isopentane Emission Factors**

Emission Category	Site-Specific Emissions Factor Based on 2019 and 2020 Emissions (lbs/day/1,000 gallons)	Emissions Reductions Due to Reduced Complexity	Project-Specific Emission Factor (lbs/day/1,000 gallons)
Maintenance	0.45	50%	0.23
Purging	$2.9 \times 10^{-5}$	0%	$1.45 \times 10^{-5}$
Fugitive	1.20	50%	0.60

Source: ICAPCD ATC #2217A-6

The proposed OEC and ITLU have a combined volume of approximately 82,140 gallons, and the two isopentane storage tanks have a total capacity of 40,000 gallons. Isopentane emissions are related to the size of the system, so emissions were estimated by multiplying the total isopentane volume at the facility (i.e., 122,140 gallons) by the emission factors detailed in Table 3.4-8.

Emissions associated with the auxiliary emergency diesel generator and emergency diesel fire pump are estimated using CalEEMod 2022.1 default emission factors for diesel emergency generators and fire pumps.

The project site will be staffed with 1-2 onsite employees. Accordingly, annual operation and maintenance trips to the site are conservatively assumed to be up to six one-way trips during weekdays and three one-way trips during weekends. Such visits to the site include inspections, equipment servicing, site maintenance, and periodic washing of the photovoltaic modules at the solar plants. A 85 percent paved roads is utilized in the project CalEEMod emissions model to account for fugitive dust generated on paved surfaces throughout Imperial County. Indirect sources of emissions include those associated with energy consumption, water use, wastewater treatment, and solid waste disposal.

## 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<sub>10</sub>, sets forth a comprehensive program that will lead the SSAB into compliance with all federal and state air quality standards. A consistency determination with the AQMP plays an important role in local agency project review by linking local planning and individual projects to the 2017 Clean Air Plan. The 2017 Clean Air Plan strategy is based on projections from local general plans. Projects that are consistent with the local general plan are considered consistent with the regional air quality plan. In addition, AQMP control measures and related emission reduction estimates are based upon emissions projections for future development scenarios 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 proposed 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 contributions to energy supply may induce population growth, the proposed geothermal and solar energy project would not significantly increase employment or growth within the region. Moreover, development of the proposed project would increase the amount of renewable energy and help California meet its RPS.

As shown in Table 3.4-5, the project is consistent with the applicable air quality goal and objectives from 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.** The proposed project would emit criteria pollutants from the use of combustion sources such as diesel off-road equipment (e.g., tractors, cranes, generators, etc.), and on-road mobile sources associated with construction-related vehicle travel. Impacts to air quality would also occur during project construction as a result of soil disturbance and fugitive dust emissions. 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.

Project construction is anticipated to occur over an approximate two-year period. Construction is anticipated to begin in late 2024. Project emissions were calculated in accordance with the ICAPCD's Air Quality Handbook (ICAPCD 2017). For the purposes of this analysis, short-term construction emissions were determined utilizing the latest version of the CalEEMod model (version 2022.1) based on the assumptions described in the Methodology section and utilizing CalEEMod defaults for calendar year average equipment emission factors as opposed to tier-specific rates (e.g., Tier 3) (refer to



Appendix D of this EIR for emission model results). The total unmitigated emissions generated within each year of project construction are shown in Table 3.4-9.

**Table 3.4-9. Unmitigated Project Construction-Generated Emissions (lbs/day)**

Construction Year	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	27.52	246.06	268.98	0.80	2,243.9	231.29
2026	29.55	272.17	307.92	0.84	2,356.6	242.47
<i>ICAPCD Significance Threshold</i>	<b>75</b>	<b>100</b>	<b>550</b>	--	<b>150</b>	--
Exceed Threshold?	No	Yes	No	--	[Yes] <sup>1</sup>	--

Source: Appendix D of this EIR

Notes:

<sup>1</sup> Guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided.

As shown in Table 3.4-9, the proposed project's daily unmitigated construction emissions would exceed the ICAPCD thresholds for NO<sub>x</sub> and PM<sub>10</sub>. Pursuant to ICAPCD, the project 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. Therefore, implementation of Mitigation Measures AQ-1 and AQ-2 would provide additional reduction strategies to ensure that the construction emissions of NO<sub>x</sub> remain below the applicable thresholds as shown in Table 3.4-10.

**Table 3.4-10. Mitigated Project Construction-Generated Emissions (lbs/day)**

Construction Year	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	9.90	83.42	466.38	1.12	2,238.7	226.62
2026	10.72	87.08	520.46	1.30	2,351.7	238.04
<i>ICAPCD Significance Threshold</i>	<b>75</b>	<b>100</b>	<b>550</b>	--	<b>150</b>	--
Exceed Threshold?	No	No	No	--	[Yes] <sup>1</sup>	--

Source: Appendix D of this EIR

Notes:

<sup>1</sup> Guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided.

Specifically, Mitigation Measure AQ-2 requires that all off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, meet, at a minimum, the Tier 4 Final California Emission Standards for Off-Road Compression-Ignition Engines as specified in CCR, Title 13, section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 4 Final engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide NO<sub>x</sub> and particulate matter emissions that are equivalent to Tier 4 engine.

Due to the assumption of 85 percent paved roads built into the project CalEEMod model, construction activities are shown to exceed the ICAPCD threshold for PM<sub>10</sub>. Specifically, CalEEMod results for the maximum daily emissions of PM<sub>10</sub> attributed to fugitive dust is estimated at 2,349.4 lbs/day whereas the PM<sub>10</sub> attributed to combustion engine emissions is 2.27 lbs/day (which is below the ICAPCD threshold for PM<sub>10</sub>).

However, guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. Further, the ICAPCD recommends the implementation of effective and comprehensive mitigation inclusive of standard mitigation measures for construction equipment and fugitive PM<sub>10</sub> in accordance with ICAPCD Regulation VIII for the control of fugitive dust as detailed in Mitigation Measure AQ-1. Regulation VIII requires all unpaved roadways, on- and off-site, to be conditioned and maintained with soil stabilizers to reduce dust opacity to no more than 20 percent; all unpaved disturbed surfaces, on- and off-site, to be stabilized with a dust suppressant, watering, or soil stabilizers to reduce opacity to no greater than 20 percent. Compliance with Regulation VIII dust control measures as detailed in Mitigation Measure AQ-1 would further minimize air quality impacts. In addition, the ICAPCD recommends implementation of additional discretionary mitigation measures for fugitive PM<sub>10</sub> control as applicable. Accordingly, implementation of Mitigation Measure AQ-3 would require additional dust suppression methods (such as water or chemical stabilization) on all unpaved roads associated with construction activities, Mitigation Measure AQ-4 requires development and implementation of a dust suppression management plan prior to any earthmoving activity, and Mitigation Measure AQ-6 limits the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less. Accordingly, with implementation of Mitigation Measures AQ-1 through AQ-4 and Mitigation Measure AQ-6, the project would not exceed the ICAPCD's thresholds of significance during construction. 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, construction of the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. After implementation of applicable mitigation measures, impacts would be considered less than significant.

Valley Fever. A potential impact associated with earth moving and resultant dust emissions includes the potential exposure of Valley Fever to sensitive receptors. The relatively low number of cases in the County indicate that Valley Fever would not pose a significant health risk during Project earth moving operations. Further, the proposed measures as stated on page 2-25 of the EIR, in addition to the specified mitigation measures addressing fugitive dust are expected to minimize exposure to Valley Fever to less than significant levels. As identified on page 2-25, applicant proposed measures and best management practices include:

- providing Valley Fever awareness training for workers;
- providing respirators to workers when requested, including the provision of necessary training;
- use of closed-cab earth-moving vehicles equipped with HEPA-filtered air systems; employee testing for Valley Fever as needed; and conducting earth-moving activities downwind of workers when possible.

**Operations.** Implementation of the project would result in long-term operational emissions of criteria air pollutants. Specifically, isopentane emissions will occur due to maintenance, purging, and fugitive

leaks. Operation of auxiliary engines including the emergency diesel generator and emergency diesel fire pump will also result in emissions of criteria pollutants. Table 3.4-11 summarizes the estimated emissions of isopentane at the facility.

**Table 3.4-11. Isopentane Emission Estimate**

Emission Category	System Motive Fluid Volume (Gallons)	Project-Specific Emission Factor (lbs/day/1000 gallons)	Isopentane Emissions (lbs/day)
Maintenance	82,140 (OEC/ITLU)	0.23	18.48
Purging	82,140 (OEC/ITLU)	1.45 x 10 <sup>-5</sup>	0.001
Fugitive	122,140 (OEC/ITLU & Tanks)	0.60	49.28
		<b>TOTAL</b>	<b>67.7</b>

Source: Appendix D of this EIR

Note that emissions are representative of the maximum daily output (i.e., maximum of summer or winter results)

With the exception of isopentane emissions detailed in Table 3.4-11, all other operational emissions were modeled utilizing CalEEMod 2022.1. Accordingly, long-term combined operational emissions attributable to the project are summarized in Table 3.4-12 and compared to the operational significance thresholds promulgated by the ICAPCD.

**Table 3.4-12. Unmitigated Project Operational Emissions (lbs/day)<sup>1</sup>**

Emission Source	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Area <sup>2</sup>	38.54	1.98	234.89	0.01	0.42	0.32
Mobile <sup>3</sup>	0.03	0.03	0.28	<0.005	0.49	0.06
Energy <sup>4</sup>	0.00	0.00	0.00	0.00	0.00	0.00
Stationary <sup>5</sup>	0.12	0.34	0.31	<0.005	0.02	0.02
Fugitive Isopentane <sup>6</sup>	67.77	0.00	0.00	0.00	0.00	0.00
<b>TOTAL</b>	<b>106.46</b>	<b>2.35</b>	<b>235.47</b>	<b>0.02</b>	<b>0.93</b>	<b>0.39</b>
<b>Threshold</b>	<b>137</b>	<b>137</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>550</b>
Exceed Threshold?	No	No	No	No	No	No

Source: Appendix D of this EIR

Notes:

<sup>1</sup> Daily emissions are representative of the maximum daily output (i.e., maximum of summer or winter results).

<sup>2</sup> Area emissions are inclusive of landscape maintenance equipment using CalEEMod default factors.

<sup>3</sup> Mobile emissions are inclusive of daily estimate vehicle miles travels associated with operations (i.e., average of 6 one-way trips per weekday and 3 one-way trips per day on Saturdays and Sundays with an estimated trip length of 10.2 miles).

<sup>4</sup> The project is a renewable energy project and does not require energy from the grid.

<sup>5</sup> Stationary emissions are associated with operation of emergency diesel generator (50 hours/year amortized over 365 days/year) and emergency diesel fire pump (40 hours/year amortized over 365 days/year)

<sup>6</sup> Isopentane emissions are reported as ROG.



Project-generated increases in emissions would be predominately associated with isopentane emissions and emissions related to landscape equipment use for routine maintenance work. As shown in Table 3.4-12, the proposed project's combined operational emissions would not exceed the ICAPCD thresholds for CO, ROG, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub>. Although no significant air quality impact would occur during operation, the project would be required to comply with Regulation VIII that would further reduce fugitive dust emissions associated with the 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 Mitigation Measures AQ-3 through AQ-5 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 Mitigation Measure AQ-6, 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.

#### *Mitigation 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<sub>10</sub>) 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.** All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 4 Final California Emission Standards for Off-road Compression-Ignition Engines as specified in CCR, Title 13, section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 4 Final engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide NO<sub>x</sub> and particulate matter emissions that are equivalent to Tier 4 engine. Drill rig engines shall meet a minimum of Tier 4 Interim California Emission Standards. A list of the construction equipment, including all off-road equipment utilized at the project site 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<sub>x</sub> analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed the significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.

#### **AQ-3**

**Dust Suppression.** The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. All unpaved roads associated with construction shall be effectively stabilized of dust emissions using stabilizers/suppressant before the commencement of all construction phases. This will



be conducted monthly at a rate of 0.1 gallon/ square yard of chemical dust suppressant. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department).

- AQ-4      Dust Suppression Management Plan.** Prior to any earthmoving activity, the applicant shall submit an enhanced dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.
- AQ-5      Operational Dust Control Plan.** Prior to issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval. ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.
- AQ-6      Speed Limit.** During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on unpaved roads to 15 miles per hour or less.

#### *Mitigation Measure(s)*

Although the proposed project would not exceed ICAPCD's significance thresholds, Mitigation Measures AQ-1 through AQ-6 would provide additional reduction strategies to further improve air quality and reductions in criteria pollutants and ensure that this potential impact would remain 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<sub>3</sub> 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<sub>3</sub> and PM<sub>10</sub>. 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.

**Construction.** As discussed above in Impact 3.4-1, the project's daily construction emissions would exceed the ICAPCD thresholds for NO<sub>x</sub> and PM<sub>10</sub>. As discussed above, with implementation of Mitigation Measures AQ-1 through AQ-4 and Mitigation Measure AQ-6, the project's daily mitigated construction emissions would not exceed the ICAPCD thresholds (note that although the CalEEMod results for PM<sub>10</sub> emissions are shown to exceed the ICAPCD threshold, the ICAPCD recommends analyzing construction particulate matter qualitatively rather than quantitatively). Additionally, pursuant to ICAPCD, the project must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. Implementation of Mitigation Measures AQ-1 and AQ-2 would provide additional reduction strategies to further improve air quality. Therefore, the project's potential to result in a cumulatively considerable net increase of any criteria pollutant during construction is considered less than significant.

**Operations.** As discussed above in Impact 3.4-1 and summarized in Table 3.4-12, the project's daily operations emissions would not exceed the ICAPCD thresholds. 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 Mitigation Measures AQ-3 through AQ-5 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 Mitigation Measure AQ-6, which limits the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less. Therefore, the project's potential to result in a cumulatively considerable net increase of any criteria pollutant during operations 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?***

#### **CONSTRUCTION**

As summarized in Table 3.4-3, there are numerous sensitive receptors in proximity to the project components. The nearest sensitive land use to the project site is a single-family residence located approximately 540 feet from the proposed Heber 2 solar facility. Construction of the proposed project would result in temporary, short-term project-generated emissions of DPM, ROG, NO<sub>x</sub>, CO, and PM<sub>10</sub> from the exhaust of off-road, heavy-duty diesel equipment and construction-related truck traffic. The portion of the SSAB which encompasses the project site is designated as a nonattainment area for federal O<sub>3</sub> and PM<sub>2.5</sub> standards and is also a nonattainment area for the state standards for O<sub>3</sub> and PM<sub>10</sub>. Thus, existing O<sub>3</sub> and PM<sub>10</sub> levels in the SSAB are at unhealthy levels during certain periods. However, as shown in Table 3.4-9, the project would not exceed the ICAPCD significance thresholds for construction emissions. The health effects associated with O<sub>3</sub> are generally associated with reduced lung function. Because the project would not involve construction activities that would result in O<sub>3</sub> precursor emissions (ROG or NO<sub>x</sub>) in excess of the ICAPCD thresholds, the project is not anticipated to substantially contribute to regional O<sub>3</sub> concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The project would not involve activities that would result in CO emissions in excess of the ICAPCD thresholds. Thus, the project's CO emissions during construction would not contribute to the health effects associated with this pollutant.

Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by CARB in 1998. For construction-type activity, DPM is the primary TAC of concern. PM<sub>10</sub> exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM. As with O<sub>3</sub> and NO<sub>x</sub>,



the project would not generate emissions of PM<sub>10</sub> or PM<sub>2.5</sub> that would exceed the ICAPCD's thresholds, and thus are not expected to cause any increase in related health effects for these pollutants.

Project construction would not result in a significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

## OPERATIONS

Operation of the proposed project would not result in the development of any substantial sources of air toxics. Stationary sources associated with the project include limited use of an emergency diesel generator and emergency diesel fire pump. Further, operation of the project would not attract additional mobile sources that spend long periods queuing and idling at the site. With respect to isopentane, according to the Clean Air Act Section 112(b), Hazardous Air Pollutants, isopentane is not listed or considered a hazardous air pollutant. As such, onsite combined project emissions would not result in significant concentrations of pollutants at nearby sensitive receptors as the predominant operational emissions associated with the project would be routine maintenance work. Therefore, the project would not be a substantial source of TACs. The project would not result in a high carcinogenic or non-carcinogenic risk during operation.

CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. CO concentration in the SSAB is designated as an attainment area. Detailed modeling of project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively. The project is anticipated to result in no more than six daily traffic trips. Thus, the project would not generate traffic volumes at any intersection that would result in a likelihood of the project traffic contributing to CO "hot spots."

Project operations would not result in a significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

### *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?***

## CONSTRUCTION

Geothermal fluid can release various non-condensable gases such as H<sub>2</sub>S. Hot water, steam, particulate, and/or gases that could emanate from a typical geothermal well during drilling, testing, and cleanout could contain several minerals and other naturally occurring chemicals. However, most of these chemicals are present only in trace amounts and would not pose a health hazard to the surrounding environment. H<sub>2</sub>S emissions would be the most important non-condensable gas from a health-risk and odor nuisance standpoint. The potential exists that this gas and other non-condensable gases may be emitted intermittently on a short-term and temporary basis during drilling. During well cleanout and flow testing, geothermal fluids would likely be pumped into large tanks. H<sub>2</sub>S may temporarily be released from the geothermal fluid for several hours to up to 30 days during these activities. The local H<sub>2</sub>S emissions during these activities could exceed the ICAPCD sulfur compound



emission standard (Rule 405) of 0.2 percent by volume (calculated as SO<sub>2</sub> and measured at a point of discharge) and could produce an objectionable “rotten egg” odor in the immediate vicinity of each well. However, these concentrations would not be expected to pose a health hazard and would not reach far beyond the vicinity of the wells under normal conditions. In addition, potential H<sub>2</sub>S emissions resulting from these activities would be temporary at each well development site and would occur for a relatively short period of several hours to up to 45 days at each well site.

Construction of the project components would also result in short-term diesel exhaust emissions from on-site heavy-duty equipment and from material deliveries and debris removal, which could result in the creation of objectionable odors. These activities would be temporary or periodic, and spatially dispersed, and any associated odors would dissipate quickly from the sources.

The closest sensitive receptor to the project site is a residence located off Jasper Road, approximately 540 feet from the proposed Heber 2 solar facility and approximately 1,000 feet from the nearest producing well site. Therefore, given the temporary nature of construction activities and the lack of sensitive receptors in the immediate vicinity of project components, odor nuisances that would be associated with project construction activities are expected to be negligible and impacts would be less than significant.

## OPERATIONS

According to ICAPCD’s Air Quality Handbook, land uses associated with odor complaints include wastewater treatment plants, sanitary landfills, composting stations, feedlots, asphalt plants, painting/coating operations (auto body shops), and rendering plants (ICAPCD 2017). The proposed project does not include any of these types of operations and would not be expected to be a major source of odor impacts. During normal operations, geothermal fluid would be contained within a closed-loop heat exchanger system and reinjected back into the geothermal reservoir. Thus, odors associated with geothermal fluids would not be expected during normal operations. Isopentane has a gasoline-like odor which could be considered objectionable. However, the closest residential sensitive receptors are located more than 3,000 feet from the proposed Dogwood geothermal plant. Any associated odors would dissipate quickly from the sources and is not expected to affect a substantial number of people. As such impacts during operations would be less than significant.

### *Mitigation Measure(s)*

No mitigation measures are required.

## 3.4.4 Decommissioning/Restoration and Residual Impacts

### Decommissioning/Restoration

At the end of the project’s useful life, all equipment and facilities will be properly abandoned and dismantled. Similar to construction activities, decommissioning and restoration of the project would generate air emissions. The proposed project’s daily unmitigated construction emissions are provided in Table 3.4-9.

The emissions from on- and off-road equipment during decommissioning are expected to be significantly lower than project construction emissions, as the overall activity would be anticipated to be lower than project construction activity. No significant air quality impacts are anticipated during decommissioning and restoration of the project site. However, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust.

In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. Mitigation Measures AQ-1 through AQ-6 would provide additional reduction strategies to further improve air quality. Therefore, a less than significant impact is identified during decommissioning and site restoration of the project site.

### Residual

The proposed project would not result in short-term significant air quality impacts during construction. Implementation of Mitigation Measures AQ-1 and AQ-2 would provide additional reduction strategies to further improve air quality. 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 Mitigation Measures AQ-3 through AQ-5 would ensure that a Dust Suppression Management Plan is implemented, thereby ensuring that this potential impact would remain less than significant. The project would not result in any residual operational significant and unavoidable impacts with regards to air quality.

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## 3.5 Biological Resources

This section identifies the biological and jurisdictional aquatic resources that may be impacted by the proposed project. The following identifies the existing biological and jurisdictional aquatic 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. Information from this section is summarized from the *Biological Resources and Burrowing Owl Survey* and *Preliminary Jurisdictional Report* prepared by Catalyst Environmental Solutions. These reports are included in Appendix E1 and F of this EIR, respectively. Additionally, information was included in this section from the *Burrowing Owl Non-Breeding and Breeding Season Surveys Report* (Catalyst Environmental Solutions 2025a) (Appendix E2 of this EIR).

### 3.5.1 Existing Conditions

#### Vegetation Communities and Land Cover

The Biological Survey Area (BSA) supports three land cover types: agricultural land, developed/disturbed land, and arrow weed thickets. The vegetation communities and land cover within the BSA is shown in Figure 3.5-1.

##### *Arrow Weed Thicket*

Arrow weed (*Pluchea sericea*) is the dominant vegetation on the steep banks of Central Main Canal, Beech Drain, and the Dogwood Canal. Other species such as cattails (*Typha* spp.) and saltcedar (*Tamarisk ramosissima*) are also present but in much smaller numbers. The *Pluchea sericea* Shrubland Alliance (arrow weed thickets) occur around springs, seeps, irrigation ditches, canyon bottoms, stream borders, and seasonally flooded washes. Vegetation is dense in some areas along the canals and very sparse in others. The canals fall within the 500-foot buffer of the project footprint and thus within the BSA.

##### *Agricultural Land*

At the time of survey, this land cover type was observed to contain primarily active alfalfa (*Medicago sativa*) cultivation and harvest and associated irrigation canals were present adjacent to and bisecting fields.

##### *Developed/Disturbed Land*

Developed/disturbed land in the BSA includes developed areas like roads and existing solar/geothermal facilities. These areas are predominantly devoid of vegetation, but can support ruderal herbaceous scrub, including non-native grasses and other weed species, and planted or landscape trees/shrubs. The proposed Dogwood geothermal plant falls within this land cover type and is nearly devoid of vegetation.

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Figure 3.5-1. Land Cover in the BSA



Source: Appendix E<sub>1</sub> of this EIR

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## Sensitive Natural Communities

Arrow-weed thickets in the BSA are considered a sensitive natural community by CDFW. A total of 1.17 acres of arrow-weed thicket was mapped in the BSA.

## Special-Status Species

### *Literature Review*

Prior to reconnaissance level habitat surveys, available data sets and information regarding vegetation, water resources, and recent species occurrences within the vicinity of the project were reviewed. The following sources were reviewed:

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) official species list (USFWS 2024a)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) records search for sensitive habitats and special-status plants and animals known to occur within a standard 5-mile buffer around the Project footprint
- ~~U.S. Fish and Wildlife Service (USFWS)~~ National Wetlands Inventory (NWI) maps
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil profile

### *Biological Reconnaissance Survey*

A pedestrian survey was conducted by Catalyst in February 2023 to photograph and document the general habitat present on the site as well as to record wildlife and vegetation observed during the visit. The project area as well as a 500-foot buffer area were surveyed (BSA). When not accessible due to private land, binoculars were used to survey the buffer area. No sampling was included as part of the survey.

The reconnaissance-level survey included:

- Recording all plant and animal species observed within the boundaries of the ~~p~~Project ~~s~~Site and immediate vicinity;
- Recording signs of animal presence, such as burrows (particularly those of suitable size to provide habitat for burrowing owls), scat, tracks, vocalizations, etc.;
- Characterizing plant communities present in the ~~p~~Project ~~s~~Site;
- Photographs of the ~~p~~Project ~~s~~Site; and
- Recording weather data (time, temperature, cloud cover, wind speed).

### *Burrowing Owl Surveys*

The Project Site is part of the year-round range of the western burrowing owl (*Athene cunicularia hypugaea*) and suitable habitat for the species was identified during the Biological Reconnaissance Survey; therefore, focused surveys for burrowing owl were conducted in and following the methods provided in the 2012 Staff Report on Burrowing Owl Mitigation (CDFG 2012).

To address comments received on the Draft EIR, biologists performed two burrowing owl surveys, a non-breeding season survey in January 2025 and a breeding season survey in February 2025 for the

Project. The entire BSA (Project Site plus 500-foot buffer) was surveyed during peak detection periods (e.g., between morning civil twilight and 10:00 AM and two hours before sunset until evening civil twilight; CDFG 2012) using a combination of transects, binoculars, and a spotting scope.

During the non-breeding season surveys, biologists observed five burrowing owls within the Dogwood project footprint and survey buffer area. Three of these individuals were present along berms that run through the proposed solar field site. One individual was observed near the existing well pad east of Ware Rd. near the northern extent of the survey area and one individual was observed along a berm adjacent to alfalfa fields near the existing well pad. A total of 17 burrowing owls, including several pairs at burrow entrances, were observed outside the survey area but within the vicinity. One individual was observed just north of the survey area. Sixteen burrowing owls were observed south of the survey area along the berms adjacent to various canals lining alfalfa fields (Catalyst Environmental Solutions 2025a).

A single breeding season survey was conducted where biologists observed eight burrowing owls within the Dogwood project footprint and survey buffer area. Five of these individual owls were observed along berms that run through the proposed solar field site, and three individuals were observed near the western extent of the survey area near an existing well pad and just south of Beech Drain along the access road between the canal and alfalfa field. A total of 16 burrowing owls, including several pairs at burrow entrances, were observed outside the survey area but within the general vicinity, most of which were observed south of the survey area (Catalyst Environmental Solutions 2025a).

~~In addition to the biological reconnaissance survey, Catalyst performed Phase I and Phase II surveys for burrowing owls. A Phase I survey assesses the presence of burrowing owl habitat on the project site, including an approximately 500-foot buffer around the project boundary. A Phase II survey is required if burrowing owl habitat occurs on the site and involves walking through suitable habitat over the entire project site and 500-foot buffer. The biologists followed the California Burrowing Owl Consortium (CBOC) Survey Protocol and Mitigation Guidelines (CBOC 1993) except when access to private lands prevented them from walking the buffer areas, in which case binoculars were used to assess habitat.~~

~~Catalyst determined that potential burrowing owl habitat was present within the BSA and vicinity due to the presence of sandy banks along drainage canals and burrowing activity of local communities of ground squirrels. Due to the potential habitat, a Phase II survey was conducted.~~

### *Plant Species*

Based on a review of the USFWS IPaC and the CDFW CNDDDB databases, no federally or state listed endangered or threatened plants are within five miles of the project area. However, there are five other special-status plants that have been documented within five miles of the project area. These five plants carry California Rare Plant Ranks (CRPR) of 1B.1-2B.3. Observations range from 1903 to 1963, and none of the species were observed during the reconnaissance-level survey. The following five plant species are considered to have a **low potential** for occurrence due to lack of habitat:

- Abrams' spurge (*Euphorbia abramsiana*).
- California satintail (*Imperata brevifolia*).
- Chaparral sand-verbena (*Abronia villosa* var. *Aurita*).
- Gravel milk-vetch (*Astragalus sabulonum*).
- Hairy stickleaf (*Mentzelia hirsutissima*).

## Wildlife Species

The Project Site and the larger region provide habitat for many common species of wildlife, including birds, bats, small mammals, carnivorous mammals, snakes, lizards, and amphibians. The suitability of habitat at the Project Site is dynamic because the agricultural fields of the Project Site and adjacent properties are routinely flooded, drained, harvested, disked, and replanted with a variety of rotating crops. Additionally, the Project Site sits within a landscape crossed by paved roads and bordered by existing utility infrastructure, commercial development, and residences. Wildlife on the Project Site and adjacent similar habitats are exposed to energy infrastructure, paved roads, and vehicle traffic. Available habitat for wildlife is fragmented by these existing land uses. Habitat fragmentation results in reduced habitat quality for many species and is overall less functional (CDFW 2014). The Project Site likely provides for greater biodiversity when actively planted and irrigated compared to when fallow or disked; however, the intermittent nature of these conditions precludes the Project Site from serving as high quality habitat for most species. Highly mobile species such as birds can take advantage of these sporadically available conditions while smaller and less mobile species may be prevented from accessing the Site due to the presence of roads and canals.

Table 3.5-1 identifies the likelihood of occurrence of special status wildlife species in the Project area based on the literature review and reconnaissance level habitat surveys described above. Two (2) special-status wildlife species were identified as having moderate potential to occur at the Project Site, California black rail and American badger (Table 3.5-1). Five (5) special-status wildlife species were observed on the Project Site, including burrowing owl, northern harrier, white-tailed kite, long-billed curlew, and white-faced ibis (Table 3.5-1). Therefore, a total of seven (7) special-status wildlife species were determined to have a moderate or higher likelihood of occurrence on the Project Site.

Five (5) wildlife species identified during the literature review were reviewed and determined to have a low likelihood of occurrence due to the Project Site providing very marginal habitat for the species based on species' life histories. Five (5) wildlife species were determined to have no likelihood of occurrence based on lack of suitable habitat.

Brief habitat descriptions and rationale for the likelihood of occurrence for these species is provided in Table 3.5-1. Special-status species life histories were reviewed using the Cornell Laboratory of Ornithology Birds of the World (Billerman et al. 2022), the California Wildlife Habitat Relationships System Life History and Range dataset (CDFW 2025), the Guide to the Amphibians and Reptiles of California (Nafis 2025), and individual species assessments from USFWS.

Based on a review of the USFWS IPaC and CDFW CNDDb databases there are 15 species federally and/or state threatened or endangered, Species of Special Concern (SSC), or other sensitive species with potential to occur at the project site. Of the 15 species one is listed as federally endangered, one is a USFWS candidate species and nine are listed as SSC to California.

The following two species were ~~observed~~ within or directly adjacent to the project site, at the time of the survey:

- ~~Long-billed curlew (*Numenius americanus*). Long-billed curlew is on the CDFW Watch List and listed with a State Rank of S2. Species with this rank are considered imperiled and at very high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, server threats, or other factors. Habitats include upland shortgrass prairies and wet meadows which are used for nesting; large coastal estuaries, upland herbaceous area, and croplands are used in winter. The project site is outside of the yearlong range but does occupy the winter range. During the survey, long-billed curlews were observed in the alfalfa~~

~~fields which are located within the survey buffer area west of the proposed Dogwood parasitic solar energy facilities polygon and east of the existing pipeline area. In addition, the surrounding area is planted with alfalfa and periodically flooded for irrigation.~~

- ~~• Northern harrier (*Circus hudsonius*). Northern harriers are listed by the CDFW as a SSC. Northern harrier habitats include marshes, grasslands, and some croplands (e.g., alfalfa, grain, sugar beets, tomatoes, melons). The project site is outside of the northern harrier breeding range, but the species occurs more broadly during migration and winter. During the survey, one northern harrier was observed circling over the field immediately east of Beech Drain and south of Willoughby Road. This area is within the survey buffer area but outside of the project ground disturbance footprint. Harriers feed on a broad variety of small to medium sized rodents and passerines.~~

One species is considered to have a **moderate potential** occur at the project site:

- ~~• Burrowing owl (*Athene cunicularia*). Burrowing owls are listed by the CDFW as a SSC. Burrowing owls start breeding as early as February and extend to August. Burrowing owls have a large breeding population in agricultural areas of the Central and Imperial Valleys where they have adapted to highly modified habitats including irrigation canals, roads, and agricultural areas. Burrows used by burrowing owls are mostly dug by ground squirrels (*Spermophilus beecheyi*), but they may use fox and badger dens, or other burrows made by small ground dwelling rodents. The project site has potentially suitable burrowing owl habitat in the area for the proposed solar energy facilities, existing pipeline, and near the medium voltage distribution cable. Of the three areas with suitable habitat, only the area for the proposed solar energy facilities contained burrows from ground squirrels that could support burrowing owls (e.g., opening with a diameter greater than 4 inches). In addition, burrowing owls have been mapped 0.7 miles north, 2 miles east, and 3 miles northwest of the project site in 1991, 2007, and 1991, respectively. Therefore, this species has moderate potential to occur at the project site.~~

The following 13 species are considered to have **no potential** for occurrence in the project area due to lack of suitable habitat, age of last occurrence, and/or species range specifications at the time of this analysis:

- ~~• Big free tailed bat (*Nyctinomops macrotis*)~~
- ~~• Costa's hummingbird (*Calypte costae*)~~
- ~~• Flat tailed horned lizard (*Phrynosoma mcallii*)~~
- ~~• Gila woodpecker (*Melanerpes uropygialis*)~~
- ~~• Monarch butterfly (*Danaus plexippus*)~~
- ~~• Northern leopard frog (*Lithobates pipiens*)~~
- ~~• Pocketed free tailed bat (*Nyctinomops femorosaccus*)~~
- ~~• Tricolored Blackbird (*Agelaius tricolor*)~~
- ~~• Western Grebe (*Aechmophorus occident*)~~
- ~~• Western mastiff bat (*Eumops perotis californicus*)~~
- ~~• Western yellow bat (*Lasiurus xanthinus*)~~

- ~~Yellow warbler (*Setophaga petechia*)~~
- ~~Yuma Ridgway's rail (*Rallus obsoletus yumanensis*)~~

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**Table 3.5-1. Results of Special-Status Wildlife Species Literature Review and Surveys of the Project Site**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
<b><u>Birds</u></b>						
<u>Athene cunicularia hypugaea</u>	<u>Western burrowing owl</u>	<u>BCC</u>	<u>Candidate Threatened or Endangered</u>	<u>SSC</u>	<u>Live in open, treeless areas with sparse vegetation and gentle sloping terrain. Nests in a burrow, often dug by small mammals.</u>	<b><u>Present.</u></b> Presence of burrowing owls confirmed on the Project Site and in the vicinity during surveys conducted in January and February 2025.
<u>Circus hudsonius</u>	<u>northern harrier</u>	<u>BCC</u>	<u>=</u>	<u>SSC</u>	<u>Breed in many open habitats. Feed on small mammals, reptiles, amphibians, and birds.</u>	<b><u>Present.</u></b> Species observed during biological resources reconnaissance survey in February 2023 and during surveys conducted in January and February 2025.
<u>Elanus leucurus</u>	<u>white-tailed kite</u>	<u>=</u>	<u>=</u>	<u>FP</u>	<u>Common in open habitats, including cultivated fields. Feed on small mammals, lizards, and birds.</u>	<b><u>Present.</u></b> Species observed during biological resources reconnaissance survey in February 2023.
<u>Empidonax traillii extimus</u>	<u>Southwestern willow flycatcher</u>	<u>Endangered</u>	<u>Endangered</u>	<u>=</u>	<u>Wet meadows and montane riparian habitats (CDFW 2025). Willows and other shrubs near standing or running water.</u>	<b><u>None.</u></b> Species included in USFWS Official Species List (USFWS 2024a) Riparian-obligate species. No suitable habitat present.
<u>Laterallus jamaicensis coturniculus</u>	<u>California black rail</u>	<u>=</u>	<u>Threatened</u>	<u>FP</u>	<u>Most common in tidal and emergent wetlands or in brackish marshes. Species requires stable, shallow water. In Imperial County, the species yearlong range includes the Salton Sea and the lower Colorado River area (CDFW 2025).</u>	<b><u>Moderate.</u></b> Species is commonly associated with arrow-weed thickets. Arrow-weed thickets growing at or below the top of bank of IID canals in the vicinity of Project Site could provide suitable habitat. Agricultural fields in the Project Area are subject

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
						to frequent irrigation providing only intermittent standing water.
<u>Numenius americanus</u>	<u>Long-billed curlew</u>	=	=	<u>WL</u>	Occur in short vegetation, including agricultural fields, where they feed on insects, crustaceans, and benthic invertebrates.	<b>Present.</b> Species observed during biological resources reconnaissance survey in February 2023 and during surveys conducted in January and February 2025.
<u>Plegadis chihi</u>	<u>White-faced ibis</u>	=	=	<u>WL</u>	Forage in shallow wetlands and wet agricultural field where they feed on invertebrates such as earthworms, crayfish, and insects.	<b>Present.</b> Species observed during biological resources reconnaissance survey in February 2023 and during surveys conducted in January and February 2025.
<u>Setophaga petechia</u>	<u>Yellow warbler</u>	=	=	<u>SSC</u>	Breed in lowland and foothill riparian woodlands with cottonwoods, willows, and other small trees.	<b>None.</b> CNDDDB record >75 years. No suitable habitat present. Project Site is well outside of the current known range of the species (CDFW 2025).
<u>Rallus obsoletus yumanensis</u>	<u>Yuma Ridgway's rail</u>	<u>Endangered</u>	<u>Threatened</u>	<u>FP</u>	Species lives in freshwater marshes dominated by cattail ( <i>Typha</i> sp.) with a mix of riparian tree and shrub species. Optimal habitat consists of a mosaic of emergent vegetation averaging >2 m (6 ft tall). Diet is dominated by crayfish, with small fish, tadpoles, clams, and other aquatic invertebrates also utilized (USFWS 2009).	<b>None.</b> None observed or heard during field surveys. Dense stands of cattails or other tall emergent vegetation are not present. No suitable habitat on site or in adjacent drains.
<b><u>Mammals</u></b>						



<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
<u>Eumops perotis californicus</u>	<u>Western mastiff bat</u>	=	=	<u>SSC</u>	The largest native bat in the U.S. Suitable habitat consists of extensive open areas with abundant roost locations provided by crevices in rock outcrops and buildings. The species roosts in cliff-face crevices and feeds high above the ground and approach the ground only at a few select drinking sites due to limited maneuverability. These bats are limited to open areas for feeding and water by their large wingspan (CDFW 2025).	<b>Low.</b> Uncommon resident through southern California (CDFW 2025). Agricultural fields of the Project Site are not preferred habitat. No suitable roosting habitat. CNDDDB record >25 years old.
<u>Lasiurus xanthinus</u>	<u>Western yellow bat</u>	=	=	<u>SSC</u>	Feeds on flying insects. Forages over water and among trees. Roosts in trees, including palm trees (CDFW 2025).	<b>Low.</b> Uncommon species in California (CDFW 2025). CNDDDB records from the 5-mile buffer >25 years old. Potential to roost in nearby palm trees and forage in area, but no roost trees on Project Site.
<u>Nyctinomops femorosaccus</u>	<u>Pocketed free-tailed bat</u>	=	=	<u>SSC</u>	Roosts in rock cliffs and crevices for roosting and forages over ponds, streams, or arid desert habitat. Must drop from the roost to gain flight speed. Habitats used include pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis (CDFW 2025).	<b>Low.</b> Rare in California but more common in Mexico (CDFW 2025). Agricultural fields of the Project Site are not preferred habitat. CNDDDB record >25 years old.
<u>Nyctinomops macrotis</u>	<u>Big free-tailed bat</u>	=	=	<u>SSC</u>	Species prefers rugged rocky canyons and feeds principally on large moths (CDFW 2025).	<b>Low.</b> Rare species in California (CDFW 2025). CNDDDB records > 35 years old Preferred habitat not present on the Project Site.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
<u>Taxidea taxus</u>	<u>American badger</u>	=	=	<u>SSC</u>	Widespread but uncommon species found in a variety of habitats. Diet consists of rodents, invertebrates, snakes, lizards, birds, and carrion. Prefers friable soils for digging burrows (CDFW 2025).	<b>Moderate.</b> CNDDDB records > 100 years old. No evidence of the species was found during biological surveys, but soils and prey base on the site provide potentially suitable habitat.
<b>Reptiles</b>						
<u>Phrynosoma mcallii</u>	<u>Flat-tailed horned lizard</u>	=	=	<u>SSC</u>	Species is restricted to areas of fine sand and sparse vegetation in desert washes and desert flats (CDFW 2025). Most common in areas with a high density of ants and fine windblown sand (Nafis 2025).	<b>None.</b> Suitable habitat not present.
<b>Amphibians</b>						
<u>Lithobates pipiens</u>	<u>northern leopard frog</u>	=	=	<u>SSC</u>	Needs permanent water for overwintering, floodplains, and marshes for breeding, and wet meadows for foraging. A very cold-hardy species. California is at the extreme western extent of the species range (Nafis 2025).	<b>None.</b> CNDDDB records >75 years old. This frog is native to California, but most native populations are now extinct (Thomson et al. 2016). The present range appears to be limited to a few locations in the Central Valley and northern California. The Project Site is well outside of the current known range of the species.
<b>Insects</b>						
<u>Danaus plexippus</u>	<u>Monarch butterfly</u>	<u>Proposed Threatened</u>	=	=	Widespread species that feeds on a variety of nectar plants but requires milkweed host plants for reproduction.	<b>Low.</b> Species life cycle requires host plants (milkweed species). No host

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal Status</u>	<u>State Status</u>	<u>CDFW Status</u>	<u>Habitat Description</u>	<u>Likelihood of Occurrence on Project Site</u>
						plants are present to support reproduction.

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## Aquatic Resources

Catalyst prepared a Preliminary Jurisdictional Delineation (PJD) Report (Appendix F of this EIR) summarizing the methods and results of an investigation of potential jurisdictional features occurring on the pProject sSite. The purpose of the PJD was to determine the location and extent of waters and/or wetlands subject to potential jurisdictional authority within the jurisdictional survey area (JSA) (includes project footprint plus 500-foot buffer). The pProject sSite and surrounding areas are traversed by a network of drains, canals, and other irrigation infrastructure administered by IID, some of which constitute potentially jurisdictional features.

The following jurisdictional features were observed within the JSA: federal non-wetland waters and state waters. All features examined are man-made, constructed entirely within uplands, and used solely for agricultural irrigation. The earthen and concrete-lined head and tail ditches are typically dry and convey water only during periodic and infrequent irrigation events. They do not support riparian vegetation/habitat. These ditches do not meet the definition of a Relatively Permanent Water (RPW) and would not be considered federally or state jurisdictional. The larger, IID-administered canals (supply) and drains (drainage), however, generally do convey water all year and ultimately flow to the Salton Sea, which is considered a Traditionally Navigable Water, and would likely be considered federally and state jurisdictional. Dogwood Canal, Dogwood Lateral 1, Beech Drain, and Date Drain No. 3 would likely be classified as R4SBCx (Riverine, intermittent streambed, seasonally flooded, excavated) while Central Main Canal is classified R2UBHx (Riverine, lower perennial, unconsolidated bottom, permanently flooded, excavated).

Table 3.5-4~~2~~ summarizes the jurisdictional features present within the disturbance area and their acreages and Figure 3.5-2 depicts their location within the JSA.

**Table 3.5-1. Table 3.5-2. Jurisdictional Waters within Disturbance Area**

Feature ID	Ordinary High Water Mark (feet)	Distance (feet)	USACE/RWQCB/CDFW Jurisdictional Waters (acres)
Dogwood Lateral 1	14	57.2	0.005
Beech Drain	40	54	0.01
Central Main Canal	89.5	56.2	0.09
<b>Total</b>		<b>167.3</b>	<b>0.11</b>

Source: Appendix F of this EIR

### Federal Wetlands

According to the PJD, there are no federal wetlands within the JSA.

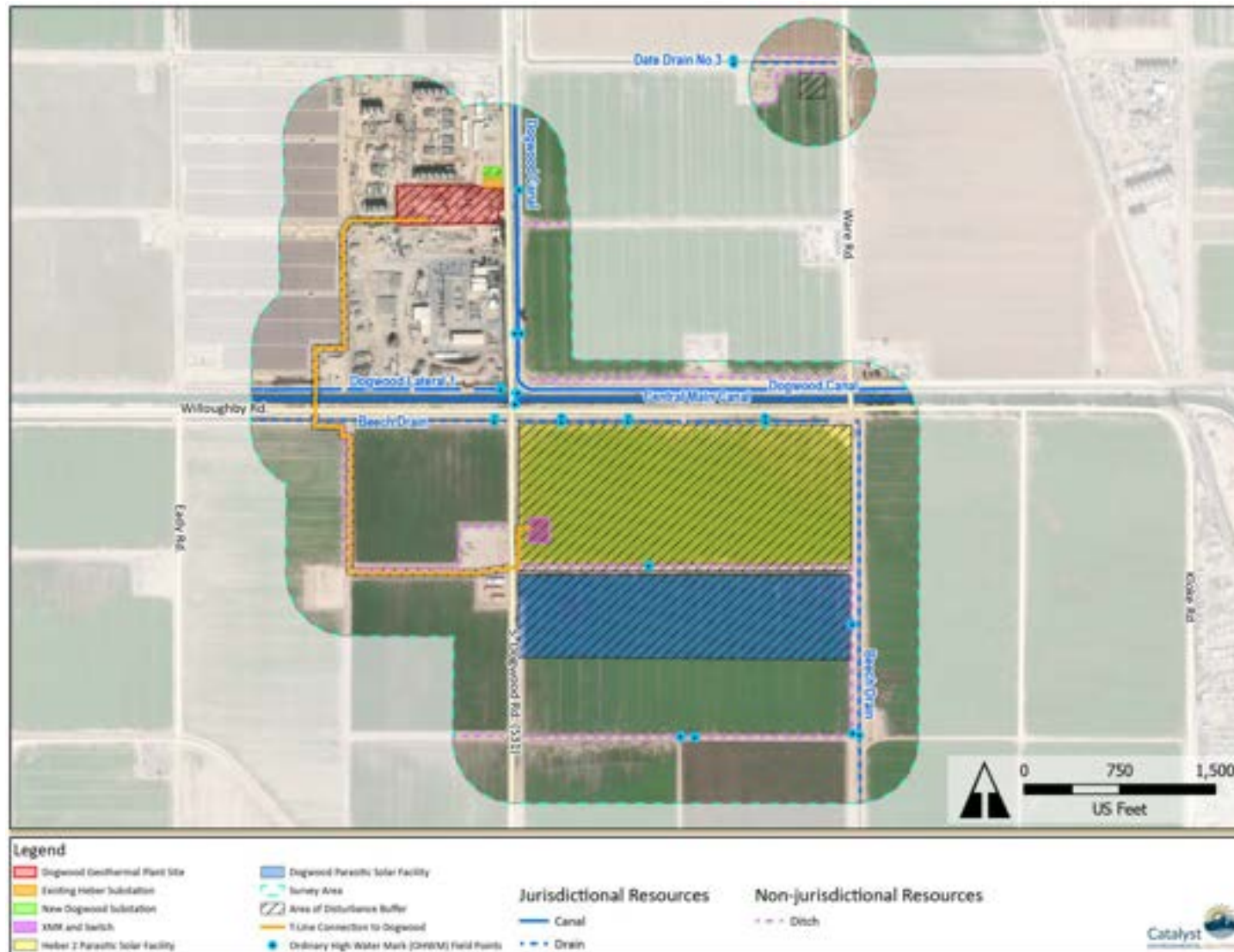
### Federal Non-Wetland Waters

According to the PJD, approximately 0.11 acres of the disturbance area meet the definition of “waters of the United States” as outlined in 33 CFR Part 328.

### CDFW Waters

According to the PJD, approximately 0.11 acres of the disturbance area also meet the definition of CDFW jurisdictional waters as outlined in Sections 1600-1616 of the CDFW Code.

Figure 3.5-2. Jurisdictional Waters within Jurisdictional Survey Area



Source: Appendix F of this EIR

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## Wildlife Movement Corridors

Migratory corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. Habitat linkages are patches of native habitat that function to join larger patches of habitat. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage does represent a potential route for gene flow and long-term dispersal. Habitat linkages may serve as both live-in habitat and avenues of gene flow for small animals such as reptiles and amphibians (Imperial County 2015).

The pProject sSite does not contain nor is near any wildlife movement corridors, linkages, or Significant Ecological Areas / FWS Critical Habitat. The project area is identified as having “limited connectivity opportunity” and is not categorized as an “essential connectivity area” by the California Essential Habitat Connectivity Project (CDFW 2023).

The project sits within a landscape crossed by paved roads and bordered by existing utility infrastructure, commercial development, and residences. All wildlife moving between the Project Site and adjacent similar habitats must cross paved roads and navigate vehicle traffic. In addition, the agricultural fields of the Project Site and adjacent properties are routinely harvested, disked, and replanted with a variety of rotating crops.

## Habitat Conservation Plans

The pProject sSite is located within the designated boundaries of the Desert Renewable Energy Conservation Plan and the Imperial Irrigation District Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). However, the pProject sSite is not located within or adjacent to an Area of Critical Environmental Concern designated in the Desert Renewable Energy Conservation Plan.

### 3.5.2 Regulatory Setting

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

#### 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 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 Federal ESA, “take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. USFWS regulations define harm to mean “an act which actually kills or injures wildlife” (50 CFR 17.3).

### *Migratory Bird Treaty Act*

The Migratory Bird Treaty Act (MBTA) prohibits the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. The prohibition applies to birds included in the respective international conventions between the U.S. and Great Britain, the U.S. and Mexico, the U.S. and Japan, and the U.S. and Russia. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. 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 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 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 404 permit or authorization to use an existing USACE Nationwide Permit will need to be obtained if any portion of the construction requires fill into a river, stream, or stream bed that has been determined to be a jurisdictional waterway.

### *Farmland Protection Policy Act*

The Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It also stipulates that federal programs be compatible with state, local, and private efforts to protect farmland. The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) is charged with oversight of the Farmland Protection Policy Act.

### *Birds of Conservation Concern (Fish and Wildlife Conservation Act [16 U.S.C. 2901–2912])*

The Fish and Wildlife Conservation Act directs the Secretary of the Interior to undertake research and conservation activities, in coordination with other Federal, State, international and private organizations, to fulfill responsibilities to conserve migratory nongame birds under existing authorities. The Secretary is required, for all species, subspecies, and migratory nongame birds, to monitor and assess population trends and status; to identify environmental change and human activities; and to

identify species in need of additional conservation and identify conservation actions to ensure perpetuation of these species.

The Birds of Conservation Concern (BCC) list updated in 2021 represents the most recent effort by the USFWS to carry out the Fish and Wildlife Conservation Act's proactive conservation mandate. The overall goal of the BCC 2021 is to identify, by geography, those nongame migratory birds (beyond those already federally listed as threatened or endangered) in greatest need of conservation attention. Because it is mandated by law and produced by the USFWS, federal agencies, international NGOs, and foreign governments view the BCC list as the official U.S. government position on migratory nongame birds of conservation concern (USFWS 2021).

## State

### *California Endangered Species Act*

Provisions of the California ESA protect state-listed threatened and endangered species. CDFW regulates activities that may result in “take” of individuals (“take” means “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of “take” under the California FGC. Additionally, California FGC contains lists of vertebrate species designated as “fully protected” (California FGC Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 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 Section 1600 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.” 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 Fully Protected fish, mammals, amphibians, reptiles, birds, and mammals by prohibiting 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 Water Quality Control Board (RWQCB). 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 resources. 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 3.5-2 analyzes the consistency of the proposed 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
<p><b>Conservation and Open Space Element - Open Space and Recreation Conservation</b></p> <p><b>Policy No. 2</b> - The County shall participate in conducting detailed investigations into the significance, location, extent, and condition of natural resources in the County.</p> <p><b>Program:</b> 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.</p>	Consistent	<p>A biological assessment has been conducted at the <del>p</del>Project <del>s</del>Site to evaluate the proposed project's potential impacts on biological resources. Although special-status wildlife species were observed and have potential to occur within the project's BSA, implementation of Mitigation Measures BIO-1 through BIO-114 would reduce potential impacts on these species to a level that is less than significant. Applicable agencies responsible for protecting plants and wildlife will be notified of the proposed project and provided an opportunity to comment on this EIR prior to the County's consideration of any approvals for the project. As described in Chapter 2, Project Description, implementation of the project would require the approval of CUPs by the County to allow for the construction and operation of the project.</p>
<p><i>Conservation of Environmental Resources for Future Generations</i></p> <p><b>Goal 1</b> - Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions and educating the public on their value.</p> <p><b>Objective 1.6</b> - Promote the conservation of ecological sites and preservation of cultural resource sites through scientific investigation and public education.</p>	Consistent	<p>A biological assessment has been conducted at the <del>p</del>Project <del>s</del>Site to evaluate the proposed project's potential impacts on biological resources. Although special-status wildlife species were observed and have potential to occur within the project's BSA, implementation of Mitigation Measures BIO-1 through BIO-114 would reduce potential impacts on these species to a level that is less than significant. With implementation of Mitigation Measures BIO-1 through BIO-114, the project would not result in residual significant and unmitigable impacts on biological resources.</p>

Source: County of Imperial 2016

BLM=Bureau of Land Management; CDFW – California Department of Fish and Wildlife; EIR – environmental impact report; USFWS – U.S. Fish and Wildlife Service

### 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, filling, 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

## 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?***

### SPECIAL-STATUS PLANT SPECIES

As previously discussed in Section 3.5.1, the following five special-status plants have been documented within 5-miles of the project area: Chaparral sand-verbena, California satintail, Abrams' spurge, gravel milk-vetch, and hairy stickleaf. These five plants carry CRPR of 1B.1-2B.3 and are considered to have a low potential of occurrence at the pProject sSite. ~~These species were not observed during the reconnaissance-level surveys and the most recent documented CNDDDB observation was in 1963, thus these species are considered to be extirpated from the area. Therefore, no impacts to these plant species are anticipated to occur with implementation of the proposed project.~~

The biological reconnaissance survey was completed in February 2023, which overlaps the blooming period for Chaparral sand-verbena (blooms January through September), California satintail (blooms September through March), and gravel milk-vetch (blooms February through July). These species were not observed during the survey.

The survey timing did not overlap with the blooming period of Abrams' spurge and hairy stickleaf. Abram's spurge flowers from September through November and occurs in sandy flats within Sonoran and Mojavean desert scrub. Hairy stickleaf flowers from April through May (Jepson Flora Project [JFP] 2024) and from March through May according to the California Native Plant Society Rare Plant Program (CNPS 2024). This plant species occurs in washes, fans, slopes, creosote-bush scrub, and Sonoran Desert scrub (rocky) (JPF 2024, CNPS 2024).

Due to the developed nature of the Project area and high agricultural use, it is unlikely that these plants would be present. These species would be restricted to the area within and around irrigation canals, which are the only areas that aren't routinely disturbed by agricultural operations. The alfalfa fields are routinely disked and disturbed as part of current operations and access roads throughout are used by vehicles and equipment. The last documented occurrence of Abrams' spurge near the Project was in 1904. The last documented occurrence for hairy stickleaf near the Project was in 1961.

The Worker Environmental Awareness Program (WEAP; Mitigation Measure BIO-1) would be implemented prior to construction for construction crews and contractors working onsite. Pre-construction special-status plant surveys (Mitigation Measure BIO-2) would be conducted to ensure no impacts occur to special-status or rare plants. Furthermore, Mitigation Measure BIO-3 (Avoidance of Sensitive Natural Communities) would ensure that project activities remain constrained to previously disturbed land. Implementation of Mitigation Measures BIO-1 through BIO-3 would reduce any potential impacts to a less-than-significant level.

### **SPECIAL-STATUS WILDLIFE SPECIES**

As previously shown in Table 3.5-1, five special-status species were observed within or directly adjacent to the Project Site at the time of the biological reconnaissance surveys including the following: burrowing owl, long-billed curlew (*Numenius americanus*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), and white-faced ibis (*Plegadis chihi*). In addition, California black rail (*Laterallus jamaicensis coturniculus*) and American badger (*Taxidea taxus*) were determined to have a moderate likelihood of occurrence based on the presence of potentially suitable habitat.

The Project has the potential to impact special-status species through loss of habitat as well as direct and indirect impacts to these species. Direct impacts to special-status species and their habitat may include injury or mortality of individuals during the construction phase of the Project and removal of habitat through activities such as clearing vegetation, trampling by construction vehicles or personnel, or unauthorized collection.

### **SPECIAL STATUS AND NESTING BIRDS**

Direct impacts on birds; including any nesting birds, special-status birds, and common species that could occur on the Site; include injury, mortality, nest failures, loss of young, loss of nesting or foraging habitat, and disturbance leading to behavioral changes (e.g., site avoidance from increased noise, human activity, dust). Indirect impacts could include introduction of invasive/non-native species, habitat fragmentation, and altered food sources. Potential impacts on these species may be considered significant.

Suitable habitat for burrowing owl is present on the Project Site and discussed separately below.

There is no suitable nesting habitat for northern harrier, white-tailed kite, California black rail (*Laterallus jamaicensis coturniculus*), long-billed curlew, and white-faced ibis. For these species, the primary impact from construction would be displacement from foraging habitat. Foraging habitat primarily occurs in the agricultural fields where raptors hunt for small mammals, lizards, and other small prey and where wading birds, shorebirds, and passerines hunt for invertebrates and feed on vegetation. The arrow-weed present at and below the top of bank of Beech Drain within the vicinity of the Project Site could support foraging habitat for California black rail, but this area is not proposed for disturbance. Implementation of Mitigation Measure BIO-3, Avoidance of Sensitive Natural Communities would prevent adverse impacts to arrow-weed thickets and therefore no loss of potential foraging habitat for California black rail would occur.

Conditions of the Project Area and the mitigation measures addressing impacts to nesting birds, special status birds, and common species known to occur or with potential to occur on the site ensure that any potential impacts to these species will be less than significant.

The Project Site is surrounded by similar land uses of agriculture and mixed industrial development and these highly mobile species would be expected to forage in adjacent similar habitats. The



population of any of these species on-site would not represent a substantial component of the region's population and impacts to any individuals would not result in population-level impacts and would be less than significant. Moreover, implementation of Mitigation Measure BIO-11 includes biological protection measures designed to reduce impacts to wildlife. Numerous Applicant proposed measures and best management practices would be in place to minimize impacts to the environment, including to special-status birds, from construction noise and disturbance as well as to minimize impacts to wildlife in general from operations and facility components (e.g., speed limits, vegetation control, water quality protection, etc.).

The agricultural fields of the Project Area and vicinity provide intermittent habitat for wading birds and water birds when fields are flooded or heavily irrigated. The detection of deceased water-affiliated birds at PV solar facilities within desert ecosystems has raised concerns that some species may be confused by the reflective properties of solar panels, mistaking the solar field for a body of water and leading to collisions with panels. An article in the popular science magazine Scientific American dubbed this as the "lake effect hypothesis" (Upton 2014). At present, there are no state or federal guidelines for addressing hypothetical effects from the lake effect (Catalyst Environmental Solutions 2025b). Given the lack of scientific consensus about the reliability of the lake effect hypothesis or how to offset theoretical impacts to avian species, further analysis would be speculative and is not necessary under CEQA.<sup>1</sup> Nevertheless, the Applicant would implement Mitigation Measure BIO-6 to reduce glint and glare from PV solar panels to minimize the likelihood that birds may mistake panels for surface water.

The WEAP (Mitigation Measure BIO-1) would be implemented prior to construction for construction crews and contractors working onsite. Preconstruction nesting bird surveys (Mitigation Measure BIO-4) would prevent impacts to nesting birds. Mitigation Measure BIO-5 requires biological monitoring during construction of any sensitive or special-status species occupying the construction area, including nesting birds. Mitigation Measure BIO-6 includes application of non-reflective coatings on PV panels to reduce glint and glare that may be confusing to birds or cause collisions. Additionally, general biological protection measures are included as Mitigation Measure BIO-9 through Mitigation Measure BIO-11 for Impact 3.5-4 below. In combination, implementation of Mitigation Measures BIO-1 and BIO-4 through BIO-6 and BIO-9 through BIO-11 would reduce impacts to special-status and nesting birds to a less-than-significant level.

#### Burrowing Owls

On October 10, 2024, the California Fish and Game Commission (Commission) approved naming the western burrowing owl as a candidate for potential listing as a protected species under CESA. The Commission provided public notice that burrowing owl is now a candidate species under CESA and as such, receives the same legal protection afforded to a species listed as endangered or threatened under CESA. CDFW has initiated a status review for burrowing owl and a final listing decision is expected in late 2025 or early 2026. CDFW is expected to publish a "Report to the Fish and Game Commission California Endangered Species Act Status Review of Western Burrowing Owl (*Athene cunicularia hypugaea*)" in late 2025, at which time the Commission will make a final determination on the listed status of burrowing owl.

Biologists determined that potential burrowing owl habitat was present within the BSA and vicinity due to the presence of sandy banks along drainage canals and burrowing activity of local communities of

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<sup>1</sup> See also unpublished decision *Jacumba v. San Diego County Board of Supervisors* (Cal. Ct. App. Jan. 23, 2024) No. D081148, 2024 WL 237632

ground squirrels during the Biological Reconnaissance Survey in February 2023. Burrows used by burrowing owls are mostly dug by ground squirrels (*Spermophilus beecheyi*), but they may use fox and badger dens, or other burrows made by small ground dwelling rodents. Burrowing owls and occupied burrows were confirmed present on the Project Site during surveys conducted in January and February 2025 (Catalyst Environmental Solutions 2025a). In addition, suitable foraging habitat occurs throughout the Project Site (e.g., agricultural fields) such that impacts on burrowing owls would be potentially significant.

The project has the potential to result in take from direct impacts to burrowing owls, including loss of suitable habitat. Project construction would not destroy or cover the existing burrows; however, it would result in loss of foraging habitat for owls and their prey species and would occur in very close proximity to burrows such that CDFW recommended buffer zones as defined in the CDFG 2012 Staff Report on Burrowing Owl Mitigation [e.g., within 656 feet (approximately 200 meters) of an occupied burrow during the breeding season (February 1 - August 31) and within 165 feet (approximately 50 meters) during the non-breeding season (September 1 - January 31)] could not be applied in most cases. More burrowing owls were observed from the non-breeding to breeding surveys, which may be attributed to not seeing all the individuals in the area during the non-breeding survey and/or the area includes migrant owls. Resident or migrant owls would likely be displaced due to the close proximity of known burrows to construction activity and later to project infrastructure (e.g., PV panels).

Indirect impacts to burrowing owls are similar to those described above for other birds; however, burrowing owls in close proximity to construction activity may abandon their nests which could result in the loss of eggs or nestlings. Construction would also result in the removal of foraging habitat for burrowing owls outside of the Project Area in nearby similar habitat.

Because the Project Area provides suitable habitat and was found to be occupied by burrowing owls, development of the Project would potentially impact individuals as well as remove the foraging habitat for the species. Therefore, impacts to burrowing owl and its habitat would be potentially significant. Formal consultation with CDFW and a State Incidental Take Permit (ITP) under California Fish and Game Code Section 2081 would be required and is recommended by CDFW (2025). CDFW recommends an ITP due to the potential for incidental take of burrowing owls and burrows in portions of the project work area where the required buffer distances indicated in the CDFW Staff Report (CDFG 2012) are infeasible due to the already small size of the project footprint. Several mitigation measures, as specified in the following paragraph, have been developed in consultation with CDFW to reduce impacts to burrowing owls to a less than significant level.

Mitigation Measure BIO-7 was developed to mitigate potentially significant impacts to a less than significant level and includes specific provisions for the avoidance, minimization, and mitigation of effects to burrowing owls in the Project Area. Specifically, this will mitigate for permanent impacts to nesting, occupied, and satellite burrows and/or burrowing owl habitat such that the habitat acreage, number of burrows and burrowing owls impacted are replaced with (a) permanent conservation of similar vegetation communities (grassland, scrublands, desert, urban, and agriculture) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and (b) sufficiently large acreage, and presence of fossorial mammals. Additionally, MM BIO-1 (WEAP) would be conducted for construction contractors and all on-site personnel to encourage awareness and preservation of the key species and resources with potential to occur on the Project Site. Mitigation Measure BIO-6 would reduce glint and glare on PV panels. Mitigation Measure BIO 9 through Mitigation Measure BIO 11 below include general biological protection measures to prevent and reduce impacts to all species (e.g., waste



management, preventing entrapment, anti-collision protocols, etc.). Implementation of these mitigation measures would reduce impacts to burrowing owls to a less-than-significant level.

## **MAMMALS**

### **American Badger**

No American badgers or badger burrows were observed on the Project Site during site visits in February 2023, January 2025, or February 2025; however, the Project Site provides potentially suitable habitat because it contains soils suitable for digging and a prey base of ground squirrels and lizards. Badgers could be present in the same habitats as burrowing owls as both species co-occur with round-tailed ground squirrels. Direct impacts to American badger during construction, if active dens are found on-site, may be significant and require mitigation. Direct impacts include injury or mortality of individuals during the construction phase of the Project and removal of potentially suitable habitat. Potential burrow and foraging habitats would be impacted from the development of the proposed solar facilities. Project construction would result in loss of potential foraging habitat for badgers and their prey species. Post-construction, operations are not expected to significantly impact American badgers because suitable habitat for badgers would likely not be present on the site post-construction due to the change in land use.

The Worker Environmental Awareness Program (WEAP; Mitigation Measure BIO-1) would be implemented prior to construction for construction crews and contractors working onsite. Mitigation Measure BIO-8 requires pre-construction surveys for badgers. Mitigation Measure BIO-8 also minimizes impacts to badgers through monitoring of any active burrows and removal of inactive burrows to discourage use of the site by badgers during construction. Applicant Proposed Measures such as speed limits are also provided in Section 2.7, Applicant Proposed Measures and Best Management Practices. Implementation of the Mitigation Measure BIO-1, Mitigation Measure BIO-8, Mitigation Measure BIO-11, as well as APMs and BMPs, which will become enforceable via the conditions of approval in the CUP (e.g., the County decision, FEIR Section 2.7), would reduce impacts to American badger to a level of less than significant.

### **Bats**

Special-status bats have a low likelihood of occurrence based on the minimal roosting habitat in the general area and based on their preferred foraging (Table 3.5-1). There is no roosting habitat for bats on the Project Site. Any bats (special-status or not) visiting the Project Site are likely to be foraging for insects over the agricultural fields and the availability of prey would be seasonally dependent based on whether the field is planted, irrigated, or recently disked. This intermittently available foraging habitat would be removed when vegetation on the parcel is cleared for construction. Impacts to bats would therefore be similar to those described above for foraging birds. Direct impacts to bats could include injury or mortality from strikes with fences, PV panels, or other infrastructure. Indirect impacts include loss of foraging habitat on the parcel and avoidance from anthropogenic effects. Implementation of Mitigation Measure BIO-1 and Mitigation Measure BIO-11 (fence markers to prevent bird or bat strikes on fences) as well as numerous Applicant proposed measures and best management practices would be in place to minimize impacts to special-status bats from construction noise and disturbance as well as to minimize impacts to wildlife in general from operations and facility components (e.g., speed limits, etc.). Implementation of Mitigation Measure BIO-1 and Mitigation Measure BIO-11 as well as numerous APMs and BMPs which will become enforceable via the conditions of approval in the CUP (e.g., the County decision; FEIR Section 2.7) would reduce impacts to bats to a level of less than significant.

## **MONARCH BUTTERFLY**

The USFWS proposed to list the monarch butterfly as a threatened species and designate critical habitat under the Endangered Species Act of 1973, as amended (ESA) on December 12, 2024 (USFWS 2024b). The Project Site is not within monarch overwintering habitat and neither the species nor their host plant (milkweed species) have been mapped on the Project Site. The agricultural fields could potentially provide nectar plants (e.g., alfalfa flowers); however this habitat is intermittently present, highly fragmented, and lacks host plants to support reproduction. Based on the available information, monarch butterfly has a low likelihood of occurrence on the Project Site. The nearest milkweed mapped is 15 miles east of the Project Site and north of the Holtville Airport (Western Monarch Milkweed Mapper 2025).

The primary impact from construction would be displacement from foraging habitat; however, in the unlikely event adult butterflies do occur at the site, construction activities could result in individual injury or mortality of adult butterflies from vehicle strikes and dust, a potentially significant impact. Numerous APMs and BMPs would be in place to minimize impacts to special-status wildlife, from construction noise, dust, and disturbance as well as to minimize impacts to wildlife in general from operations and facility components. The Worker Environmental Awareness Program (WEAP; Mitigation Measure BIO-1) would be implemented prior to construction for construction crews and contractors working onsite. Implementation of the APMs and BMPs (Section 2.7) as well as Mitigation Measure BIO-1, Mitigation Measure BIO-3 (Avoidance of Sensitive Plant Communities), and Mitigation Measure BIO-11 would reduce risks to individual monarch butterflies by protecting nectar resources provided by native arrowweed. Mitigation Measure BIO-11 also includes guidance on the use of pesticides; including insecticides, herbicides, and fungicides; that will further reduce impacts to all pollinators (USFWS 2023).

The Project Site is surrounded by similar land uses of agriculture and mixed industrial development (see Figure 3.5-1). Agricultural areas in the region undergo regular tilling and replanting including crop rotations that frequently alter the availability and makeup of nectar plants available to monarch butterflies and other pollinators. Clearing of the agricultural fields for construction preparation does not constitute a greater risk to monarch butterflies than any other vegetation removal activities (e.g., mowing and baling grassy hay fields or alfalfa fields; harvesting crops; tilling or disking). Species inhabiting the area are therefore habituated to continually changing foraging opportunities. Monarch butterflies are a mobile species and would be expected to forage in adjacent similar habitats similar to how they would adjust to harvesting, baling, or tilling of fields. Any monarchs on-site would not represent a substantial component of the region's population and impacts to individuals would not result in population-level impacts. With implementation of the APMs and BMPs (FEIR Section 2.7), which will become enforceable via the conditions of approval in the CUP (e.g., the County decision; FEIR Section 2.7), and Mitigation Measures BIO-1, BIO-3, and Mitigation Measure BIO-11, impacts to monarch butterfly would be less than significant.

As previously discussed in Section 3.5.1, long-billed curlew and northern harrier were observed within or directly adjacent to the project site at the time of the survey. Direct impacts on 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/non-native species, increase in human activity, increase in dust). Potential impacts on these species may be considered significant. Implementation of Mitigation Measures BIO-1 through BIO-3 would reduce potential impacts on long-billed curlew and northern harrier to a less than significant level. Mitigation Measure BIO-1 requires a Worker Environmental Awareness Program to be implemented prior to construction for construction crews and contractors working onsite. Mitigation

~~Measure BIO-2 requires the clearing of vegetation to take place outside of the breeding season to protect nesting birds. Mitigation Measure BIO-3 requires biological monitoring during construction to ensure that wildlife and vegetation adjacent to the BSA are not harmed.~~

~~Burrowing owls are considered to have a moderate potential to occur within the project site. Direct impacts on 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/non-native species, increase in human activity, increase in dust). Implementation of Mitigation Measures BIO-1, BIO-3, and BIO-4 would reduce potential impacts on burrowing owl to a less than significant level. Mitigation Measure BIO-1 requires a Worker Environmental Awareness Program to be implemented prior to construction for construction crews and contractors working onsite. Mitigation Measure BIO-3 requires biological monitoring during construction to ensure that wildlife and vegetation adjacent to the BSA are not harmed. Mitigation Measure BIO-4 requires a preconstruction take avoidance survey be conducted for burrowing owls.~~

#### *Mitigation Measure(s)*

**BIO-1      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. Qualified biologist resumes shall be provided to the County for review and approval prior to the start of construction. Handouts summarizing potential impacts on special-status biological resources and the potential penalties for impacts on these resources shall be provided to all construction personnel. At a minimum, the education program shall include 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 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 on 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, which shall be kept on record.

**BIO-2      Pre-Construction Plant Surveys.** Prior to the start of construction, a qualified biologist shall conduct a botanical field survey following the methodology described in

Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW March 2018). The survey shall be floristic in nature (i.e., identifying all plant species to the taxonomic level necessary to determine rarity), and shall be inclusive of areas proposed for disturbance and indirectly impacted by the Project. The results of the survey shall be documented in a letter report that will be submitted to Imperial County and CDFW. The survey shall be conducted annually until start of construction to ensure the floristic diversity is accurately captured and effective avoidance, minimization, and mitigation strategies are developed.

If special-status plant species are observed during the preconstruction rare plant survey(s) within the development area of the Project, the Project shall be designed to reduce impacts to these species through the establishment of buffers, to the extent feasible. Buffer distances will be determined by the qualified biologist, typically 50 feet or greater from an identified special-status plant species, unless the Qualified Biologist determines a reduced buffer would suffice to avoid impacts to the species.

If avoidance of special-status plant species is not feasible, a Special-Status Plant Relocation Plan shall be developed and implemented. The Special-Status Plant Relocation Plan shall address mitigation for special-status plants, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible nursery propagation, and planting; salvage and planting of bulbs as feasible; location of on-site receptor sites; land protection instruments for receptor areas; and funding mechanisms.

The Special-Status Plant Relocation Plan shall include methods, monitoring, reporting, success criteria, adaptive management, and contingencies for achieving success. All special-status plant species identified on site shall be mapped onto a site-specific aerial photograph and topographic map and included on the construction, grading, fuel modification, and landscape plans.

Botanical field surveyors will possess the following qualifications and will be approved by Imperial County prior to any botanical field surveys: Knowledge of plant taxonomy and natural community ecology; Familiarity with plants of the region, including special status plants; Familiarity with natural communities of the region, including sensitive natural communities; Experience with the CNDDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards, Experience conducting floristic botanical field surveys as described in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW March 2018), or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor; Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and Experience analyzing the impacts or projects on native plant species and sensitive natural communities.

**BIO-3** **Avoidance of Sensitive Natural Communities.** To the greatest extent practicable, Project work shall avoid impacts to arrow-weed thickets. If arrow-weed thickets cannot be avoided, the Project Applicant shall provide compensatory mitigation for direct impacts consisting of habitat acquisition at a minimum of a 3:1 ratio. Habitat acquisition sites shall be biologically equal or superior to existing conditions and must be

conserved and managed in perpetuity. This mitigation measure would be implemented prior to the start of Project-related activities by the Project Proponent.

**BIO-4** **Preconstruction Nesting Bird Survey.** If construction or other project activities are scheduled to occur during nesting 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 preconstruction nesting bird survey shall be conducted by a qualified avian biologist prior to Project-related disturbance within and adjacent to the Project area. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nesting locations and nesting behavior (including but not limited to copulation, carrying food or nesting materials, nest building, agitation, aggressive interaction, feigning injury, or distraction displays). In addition, any clearing of vegetation that may occur is required to take place outside of the breeding season. The survey shall be completed no more than 3 days prior to initial ground disturbance. The nesting bird survey shall include the project area and all suitable areas, including trees, shrubs, bare ground, burrows, cavities, and structures. If an active nest is identified, the biologist shall establish an appropriately sized no-work buffer zone around the nest, that is sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. The size of the no-work buffer zone will be based upon the biologist's best professional judgment, the birds' displayed behavior (agitation or stress), the nesting species, its sensitivity to disturbance, nesting stage and expected types, and the intensity and duration of disturbance. The no-work buffer zone shall be clearly marked in a way that does not alert predators. Construction activities shall not occur within any no-work buffer zones until the young birds have successfully fledged and the nest is deemed inactive by the qualified avian biologist. Qualified avian biologist resumes will be provided to CDFW for review and approval prior to the start of construction.

~~**BIO-24** **Preconstruction Nesting Bird Survey:** If construction or other project activities are scheduled to occur during the nesting 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 preconstruction nesting bird survey shall be conducted by a qualified avian biologist to ensure that active bird nests, including those for the northern harrier, long-billed curlew, and burrowing owl, will not be disturbed or destroyed. In addition, any clearing of vegetation that may occur is required to take place outside of the breeding season. The survey shall be completed no more than 3 days prior to initial ground disturbance. The nesting bird survey shall include the project area 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.~~

**BIO-35** **Biological Monitoring:** If preconstruction surveys determine either the presence of special status species or sensitive biological resources on the project site, a construction monitor may be needed during construction. If determined necessary, a Construction monitoring shall be conducted by a qualified biologist. Qualified biologist resumes will be provided to CDFW for approval prior to the start of construction. The biologist shall be given authority to execute the following functions:

- Establish construction exclusion zones and make recommendations for implementing erosion control measures in temporary impact areas.
- Ensure all construction activities stay within the staked construction zone and do not go beyond the limits of disturbance.
- Minimize trimming/removal of vegetation to within the project impact area.
- Restrict non-essential equipment to the existing roadways and/or disturbed areas to avoid disturbance to existing adjacent native vegetation.
- Verify permit compliance

During construction, the qualified biologists will act as biological monitors and shall inspect and verify field conditions, as needed, to ensure that wildlife and vegetation adjacent to the BSA are not harmed. The biological monitor shall coordinate with the construction supervisor and construction crew and shall have the authority to stop any activity that has the potential to affect special-status species or remove vegetation.

**BIO-6** **Non-reflective Coatings on Solar Panels.** The Applicant will use non-reflective materials and finishes to the solar panels to reduce potential glare as described in the Glint and Glare Analysis (Appendix C of the EIR). These coatings will create a matte surface that is less likely to resemble the reflective properties of water to birds flying overhead.

**BIO-7** **Burrowing Owl Avoidance, Minimization, and Mitigation.** As recommended by CDFW, Applicant will apply for and obtain an ITP prior to beginning ground disturbing activities. Applicant will comply with all permit conditions required by CDFW to minimize take.

Potential impacts to burrowing owl shall be mitigated per the guidance of the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012) and at minimum including the following:

**Burrowing Owl Protection and Mitigation Plan**

As the Project construction schedule and details are finalized, a qualified biologist will prepare a Burrowing Owl Protection and Mitigation Plan (BOPMP) for submission to CDFW for approval prior to beginning ground disturbing activities that will detail the approved, site-specific methodology proposed to avoid, minimize and mitigate impacts on this species. The goal of the BOPMP is to avoid potential direct and indirect mortality of burrowing owls.

The BOPMP will include, at a minimum: success criteria based on factors such as site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, evidence and causes of mortality, changes in distribution, trends in stressors; remedial measures; detailed survey methodology; exclusion and excavation methods; guidance for artificial burrow construction and placement; active monitoring procedures; identification of wildlife rehabilitation centers or veterinarians capable of and willing to treat burrowing owls in the case of injury of any life stage of burrowing owl (e.g., eggs, nestlings, fledglings, adults); procedures for collection and storage of carcasses; and annual reporting protocols. The BOPMP will include an annual report to CDFW and shall be funded by the Project Applicant.

### **Burrowing Owl Pre-Construction Surveys and Physical Barriers**

A CDFW-approved qualified biologist(s) shall conduct take-avoidance (pre-construction) surveys to identify, flag, and map all potential, known, and/or nesting burrows within (a) 14 calendar days prior to beginning ground-disturbing activities in the work area and (b) 24 hours prior to project construction. Surveys shall include the Project Area and a 500-foot buffer. Technical memoranda that document these survey findings will be submitted to CDFW and Imperial County.

If burrowing owl is identified during the non-breeding season (September 1 through January 31), a 50-meter (165-ft) to 100-meter (328-ft) no-work buffer between active burrows and construction activities shall be established by the qualified biologist. However, the minimum buffer shall be increased depending on the level of construction disturbance and construction activity. 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.

If burrowing owl is identified during the breeding season (February 1 through August 31), then a 100-meter (328-ft) to 200-meter (656-ft) no-work buffer will be established by the qualified biologist in accordance with CDFW Staff Report (CDFG 2012). A qualified biologist shall monitor the burrowing owls for any sign of distress and adjust the buffers as necessary to ensure no take occurs. Construction and disturbance activities within the buffer will be avoided until a qualified biologist determines that the burrow is inactive or until young have fledged.

If active burrows are present within the Project footprint and avoidance is infeasible, measures such as passive relocation methods, destruction of burrows, and construction of artificial burrows described in the following sub-sections shall be implemented upon prior approval by and in coordination with CDFW.

Depending on the level of disturbance, a smaller buffer may be established by a qualified biologist. Burrows will be buffered from development activities to the greatest extent feasible, as determined by a CDFW-approved biologist. Physical barriers, such as fences and visual screens (e.g., a portable chain link fence with shade cloth), will be used to protect identified burrows and visually shield them from work areas when feasible. Flags or markers will be placed near burrows to ensure that construction equipment does not collapse burrows.

### **Burrowing Owl Construction Monitoring**

Monitoring by a qualified biologist shall be performed during ground-disturbing construction activities to avoid disturbance to burrowing owls. Additionally, if any active burrowing owl nests are present within the Project construction area, they must be avoided by establishing a non-disturbance buffer until the young fledge or the nest fails (CDFG 2012). Any nesting owls that are adjacent to the construction area will also be avoided by establishing buffer areas. Buffer areas should be marked using flagging or fencing to facilitate avoidance.

### **Avoidance**

The following avoidance measures may assist in seasonally and spatially avoiding direct impacts and disturbances that could result in take of burrowing owls, nests, or eggs.

- Avoid disturbing occupied burrows during the breeding season, from February 1 through August 31.
- Avoid impacting burrows occupied during the non-breeding season by migratory or nonmigratory resident burrowing owls.
- Avoid direct destruction of burrows through chaining (dragging a heavy chain over an area to remove shrubs), disking, cultivation, and urban, industrial, or agricultural development.
- Do not fumigate, use treated bait or other means of poisoning nuisance animals in areas where burrowing owls are known or suspected to occur (e.g., sites observed with nesting owls, designated use areas).
- Restrict the use of treated grain to poison mammals the months of January and February.

#### **Passive Relocation and Lands Management Planning**

If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident burrowing owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, a CDFW-approved qualified biologist shall implement a passive relocation program in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012). Procedures will also be detailed in the BOPMP.

Passive relocation shall only be done in the non-breeding season, where resident owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012) and a CDFW-approved BOPMP as follows:

- To facilitate identification of replacement burrow sites, a *Burrowing Owl Exclusion Plan* and *Mitigation Lands Management Plan* shall be prepared by the qualified biologist in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (Appendix E and Appendix F of CDFG 2012). The plans shall be approved by CDFW prior to commencing passive relocation.
- All burrows would be covered or excavated, and a one-way door would be installed on occupied burrows. This will allow any animals inside to leave the burrow but will exclude any animals from re-entering the burrow.
- If burrowing owls exhibit signs of stress in attempting to re-enter the burrow, the one-way-door shall be removed to prevent take of the individual.
- A period of at least 1 week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin.
- Only burrows that will be directly impacted by the Project shall be excavated and filled in to prevent their reuse.



- Off-site "replacement burrow site(s)" must consist of a minimum of two suitable, unoccupied burrows for every burrowing owl or pair to be passively relocated.
- The *Mitigation Lands Management Plan* will be developed when off-site or on-site mitigation habitat protection is needed to ensure compliance with and effectiveness of identified management actions for the mitigation lands. The Applicant shall implement the *Mitigation Lands Management Plan* and permanently conserve in a conservation easement offsite habitat suitable for burrowing owl. Land identified to mitigate for passive relocation of burrowing owl may be combined with other offsite mitigation requirements of the Project if the compensatory habitat is deemed suitable to support the species.
- The Applicant may purchase available burrowing owl conservation bank credits from a CDFW-approved conservation bank in lieu of placing offsite habitat into a conservation easement. The final terms of potential land acquisition and/or credits, or some combination thereof (e.g., fees, easements, approvals, documentation, etc.), will be established in consultation with CDFW via the ITP process.

**BIO-8** **American Badger Avoidance and Minimization.** Prior to initial site clearing, a CDFW-approved qualified biologist shall conduct a pre-construction survey for American badgers. The biologist shall conduct the pre-construction survey within 3 days prior to the initiation of ground disturbing activities. If no American badger individuals and/or dens are found during the pre-construction survey, the biologist shall document the findings in a letter report to CDFW, and no further mitigation shall be required. If individuals and/or dens are found, the Applicant shall consult with CDFW and a CDFW-approved qualified biologist to determine an appropriate no-disturbance buffer (typically 50-foot buffer around occupied dens and a 250-foot buffer around natal dens) to avoid impacts to the den. The no-disturbance buffer around natal dens shall remain in place until a qualified biologist determines through non-invasive means that the individuals occupying the den have dispersed. If impacts cannot be avoided and den excavation and exclusion implementation is required, den excavation and exclusion activities shall only take place during the non-breeding season (typically September 1 through January 1) in consultation with CDFW.

**BIO-9** **Avian/Power Line Collision Avoidance and Minimization.** Install bird flight diverters in accordance with the Avian Power Line Interaction Committee (APLIC) guidelines for reducing avian collisions with power lines (Reducing Avian Collisions with Power Lines; APLIC 2012). Details of design components shall be indicated on all construction plans. The Applicant shall monitor for new versions of the APLIC collision guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures. All bird flight diverters shall be maintained for the duration of construction and operation.

**BIO-10** **Avian Electrocution Avoidance and Minimization.** Implement Project-specific design measures in accordance with the APLIC guidelines for minimizing avian electrocutions. The Applicants shall construct and maintain all transmission facilities, towers, poles, and lines in accordance with applicable policies set forth in the most recent APLIC guidelines for minimizing avian electrocutions (Avian Protection Plan Guidelines; APLIC and USFWS 2005). Specific APLIC guidelines to be incorporated

into the design of the transmission lines to minimize avian electrocutions shall include the following:

- Design the tops of structures to be safe for perching raptors.
- Provide 60 inches separation between energized conductors and:
  - energized conductors,
  - grounded or neutral conductors,
  - pole line hardware that could provide a perch or nesting place, and
  - overhead shield wires, including optical ground wire shield wire.
- Ensure that all exposed jumper cables are completely covered with a cover of a qualified insulation rating.
- Ensure insulation of all energized arresters with covers and insulated cables.
- Details of design components shall be indicated on all construction plans. The Applicants shall monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures.

#### **BIO-11 Biological Protection Measures.**

- Fence markers shall be installed to deter or prevent birds and bats from colliding with perimeter/security fencing and maintenance or replacement of these markers will be completed per the manufacturer instruction.
- If encountered, wildlife within the Project Site shall be allowed to escape unimpeded, relocated by a qualified biologist and placed in a designated safe area away from construction activities, or left in place when required by regulations, policies, permits, and/or conditions of approval. If wildlife relocation of common species is required, the qualified biologist approved by CDFW prior to the start of construction shall approve the method of relocation or oversee the relocation. Any relocation of special status species would require additional coverage under an Incidental Take Permit or Biological Opinion.
- Construction personnel trained by the qualified biologist during the WEAP, shall inspect under vehicles and equipment every time the vehicles or equipment are moved to make sure no special status or common wildlife species are present, which could be injured. If an animal is present, site workers shall wait for the individual to move to a safe location. If a special-status species is discovered under equipment or vehicles and does not move on its own, the Applicant shall contact Imperial County, CDFW, and/or USFWS to determine the appropriate action.
- All excavations (e.g., steep-walled holes, or trenches) more than 6 inches deep shall be covered with plywood or similar materials when not in use or fitted with at least one escape ramp constructed of earth dirt fill, wooden planks, or another material that wildlife could ascend to prevent entrapment. All excavations more than 6 inches deep shall be inspected daily for entrapped wildlife before construction activities begin and once immediately before being covered with

plywood. Before excavations are filled, they shall be thoroughly inspected for entrapped wildlife. Any wildlife discovered shall be allowed to escape unimpeded before field activities resume or shall be removed from excavated areas by a qualified biologist and released at a safe nearby location.

- Where habitat will be temporarily disturbed, restore the disturbed area to pre-project condition, including decompacting soil and revegetating.
- All open ends of pipes, culverts, and conduits temporarily installed in open trenches or stored in staging/laydown areas shall be covered/capped at the end of each workday. Any such materials that have not been capped shall be inspected by construction personnel for wildlife before being moved, buried, or handled. Should wildlife become trapped, a qualified biologist shall be notified by construction personnel to remove and relocate the individual(s). If a listed species is discovered inside a pipe, that section of pipe shall not be moved. The Project shall contact CDFW and/or USFWS to determine the appropriate action.
- All food-related trash items (wrappers, cans, bottles, food scraps, cigarettes, etc.), general trash, micro trash (nails, bits of metal and plastic, small construction debris, etc.), and other human-generated debris scheduled to be removed shall be stored in animal-proof containers and removed from the site on a regular basis (weekly during construction, and at least monthly during operations). No deliberate feeding of wildlife or domestic animals shall be allowed.
- New light sources shall be minimized, and lighting shall be designed (e.g., using shielding and/or downcast lights) to limit the lighted area to the minimum necessary.
- Use of chemicals, fuels, lubricants, or biocides shall be in compliance with all local, state, and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation.
- To prevent harassment and mortality of listed, special status, and common wildlife species and destruction of their habitats, no domesticated animals shall be permitted on the site.
- No firearms shall be allowed on the Project Site, unless otherwise approved for security personnel.
- Use only native, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit harmful pesticide residues.
- Protect pollinators and their habitats from pesticides, including insecticides, fungicides, and herbicides. If pesticides are used in areas with flowering plants, lessen their potential harm by adhering to the following guidance:
- Avoid the use of neonicotinoids or other systemic insecticides, including coated seeds due to their ecosystem persistence, systemic nature, and toxicity to pollinators (Xerces Systemic Insecticides List [Xerces Society 2025]).

- Avoid the use of insecticides that target lepidopterans (e.g., moths and butterflies), including biological pesticides (IRAC 2011).
- Use targeted application methods, avoid large-scale broadcast applications, and take precautions to limit off-site movement (e.g., wind drift, discharge from surface water flows).
- If pesticides are used for vector control treatments (e.g., mosquitoes), avoid treatment unless monitoring indicates that the species and numbers exceed a public health threshold. For any mosquito treatments, first employ prevention steps such as reducing standing water. Where possible, draw mosquitoes away from sensitive sites (e.g., using dry ice traps) to limit treatment effects in sensitive habitat areas.

**BIO-4** ~~**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), a minimum 50-meter buffer shall be established by the biological monitor for low-level disturbance. However, the minimum buffer shall be increased depending on the level of construction disturbance (e.g., medium or high). 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.~~

#### *Significance After Mitigation*

The proposed project has the potential to impact special-status wildlife species during construction. However, implementation of Mitigation Measures BIO-1, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8, BIO-9, BIO-10, and BIO-11 ~~through BIO-4~~ would reduce potential impacts to less than significant levels.

#### **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?***

As shown in Figure 3.5-1, arrow weed thicket occurs within the BSA. Arrow weed thickets are recognized by CDFW as a sensitive natural community. Arrow weed thickets were found along canals

and drains below the ordinary high-water mark. The canals fall within the BSA, however, none of the arrow weed thickets that occur within the BSA would be removed or disturbed by project activities. Implementation of Mitigation Measure BIO-3, Avoidance of Sensitive Natural Communities would prevent adverse impacts to arrow-weed thickets. Therefore, the proposed project would not have substantial adverse effects on sensitive natural communities, and this is considered a less than significant impact.

#### *Mitigation Measure(s)*

No mitigation measures are required. Although no potentially significant impacts are expected to sensitive natural communities, Mitigation Measure BIO-3, Avoidance of Sensitive Natural Communities, is being adopted as a precautionary measure.

#### *Significance After Mitigation*

The proposed project is not expected to impact sensitive natural communities. However, implementation of Mitigation Measure BIO-3 would ensure potential impacts are less than significant.

#### ***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?***

~~Based on the PJD, no state or federally protected wetlands exist within the JSA. No state or federally protected wetlands were documented in the PJD for the Project Area.~~ The IID irrigation canals and drains meet the requirements for jurisdictional waters, however none of the jurisdictional features are within the project footprint except for the proposed medium voltage distribution cable. The medium voltage distribution cable would cross Dogwood Lateral 1 in addition to S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Central Main Canal at the existing above-ground pipeline span. The entire span of the medium voltage distribution cable would sit above the canal. Therefore, the proposed project would have no substantial adverse effect on state or federally protected wetlands, and impacts would be less than significant.

#### *Mitigation Measure(s)*

No mitigation measures are required.

#### *Significance After Mitigation*

The proposed project is not expected to impact state or federally protected wetlands or waters.

#### ***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?***

Implementation of the full suite of biology mitigation measures (BIO-1 through BIO-8) as well as the mitigation measures (BIO-9 through BIO-11) are designed to minimize and mitigate for impacts to wildlife in the Project Area. The proposed project would not interfere with any native resident or migratory wildlife corridors, nor interfere with the movement of any resident or migratory species. The proposed Dogwood geothermal plant will be constructed within the HGEC which is entirely fenced for

security purposes, precluding wildlife from using the site as habitat or for migration. The area to be developed for the solar facilities has suitable habitat for numerous wildlife species, including the special-status species shown in Table 3.5-1. While the site functions as part of general habitat for wildlife and provides for local movement of terrestrial wildlife, it does not serve as a corridor.

~~burrowing owl, long-billed curlew and northern harrier. Burrowing owls are considered to have a moderate potential to occur within the project site. Long-billed curlews were observed in the alfalfa fields which are located within the survey buffer area west of the proposed Dogwood geothermal solar energy facilities polygon and east of the existing pipeline area. One northern harrier was observed circling over the field immediately east of Beech Drain and south of Willoughby Road. Although this area is within the survey buffer area, it is outside of the project ground disturbance footprint. However, as described under Impact 3.5-1, Mitigation Measures BIO-1 through BIO-4 would reduce impacts to less than significant levels.~~

#### *Mitigation Measure(s)*

No mitigation measures ~~beyond Mitigation Measures BIO-1 through BIO-4~~ are required.

#### *Significance After Mitigation*

The proposed project is not expected to impact wildlife movement.

#### ***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 geothermal plant, solar energy facilities, and geothermal wells and pipeline. Development of these facilities would be subject to the County's zoning ordinance.

The project parcels are currently zoned as A-2-G-SPA and A-2-G-U. Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone:

- n) Oil, gas and geothermal exploration meeting requirements specified in Division 17*
- s) Solar energy extraction generation provided that is for on-site consumption only*

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:

- y) Electrical generation plants (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*
- z) Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*
- bb) Facilities for the transmission of electrical energy (100-200 kv)*
- ii) Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*
- rr) Major Geothermal projects per Division 17*
- ww) Resource extraction and energy development as per Division 17*
- aaa) Solar energy electrical generator.*

As demonstrated in Table 3.5-23 and discussed further in Section 3.11, Land Use Planning, with approval of the CUPs, 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 with the project's potential to conflict with local policies protecting biological resources.

*Mitigation Measure(s)*

No mitigation measures are required.

*Significance After Mitigation*

The proposed project is not expected to conflict with policies or ordinances protecting biological resources.

***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 pProject sSite is located within the designated boundaries of the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP). However, the project site is not located near or in the vicinity of an Area of Critical Environmental Concern or FWS Critical Habitat. Implementation of the proposed project ~~would result in no impact associated with the potential to~~ would not conflict with the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan or any local conservation plans.

*Mitigation Measure(s)*

No mitigation measures are required.

*Significance After Mitigation*

The proposed project is not expected to conflict with any habitat conservation plan or local conservation plan.

### 3.5.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

Project decommissioning activities will require construction vehicles to drive across the pProject sSite 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. This is a potentially significant impact; however, implementation of Mitigation Measures BIO-1 through BIO-114 at the time of decommissioning would reduce potential impacts to a less than significant level.

#### Residual

With the implementation of Mitigation Measures BIO-1 through BIO-114, potential impacts on special-status species would be reduced to less than significant level. Therefore, the proposed 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 *Cultural Resource Assessment* for the proposed project prepared by PaleoWest, LLC. This report is included in Appendix G of this EIR. The cultural resources inventory included a records search, literature review, and pedestrian survey.

### 3.6.1 Existing Conditions

#### Cultural Setting

The Cultural Resource Assessment prepared for the project (Appendix G of this EIR) contains a detailed description of the prehistoric, ethnographic, and historic context of the project region.

#### Records Search

PaleoWest conducted an in-person records search at the South Coastal Information Center (SCIC), housed at San Diego State University, on February 1, 2023. The inventory effort included the project area along with a corresponding one-mile buffer, collectively termed the records search area. The objective of the SCIC records search was to identify prehistoric and historical cultural resources that have been previously recorded within the records search area during prior investigations.

#### *Previous Cultural Resource Investigations*

The data review indicates that no fewer than 35 previous investigations have been conducted and documented within one mile of the project area since 1976. Six of these studies encompassed portions or the entirety of the project area. Many of the prior studies were associated with proposed geothermal developments. None of these previous investigations identified any cultural resources within the current project area. A summary of the prior cultural studies is provided in Appendix G of this EIR.

#### *Cultural Resources Reported within the Study Area*

The review of the record search data indicate that six cultural resources have been previously documented within one mile of the project area. All these resources date to the historic period and include the mapped locations of telegraph poles, railroad segments, an irrigation feature, and a pool facility. No prehistoric archaeological resources were identified within the record search area and none of the previously documented resources are located within or immediately to the project area. A summary of the previously recorded resources in the record search area is provided in Appendix G of this EIR.

#### Native American Outreach

PaleoWest contacted the Native American Heritage Commission (NAHC) for a review of the Sacred Land Files (SLF) on January 19, 2023. The objective of the SLF search was to determine if the NAHC had any knowledge of Native American cultural resources (e.g., traditional use or gathering area, place of religious or sacred activity, etc.) within the immediate vicinity of the project area. The NAHC

responded on February 28, 2023, stating that the SLF search resulted in positive results. The NAHC recommended that the Ewiiapaayp Band of Kumeyaay Indians and the Torres-Martinez Desert Cahuilla Indians be contacted to request information on known Native American cultural resources in the project vicinity. In addition, the NAHC provided a list of 24 individuals representing 16 Native American tribal groups that may also have knowledge of cultural resources in the project area. Outreach letters that included a map of the project area were sent to the Native American contacts on March 1, 2023, with follow up emails and phone calls conducted on March 15, 2023. A summary of the Native American outreach letters is provided in Appendix G of this EIR.

As of March 23, 2023, the following four comments have been received:

- Ray Teran of the Viejas Band of Kumeyaay Indians (“Viejas”) responded via email on March 1, 2023, requesting a project plan and description, specifically as it relates to ground disturbance. PaleoWest responded later that day stating that information on the full extent of ground disturbance was not yet known but that it is anticipated that some ground disturbance will take place in most of the Project area that was shown on the map provided in the outreach letter. Mr. Teran responded via email on March 2, 2023, stating he had reviewed the proposed project and at this time has determined that the project site has cultural significance or ties to Viejas. He further noted that cultural resources have been located within or adjacent to the proposed project and requested that a Kumeyaay Cultural Monitor be on site for ground-disturbing activities. In addition, he requested that the Viejas be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains.
- On March 2, 2023, Jill McCormick, the Historic Preservation Officer of the Quechan Indian Tribe, responded via email and stated that the tribe does not wish to provide PaleoWest with any comment on the project.
- Rebecca Osuna, Chairperson of the Inaja-Cosmit Band of Indians, stated on March 15, 2023, that the project is outside of the tribe’s geographic area and she had no comments at this time.
- Lisa Cumper, Tribal Historic Preservation Officer for the Jamul Indian Village, discussed the proposed project on the phone with PaleoWest staff on March 15, 2023, and noted that the tribe would defer to more local Native American groups.

## Field Survey

A cultural resources survey of the project was completed by PaleoWest archaeologists between February 22 and 24, 2023. The survey methods consisted of walking a series of parallel pedestrian transects spaced at 10–15 meter (33–50-feet) intervals across the geothermal plant site and solar energy facilities. A 300-foot- (91-meter-) wide buffer was also surveyed along the proposed gen-tie line and pipeline alignments. In total, 219 acres of land were inventoried during the field effort.

The survey of the project area resulted in the identification of three historic built-environment resources that include segments of the Central Main Canal, Dogwood Canal, and Beech Canal and Drain system. All three resources consist of portions of in-use irrigation-related features that are more than 45 years of age. No prehistoric or historic period archaeological remains were identified in the project area. Descriptions and evaluations of the three historic built-environment resources are provided below.

### *Central Main Canal*

Portions of the proposed medium voltage distribution cable and brine pipeline alignment intersect the Central Main Canal. The Central Main Canal is a major distribution canal and an integral part of the extensive irrigation system that comprises the IID. The construction and operation of the Central Main Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The canal system that was built in the early twentieth century significantly increased the agricultural productivity of the area between the Alamo River and New River. Because the Central Main Canal can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The Central Main Canal was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The Central Main Canal and its associated laterals and drains are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the Central Main Canal does not have the potential to yield any information important to the study of twentieth century channel construction and is thus not eligible under Criterion 4.

The alignment of the Central Main Canal has not changed significantly since its construction in the early part of the twentieth century and therefore, the resource retains integrity of location. There have been some minor alterations to the canal over the years, such as the replacement of bridges and the installation of brine pipelines. However, the earthen construction that characterizes the canal has not been substantially modified. Therefore, it retains integrity of design, workmanship, and materials. Although agricultural fields are still prevalent in the area, the construction and operation of industrial and energy facilities in the immediate vicinity of the Central Main Canal has resulted in the loss of integrity of setting, feeling, and association. Despite this loss, the character-defining aspects of the segment of the Central Main Canal within the project area retain sufficient integrity to convey the resource's significance.

Based on these findings, the Central Main Canal is recommended as eligible for inclusion in the CRHR under Criterion 1.

### *Dogwood Canal*

Portions of the proposed medium voltage distribution cable and brine pipeline alignment intersect a lateral of the Dogwood Canal, an approximately 12.8-mile-long irrigation channel that branches off the Central Main Canal near Highway 111.

The Dogwood Canal is a part of the IID's CM canal system, which was initially constructed in the early twentieth century. The construction and operation of the Dogwood Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The canal systems that were built at this time significantly increased the agricultural productivity of the area between the New River and Alamo River. Because the Dogwood Canal can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The Dogwood Canal was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The Dogwood Canal and its associated laterals are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive

characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the Dogwood Canal does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the Dogwood Canal has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Although agricultural fields are still prevalent in the area, the construction and operation of industrial and energy facilities in the immediate vicinity of the canal has resulted in the loss of the resource's integrity of setting, feeling, and association. The resource has also experienced extensive alterations including lining portions of the canal with concrete and the replacement of gates and hardware. As a result of these alterations, the structure lacks integrity of design, workmanship, and materials. Due to the loss of integrity, the character-defining aspects of the Dogwood Canal do not retain sufficient integrity to convey its significance under Criterion 1.

Based on these findings, the Dogwood Canal is not recommended as eligible for inclusion in the CRHR.

#### *Beech Canal and Drain*

A portion of the proposed solar facilities site, medium voltage distribution cable, and brine pipeline alignment intersect the lateral distribution system associated with the Beech Canal and Drain.

The Beech Canal and Drain are part of the IID's Central Main canal system, which was initially constructed in the early twentieth century. The construction and operation of the canal and its associated laterals and drainage systems can be considered an important event in the early settlement of the Imperial Valley. The canal systems that were built at this time significantly increased the agricultural productivity of the area between the New River and Alamo River. Because the Beech Canal and Drain can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The Beech Canal and Drain was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The Beech Canal and Drain and its associated laterals and drainage systems are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the Beech Canal and Drain does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the Beech Canal and Drain has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Although agricultural fields are still prevalent in the area, the construction and operation of industrial and energy facilities in the immediate vicinity of the Beech Canal and Drain has resulted in the loss of the resource's integrity of setting, feeling, and association. The resource has experienced extensive alterations including the lining of the canal and associated laterals with concrete and the replacement of gates and hardware. As a result of these alterations, the structure lacks integrity of design, workmanship, and materials. Due to the loss of integrity, the character-defining aspects of the Beech Canal and Drain do not retain sufficient integrity to convey its significance under Criterion 1.

Based on these findings, the Beech Canal and Drain is not recommended as eligible for inclusion in the CRHR.

### 3.6.2 Regulatory Setting

This section identifies and summarizes 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.
- (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 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 3.6-1.

**Table 3.6-1. Project Consistency with Applicable General Plan Goals and Objectives**

General Plan Policies	Consistency with General Plan	Analysis
<p>Conservation and Open Space Element - <i>Open Space and Recreation Conservation</i></p> <p>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.</p> <p>Objective 1.4 - Ensure the conservation and management of the County’s natural and cultural resources.</p>	Consistent	<p>A cultural assessment was prepared for the project area. The proposed project has the potential to encounter undocumented archaeological resources and human remains. With implementation of Mitigation Measure CUL-1, potential impacts to previously unrecorded cultural resources would be reduced to a level less than significant. Mitigation Measure CUL-2 would ensure that the potential impact on previously unknown human remains does not rise to the level of significance pursuant to CEQA.</p>
<p><b>Objective 3.1</b> - Protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance.</p>	Consistent	

Source: County of Imperial 1993

Notes:

CUL=cultural; WEAP= Worker Environmental Awareness Program



### 3.6.3 Impacts and Mitigation Measures

#### 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 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 previously mentioned, a *Cultural Resource Assessment* was prepared for the proposed project and (Appendix G of this EIR). The report provides the results of the SCIC records search and field survey which have been completed for the project area pursuant to CEQA.

The information from the cultural report was reviewed and summarized to present the existing conditions and to identify potential environmental impacts, based on the significance criteria presented in this section. Impacts associated with cultural resources 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?***

Pursuant to *CEQA Guidelines* Section 15064.5 (b), substantial adverse change in the significance of a historical resource 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 Section 5024.1(g), unless the public agency establishes by a preponderance of the evidence that the resource is not historically or culturally significant.

Based on the current design, the only project components that intersect the Central Main Canal are the medium voltage distribution cable and geothermal pipeline corridors. The geothermal fluid/brine

generated by the project will be transported across the Central Main Canal through the existing pipeline network and no additional pipelines will be installed in the vicinity of the Central Main Canal. The proposed medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Central Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays. Based on this analysis, the proposed project will not directly impact the essential physical characteristics of the historical resource and the aspects of integrity (i.e., location, design, workmanship, and materials) that contribute to its significance.

Indirect impacts are also not expected to result in an adverse change in the significance of the Central Main Canal. The recorded segment of the Central Main Canal has been impacted by prior development of industrial and solar facilities which have altered the surrounding vicinity and geographic terrain and caused a loss of integrity of setting, feeling, and association. Because the Central Main Canal has already lost these aspects of integrity, any indirect visual intrusions introduced by the Project will not result in a substantial change in the significance of the resource. It is anticipated other indirect impacts, such as noise and vibration effects, would be temporary in nature and limited to the construction phase.

Given these findings, the proposed project will not result in any adverse change to the significance of the Central Main Canal as a historical resource under CEQA and impacts would be considered less than significant.

#### *Mitigation Measure(s)*

No mitigation measures are required.

#### ***Impact 3.6-2 Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?***

No archaeological resources were identified in the record search or field investigation and the absence of known archaeological resources within one mile of the project suggests that this area is characterized by a low sensitivity for archaeological remains. However, there is a potential, albeit minimal, to encounter unanticipated cultural resources or human remains during ground-disturbing activities. This potential impact is considered significant. However, implementation of Mitigation Measure CUL-1 would reduce the potential impact associated with the inadvertent discovery of archaeological resources to a less than significant level.

#### *Mitigation Measure(s)*

**CUL-1 Evaluate Significance of Find (Unknown Archaeological Resources).** 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.

***Impact 3.6-3 Would the project disturb any human remains, including those interred outside of dedicated cemeteries?***

The project site is not located on a known cemetery and no human remains are anticipated to be disturbed during project construction. However, during construction, grading, excavation, and trenching would 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 such remains could be exposed during construction. The potential to encounter human remains is considered a potentially significant impact. Mitigation Measure CUL-2 would ensure that the potential impact on previously unknown human remains does not rise to the level of significance pursuant to CEQA. Therefore, with implementation of Mitigation Measure CUL-2, impacts would be reduced to a less than significant level.

*Mitigation Measure(s)*

**CUL-2 Human Remains.** If subsurface deposits believed to be human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist who meets the Secretary of the Interior's Standards for prehistoric and historic archaeology and is familiar with the resources of the region, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the find includes human remains, or remains that are potentially human, the professional archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Imperial County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented.
- If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC may mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment

document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the Imperial County Planning and Development Services Department, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

### 3.6.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

At the end of the project's useful life, all equipment and facilities will be properly abandoned 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

With implementation of Mitigation Measure CUL-1, potential impacts to previously unrecorded cultural resources would be reduced to a level less than significant. Mitigation Measure CUL-2 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 Energy

This section includes an overview of the existing energy sources within the project area and identifies applicable local, state, and federal policies related to energy. The impact assessment provides an evaluation of potential adverse effects on energy based on criteria derived from the CEQA Guidelines in conjunction with actions proposed in Chapter 2, Project Description.

### 3.7.1 Existing Conditions

Energy capacity, or electrical power, is generally measured in watts, while energy use is measured in watt-hours (Wh). For example, if a light bulb has a capacity rating of 100 Watts (W), the energy required to keep the bulb on for 1 hour would be 100 Wh. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 Wh or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in megawatts, which is one million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is one billion watt-hours.

Electrical services in the project area are provided by the IID. IID operations are divided between a water division responsible for distribution and collection of water, and a power division responsible for generation and distribution of electrical power. Power is generated from various sources, including fossil fuel, hydroelectric, nuclear, biomass/biowaste, wind, and geothermal plants, and is fed into the electrical grid system serving Imperial County. The majority of the electricity at the project site is generated by the HGEC. Natural gas service in the area is provided by the Southern California Gas Company.

Transportation dominates California's energy consumption profile. Overall, the transportation sector accounts for 34 percent of state end-use energy consumption (United States Energy Information Administration 2023). According to California Air Resources Board's (CARB's) EMFAC2021 Web Database, Imperial County's on-road transportation sources consumed approximately 432 million gallons of gasoline and 163 million gallons of diesel fuel in 2022 (CARB 2023b).

### 3.7.2 Regulatory Setting

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

#### Federal

##### *Energy Policy Act of 2005*

The Energy Policy Act (EPA) of 2005 includes several electricity-related provisions for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas. The Renewable Fuel Standard (RFS) program was created under the EPA of 2005 and established the first renewable fuel volume mandate in the United States. The program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders. As required under EPA, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012.

##### *Energy Independence and Security Act of 2007*

The Energy Independence and Security Act (EISA) (Public Law 110-140) was signed into law by President George W. Bush on December 19, 2007. The Act's goal is to achieve energy security in the

United States by increasing renewable fuel production, improving energy efficiency and performance, protecting consumers, improving vehicle fuel economy, and promoting research on greenhouse gas (GHG) capture and storage. Under the EISA, the updated RFS program (RFS2) was expanded in several key ways:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel, and set separate volume requirements for each one.
- EISA required the U.S. Environmental Protection Agency (EPA) to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

RFS2 lays the foundation for achieving significant reductions of GHG emissions from the use of renewable fuels, for reducing imported petroleum, and encouraging the development and expansion of the nation's renewable fuels sector.

## State

### *Renewable Energy: California Renewables Portfolio Standard Program*

Established in 2002 under Senate Bill (SB) 1078, accelerated in 2006 under SB 107, expanded in 2011 under SB 2 and further expanded in 2015 under SB 350, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. On September 12, 2002, then-Governor Gray Davis signed SB 1078. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

In November 2008, then-Governor Arnold Schwarzenegger signed Executive Order (EO) S-14-08, which expands the state's RPS to 33 percent renewable power by 2020. In September 2009, former Governor Schwarzenegger continued California's commitment to the RPS by signing EO S-21-09, which directs the California Air Resources Board (CARB) under its Assembly Bill (AB) 32 authority to enact regulations to help the state meet its RPS goal of 33 percent renewable energy by 2020.

The 33 percent by 2020 goal was codified in April 2011 with SB X1-2, which was signed by Governor Edmund G. Brown, Jr. This RPS preempts the CARB 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. These entities must adopt the new RPS goals of 20 percent of retail sales from renewables by the end of 2013 and 25 percent by the end of 2016, with the 33 percent requirement being met by the end of 2020.

The Clean Energy and Pollution Reduction Act of 2015, SB 350 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 does the following: (1) increases the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; (2) requires the State Energy Resources Conservation and Development



Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation (SB-350 Clean Energy and Pollution Reduction Act 2015).

#### *Title 24 Energy Efficiency Standards*

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6 of the California Code of Regulations) ("Title 24 Standards") were established in 1978 in response to a legislative mandate to reduce California's energy consumption to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The standards are updated periodically (typically every three years) to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Standards went into effect on January 1, 2020, and improve upon the 2016 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 update to the Energy Efficiency Standards for Residential and Nonresidential Buildings focuses on several key areas to improve the energy efficiency of new constructed buildings and additions and alterations to existing buildings. The major efficiency improvements to the nonresidential Standards include alignment with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2017 national standards. The 2019 Standards also include changes made throughout all of its sections to improve the clarity, consistency, and readability of the regulatory language. Furthermore, the 2019 update requires that enforcement agencies determine compliance with CCR, Title 24, Part 6 before issuing building permits for any construction.

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to "improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality." The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality. As previously mentioned, the 2019 update to the CALGreen Code went into effect on January 1, 2020. The 2019 CALGreen Code improves upon the previously applicable 2016 CALGreen Code by updating standards for bicycle parking, electric vehicle charging, and water efficiency and conservation.

#### *California Assembly Bill No. 1493 (AB 1493, Pavley)*

The transportation sector accounts for more than half of California's carbon dioxide (CO<sub>2</sub>) emissions in California. AB 1493 (commonly referred to as Pavley regulations), enacted on July 22, 2002, required CARB to set GHG emission standards for new passenger vehicles, light-duty trucks, and other vehicles whose primary use is noncommercial personal transportation manufactured in and after 2009.

### *CARB's Climate Change Scoping Plan*

CARB's Climate Change Scoping Plan, which functions as a roadmap to achieve the California GHG reductions required by AB 32 and SB 32 through subsequently enacted regulations, is discussed in detail in Section 3.9, Greenhouse Gas Emissions. In December 2022, CARB approved the final version of California's 2022 Climate Change Scoping Plan (2022 Scoping Plan Update), which outlines the proposed framework of action for achieving California's new AB 1279 2045 GHG target: a 85 percent reduction in GHG emissions by 2045 relative to 1990 levels. The 2022 Scoping Plan Update focuses on strategies for reducing California's dependency on petroleum to provide customers with clean energy options that address climate change and support clean sector jobs. SB 350 and other regulations are expected to decarbonize the electricity sector over time.

### *CARB Heavy-Duty On-Road and Off-Road Vehicle Regulations*

In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter (DPM) emissions (Title 13 CCR Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emissions standards for off-road diesel construction equipment greater than 25 horsepower (hp) such as loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, encourages the retirement, replacement, or repower of older engines with newer emissions-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

## Local

### *Imperial County General Plan, Renewable Energy and Transmission Element*

The Renewable Energy and Transmission Element of the Imperial County General Plan (2015) contains the latest knowledge about local geothermal resources, current development technology, and County, State, and Federal policy regarding the exploration, development, and transmission of geothermal energy. The guidelines included in the Element address aspects of the Renewable Energy Program related to the state's Renewables Portfolio Standard (RPS).





### 3.7.3 Impacts and Mitigation Measures

#### Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to energy are considered significant if any of the following occur:

- 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 or energy efficiency

#### Methodology

#### Impact Analysis

***Impact 3.7-1 Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction of operation?***

#### Construction

Construction of the project would require the use of fuels (primarily gasoline and diesel) for the operation of construction equipment and vehicles to perform a variety of activities, including excavation, hauling, well installation, and vehicle travel (including on-site and commuter trips). In addition to direct construction-related energy consumption, indirect energy use would be required to make the materials and components used for project construction. This includes energy used for extraction of raw materials, manufacturing, and transportation associated with manufacturing. Table 3.7-1 provides an estimate of construction fuel consumption for the project based on information provided by the CalEEMod air quality computer model (Appendix D of this EIR).

**Table 3.7-1. Estimated Construction Fuel Consumption**

Construction Phase	Equipment	Qty	Engine Hp	No. Days Used	No. Hours Operated Per Day	Total Hours	Total Fuel Consumption (gallons)
Site Preparation (Plant Site and Solar Fields) (2 Months)	Heavy Duty Trucks	3	402	30	5	150	2,750
	Excavator	1	97	30	8	240	354
	Roller	2	200	30	8	240	1,459
	Light-Duty Truck	8	350	30	4	120	5,107
Project Construction (16 Months)	Aerial Man Lifts	8	63	160	6	960	6,000
	Excavator	1	97	40	8	320	472
	Crane	2	231	160	6	960	5,145
	Forklift	1	89	40	8	320	228
	Forklift	6	89	245	8	1,960	8,373

Construction Phase	Equipment	Qty	Engine Hp	No. Days Used	No. Hours Operated Per Day	Total Hours	Total Fuel Consumption (gallons)
	Generator Set	1	84	320	8	2,560	6,365
	Grader	1	187	30	8	240	736
	Heavy Duty Trucks	2	402	90	8	720	8,799
	Rubber Tired Loader	1	203	30	8	240	702
	Backhoe	1	97	30	8	240	345
	Welders	15	46	245	6	1,470	18,257
	Light Duty Truck	1	350	40	4	160	851
	Light Duty Truck	15	350	245	4	980	78,204
Well Drilling and Pipe Interconnection (12 Months)	Light tower	2	27	90	12	1,080	1,726
	Drill Rig	1	500	180	24	4,320	43,200
	Rig Mud Pump	1	500	180	24	4,320	63,936
	Rig Generator	1	415	180	24	4,320	53,067
	Heavy Duty Trucks (Mob/Demob)	8	450	24	8	192	10,506
	Crane	2	231	24	5	120	643
	Backhoe	1	97	24	6	144	207
	Forklift	1	89	24	6	144	103
	Vacuum Truck	1	385	24	10	240	1,404
	Concrete Truck	1	428	3	4	12	78
	Concrete Pumper	1	100	3	4	12	36
	Light Duty Truck	4	350	24	4	96	2,043
Substation Development and Interconnection (4 Months)	Crane	1	231	80	8	640	1,715
	Drill/Bore Rig	1	221	80	8	640	4,187
	Aerial Lift	2	63	80	8	640	1,000
	Heavy Duty Trucks (Delivery)	2	402	20	4	80	978
	Backhoe	1	97	14	8	112	161
	Forklift	1	89	80	8	640	456



Construction Phase	Equipment	Qty	Engine Hp	No. Days Used	No. Hours Operated Per Day	Total Hours	Total Fuel Consumption (gallons)
	Ditch Digger	1	13	20	8	160	42
	Generator Set	2	84	80	8	640	3,183
	Light Duty Truck	5	350	80	4	320	8,512
Testing (1 Month)	Generator	1	671	30	24	720	14,300
	Light Tower (27 hp)	2	27	30	12	360	575
	Light Tower (9 hp)	2	9	30	12	360	192
	Pump (115 hp)	1	115	30	24	720	2,451
	Pump (415 hp)	1	415	30	24	720	8,844
	Light Duty Truck	1	350	30	4	120	638
<b>Total:</b>							<b>368,328</b>

Source: Appendix D of this EIR

Project construction would occur over five phases, with the drilling phase utilizing the most construction equipment. As shown in Table 3.7-1, the construction of the project would result in total consumption of approximately 368,328 gallons of fuel. In addition to direct construction energy consumption, indirect energy use would be required to make the materials and components used in construction. This includes energy used for extraction of raw materials, manufacturing, and transportation associated with manufacturing.

The total diesel and gasoline fuel sales in Imperial County was estimated by the California Energy Commission to be 27 million gallons in 2021 (California Energy Commission 2022). Accordingly, the estimated 368,328 gallons of diesel fuel required for project activities would represent approximately 1.4 percent of total diesel and gasoline fuel sales in Imperial County. Fuel energy consumed during Project construction would be temporary and would not represent a substantial demand on energy resources. In addition, energy conservation would occur during Project construction through compliance with the CARB anti-idling and emissions regulations, which require that equipment not used for more than five minutes be turned off. Compliance with these regulations would result in less fuel combustion and energy consumption and thus minimize the Project's construction-related energy use. Project construction equipment would also be required to comply with EPA and CARB engine emission standards. These emission standards require highly efficient combustion systems to maximize fuel efficiency and reduce unnecessary fuel consumption.

In addition, the project includes several energy- and fuel-efficient design features that would help minimize inefficient or wasteful use of energy and increase conservation during construction. For example, the project grading plan is designed to balance all earthwork on site, which would avoid truck trips that would have been required to haul-in fill materials to the site and haul-off of materials to be exported off-site. Most construction equipment needed for the project is already onsite, further avoiding truck trips associated with mobilization and demobilization. This would reduce fuel use, while also reducing temporary increases in noise and exhaust emissions. The project grading plan and on-site construction equipment would also minimize impacts to the surrounding transportation network that

would result from truck traffic associated with soil import/export and mobilization/demobilization. Implementation of the energy conservation control measures in Mitigation Measure ENG-1 would further reduce fuel consumption and energy use and ensure remain less than significant.

### *Operation*

Electricity required during operations would be greatly offset by the electricity produced by the geothermal and solar facilities. Specifically, operation of renewable energy facilities would offset greenhouse gas emissions by replacing energy generated by fossil fuel power plants. The project would generate up to 47 MW of renewable energy, of which 25 MW net of energy would be added to the power grid, and 22 MW would be in the form of parasitic renewable energy for the plant operations. This renewable energy would be used in place of electricity generated by fossil fuel sources. Based on these considerations, the project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources and impacts would be less than significant.

### *Mitigation Measure(s)*

**ENG-1 Energy Conservation Control Measures.** The project applicant shall implement all the following applicable energy conservation control measures during construction of the project:

- Idling times on all diesel-fueled commercial vehicles over 10,000 pounds shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure 13 CCR §2485). Clear signage to this effect shall be provided for construction workers at all access points.
- Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written policy as required by 13 CCR §2449 (“CARB Off-Road Diesel Regulations”).
- All construction equipment shall be maintained and properly tuned in accordance with the manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only be used if electricity is not available, and it is not feasible to use propane or natural gas.

**Impact 3.7-2 Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?**

### *Construction*

Construction equipment would comply with federal, state, and regional requirements where applicable. With respect to truck fleet operations the USEPA and the National Highway Traffic Safety Administration (NHTSA) have adopted fuel efficiency standards for medium- and heavy-duty trucks. The Phase 1 heavy-duty truck standards apply to vehicles from model years 2014 through 2018 and will result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending

on the vehicle type. The USEPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which covered model years 2021 through 2027 and required the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type. The energy modeling for trucks does not take into account specific fuel reduction from these regulations, since they would apply to fleets as they incorporate newer trucks meeting the regulatory standard; However, these regulations would have an overall beneficial effect on reducing fuel consumption from trucks overtime as older trucks are replaced with newer models that meet the standards.

In addition, construction equipment and trucks are required to comply with CARB's regulations regarding heavy duty truck idling limits of five minutes at a location and the phase in of off-road emission standards that result in an increase in energy savings in the form of reduced fuel consumption for more fuel-efficient engines. While these regulations are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency during construction. Short-term impacts would be less than significant.

#### *Operation*

The Climate Change Scoping Plan outlined the main strategies California will implement to achieve California's new AB 1279 2045 GHG target: an 85 percent reduction in GHG emissions by 2045 relative to 1990 levels. One such strategy is to reduce GHG emissions produced during electricity generation. Overall, because the main objectives of the project are to assist the state in meeting its obligations under California's RPS Program and assist California in meeting the GHG emissions reduction goal 85 percent below 1990 levels in 2045, the project would be consistent with the applicable recommended actions of CARB's 22022 Climate Change Scoping Plan, as well as applicable federal, state and local policies. Specifically, the project would assist the State and regulated utility providers to generate a greater portion of energy from renewable sources consistent with the RPS. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency during operations and long-term impacts would be less than significant.

#### *Mitigation Measure(s)*

No mitigation measures are required.

### 3.7.4 Decommissioning/Restoration and Residual Impacts

#### *Decommissioning/Restoration*

At the end of the project's useful life, all equipment and facilities will be properly abandoned and dismantled. Similar to construction activities, decommissioning and restoration would result in short-term energy consumption. Decommissioning and restoration activities would be temporary and would not represent a substantial demand on energy resources. Similar to construction, energy conservation during decommissioning activities would occur through compliance with CARB anti-idling and emissions regulations, which require that equipment not used for more than five minutes be turned off. Compliance with these regulations would result in less fuel combustion and energy consumption and thus minimize energy use. Impacts would be less than significant.

## Residual

The construction and operation of the proposed project would result in a less than significant impact related to energy. No mitigation is required and no residual unmitigated impacts would occur with implementation of the project.



## 3.8 Geology and Soils

This section provides an evaluation of the project in relation to existing geologic and soils conditions within the project site. The geotechnical information provided herein was gathered from available online resources and summarized from the *Geotechnical Site Assessment* prepared by Catalyst Environmental Solutions (Appendix H of this EIR).

### 3.8.1 Existing Conditions

#### Regional Geology

The project site is located in Imperial County which is underlain by three geomorphic provinces: the Peninsular Ranges; the Colorado Desert; and the Mojave Desert. The Colorado Desert geomorphic province spans the majority of central Imperial County, including the project site, and is dominated by the Salton Sea and the Imperial Valley; the province is composed of a low-lying barren desert basin situated between alluvium-covered, active branches of the San Andreas Fault (Appendix H of this EIR).

The project site is situated within the Salton Trough, which is a structural depression resulting from large scale, regional faulting. The trough represents the northward extension of the Gulf of California and is bounded by the San Andreas Fault and Chocolate Mountains to the northeast and by the Peninsular Range and the faults of the San Jacinto Fault Zone to the southwest. The Imperial Valley is underlain by lacustrine deposits consisting of interbedded lenticular and tabular silt, sand, and clay (Appendix H of this EIR). The Late Pleistocene to Holocene Lake deposits are estimated at less than 100 feet thick and derived from periodic flooding of the Colorado River which intermittently formed a fresh water lake, Lake Cahuilla. Older deposits consist of Miocene to Pleistocene non-marine and marine sediments deposited during intrusions of the Gulf of California. Basement rock consisting of Mesozoic granite and Paleozoic metamorphic rocks are estimated to exist at depths between 15,000 to 20,000 feet below the surface (Appendix H of this EIR). The primary seismic hazard at the project site is the potential for strong ground shaking.

#### Local Geology and Surface Conditions

The project site consists of surficial dry, very stiff lean silty clays to a depth of 4 to 5 feet below ground surface (bgs), stiff clays from approximately 6 to 40 feet bgs, and silty clay to clayey silt from 40 to 50 feet bgs, the maximum depth of exploration. Soils at the project site are classified as Site Class D, which is characterized by a stiff soil profile (Appendix H of this EIR). The USDA Natural Resources Conservation Service (NRCS) has mapped the following soils at the project site:

- Holtville silty clay, wet
- Imperial silty clay, wet
- Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes

#### Groundwater

The project site is located within the Imperial Valley Groundwater Basin which is bounded on the east by the Sand Hills, on the west by the impermeable rocks of the Fish Creek and Coyote Mountains, the California-Mexico border to the south, and the Salton Sea (the discharge point for groundwater in the

basin) to the north. Groundwater was encountered at approximately 8 to 10 feet bgs at the project site (Appendix H of this EIR).

### Faulting and Seismicity

The Imperial Valley is a seismically active area that is traversed by numerous mapped faults including the Brawley Fault Zone, San Jacinto Fault Zone (contains the Coyote Creek Fault, the Elmore Ranch Fault, and the Wienert Fault), the Elsinore Fault (contains the Laguna Salada Fault), the Imperial Fault, the San Andreas Fault Zone, and the Superstitions Hills Fault (Appendix H of this EIR).

Several active and potentially active faults are situated in the vicinity of the project site as shown in Figure 3 of the *Geotechnical Site Assessment* (Appendix H of this EIR). Active faults are defined by the California Geological Survey as faults that have ruptured during Holocene time (within the last approximately 11,000 years). Potentially active faults are those that have ruptured during the last 1.8 million years (Quaternary time), but with no direct evidence of a movement within Holocene time. The Imperial Fault Zone is the nearest active fault zone to the project site and is located approximately 9.4 miles to the southwest (Appendix H of this EIR).

Several significant earthquakes have occurred in the vicinity of the project site with corresponding surface fault ruptures and liquefaction events. Four earthquakes greater than magnitude 5 were recorded near Heber between 1915 and 1979. A magnitude 7.2 earthquake, the El Mayor-Cucapah earthquake, occurred throughout southern Imperial valley in 2010 (Appendix H of this EIR).

The project site is not located within a currently mapped Alquist-Priolo Special Studies Fault Zone. Surface fault rupture is considered to be unlikely at the project site due to the well-delineated fault lines through the Imperial Valley; however, because of the high tectonic activity and deep alluvium of the region, a potential exists for a surface rupture on undiscovered or new faults that may underlie the site (Appendix H of this EIR).

### Ground Shaking

Ground shaking can occur during an earthquake, and its intensity is related to the proximity of the area to the fault, the focal depth, soil types, the location of the epicenter, and the size (magnitude) of the earthquake. Soils formed from alluvial deposits are more prone to ground shaking than dense materials such as bedrock. The project site is considered likely to be subjected to moderate to strong ground motion from earthquakes in the region (Appendix H of this EIR).

### Expansive Soil

The native surface clays exhibit moderate swell potential. The clay is expansive when wet and can shrink with moisture loss (drying). Soils on-site are prone to expansion and shrinkage; development of building foundations, concrete flatwork, and asphaltic concrete pavements should include provisions for mitigating potential swelling forces and reduction in soil strength which can occur from saturation of the soil (Appendix H of this EIR).

### Corrosive Soil

Native soil on-site has moderate to very severe levels of chloride ion concentrations. Chloride ions can cause corrosion of reinforced steel, anchor bolts, and other buried metallic conduits. Resistivity determinations on the soil indicate very severe potential for metal loss because of electrochemical corrosion processes (Appendix H of this EIR).



## Liquefaction

Liquefaction occurs when loosely packed, saturated soil or sediment at or near the ground surface loses its strength, which can lead to excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations.

Liquefaction zones have not been mapped in the project area; however, the Colorado River Delta region of southern Imperial County (including Heber) is a seismically active area. Due to the cohesive nature of the subsurface soils, liquefaction is not anticipated at the project site (Appendix H of this EIR).

## Lateral Spreading

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or “free” face such as an open body of water, channel, or excavation. This movement is generally due to failure along a weak plane, and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally toward the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free.

Due to the low potential for liquefaction and the fact that the project site is not located near free faces or bodies of water, the potential for lateral spreading is considered low.

## Subsidence

The project site is not located within a mapped area of known land subsidence (Appendix H of this EIR). Due to the depth of groundwater and the fact that the site is not located in a mapped subsidence area, the potential for subsidence is considered low (Appendix H of this EIR). However, a study published in collaboration with the California Energy Commission in 2019 found surface deformation at the Heber Geothermal Field (HGF) connected to geothermal production and injection. The HGF is the area containing and surrounding the HGEC. Subsidence was occurring at the HGF up to -45 mm/year (-1.77 in/year). Furthermore, it was reported that an increase in injection resulted in ground uplift in the northwestern portion of the HGF, however over time this uplift transitioned to subsidence with an increase in geothermal production (Eneva et al 2019).

## Landslides

The project site is relatively flat, and the hazard of landslides is unlikely due to the planar topography of the site and the region. Furthermore, no ancient landslides are identified on geologic maps of the region (Appendix H 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.

The project site is in the Salton Basin near the shoreline of ancient Lake Cahuilla. The lake covered much of the Imperial Valley and created an extensive lacustrine environment. Lake Cahuilla

experienced several fill recession episodes before it finally dried up about 300 years ago. In 1905, the Colorado River overflowed into the Salton Basin creating the present-day Salton Sea. As previously mentioned above, the project site is generally underlain by deposits from periodic flooding of the Colorado River and Lake Cahuilla (Appendix H of this EIR). Sediments from this formation have yielded fossilized remains of continental vertebrates, invertebrates, and plants at numerous previously recorded fossil sites in the Imperial Valley. Therefore, the project site is considered paleontologically sensitive.

### 3.8.2 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 (APEHA)*

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.

##### *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 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.

### *Seismic Hazards Mapping Act*

The Seismic Hazards Mapping Act aims to reduce the threat of seismic hazard to public health and safety by identifying and mitigating seismic hazards. Through the Act, the California Department of Conservation, Division of Mines and Geology, is directed to delineate seismic hazard zones. State, county, and city agencies are directed to utilize such maps in land use and permitting processes. The Act also requires geotechnical investigations particular to the site be conducted before permitting occurs on sites within seismic hazard zones.

## Local

### *Imperial County 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.

### *Imperial County 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 3.8-1 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 3.8-1. Project Consistency with Applicable General Plan Policies**

General Plan Policies	Consistency with General Plan	Analysis
<b><i>Seismic and Public Safety Element</i></b>		
Goal 1. Include public health and safety considerations in land use planning.	Consistent	<p>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.</p> <p>Since the project site is located in a seismically active area, the project is required to be designed in accordance with the CBC. 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.</p> <p>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.</p>
Objective 1.1. Ensure that data on geological hazards is incorporated into the land use review process, and future development process.		
Objective 1.3. Regulate development adjacent to or near all mineral deposits and geothermal operations.		
Objective 1.4. Require, where possessing the authority, that avoidable seismic risks be avoided; and that measures, commensurate with risks, be taken to reduce injury, loss of life, destruction of property, and disruption of service.		
Objective 1.7. Require developers to provide information related to geologic and seismic hazards when siting a proposed project.		
Goal 2: Minimize potential hazards to public health, safety, and welfare and prevent the loss of life and damage to health and property resulting from both natural and human-related phenomena.		
Objective 2.2. Reduce risk and damage due to seismic hazards by appropriate regulation.		
Objective 2.5 Minimize injury, loss of life, and damage to property by implementing all state codes where applicable.		
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

### 3.8.3 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 H of this EIR, 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 wastewater
- 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 Site Assessment* prepared by Catalyst Environmental Solutions (Appendix H of this EIR) was prepared for the project. The information obtained from this report was 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 3.8-1 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 described in Section 3.8.1 above, the Imperial Valley is a seismically active region, as is much of southern California. According to the California Geologic Survey (CGS), the project site is not located within or near an Alquist-Priolo Special Studies Earthquake Hazards Act Zone (Appendix H of this EIR). Fault lines through the Imperial Valley are well-delineated and the closest known fault is the Imperial Fault located 6.7 miles east of the project site. In addition, the project would not construct any buildings designed for human occupancy. As such, the probability for surface fault rupture within the project site during construction or operations 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 3.8-2 Would the project directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving:***

##### ***Strong seismic ground shaking?***

The Imperial Fault Zone is the nearest active fault zone to the project site and is located approximately 6.7 miles to the east. 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 isopentane tanks 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 proposed 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. Upon implementation of Mitigation Measure GEO-1, impacts would be reduced to a level less than significant.

#### Mitigation Measure(s)

**GEO-1 Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.** Facility design for all project components shall comply with the site-specific design recommendations as provided by a licensed geotechnical or civil engineer to be retained by the project applicant. The final geotechnical and/or civil engineering report shall address and make recommendations on the following:

- Site preparation

- Soil bearing capacity
- Appropriate sources and types of fill
- Potential need for soil amendments
- Structural foundations
- Grading practices
- Soil corrosion of concrete and steel
- Erosion/winterization
- Seismic ground shaking
- Liquefaction
- Expansive/unstable soils

In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions and shall determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time building and grading permits are applied for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicants. 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 3.8-3 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?***

Liquefaction occurs in areas where loosely packed, saturated soil or sediment at or near the ground surface loses its strength, which can lead to excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations. No liquefaction areas have been mapped in the region, however, the El Mayor-Cucapah earthquake (magnitude 7.2) that occurred throughout southern Imperial valley in 2010 caused widespread liquefaction near the towns of Calexico (immediately southeast of Heber) and El Centro (immediately north of Heber) (Appendix H of this EIR). Despite this, liquefaction is not anticipated at the project site due to the cohesive nature of the site subsurface soils and risk of injury at the project site associated with seismic-related ground failure, including liquefaction is considered low. Thus, impacts to seismic-related ground failure, including liquefaction attributed to the project are considered less than significant.

#### Mitigation Measure(s)

No mitigation measures required.



***Impact 3.8-4 Would the project directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving:***

***Landslides?***

The project site topography is relatively flat, and no ancient landslides have been mapped in the area. Development of the proposed project would not directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving landslides. Based on project site conditions, the potential for a landslide to occur on-site is considered negligible and no impact would occur.

**Mitigation Measure(s)**

No mitigation measures required.

***Impact 3.8-5 Would the project result in substantial soil erosion or the loss of topsoil?***

Construction activities such as site grading would involve large areas of soil to be exposed to erosive forces. Construction activities will involve grubbing and grading of the project site to establish access roads and pads for electrical equipment, trenching for underground electrical collection lines and pipelines, the installation of geothermal and solar equipment, and security fencing which could result in increased erosion and sedimentation to surface waters. Therefore, 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 3.11 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 3.11 Hydrology/Water Quality, impacts from construction-related erosion would be reduced to a level less than significant.

**Mitigation Measure(s)**

The following mitigation measures would be required:

- |              |                                                                                                                                          |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GEO-1</b> | <b>Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures</b> (as described above). |
| <b>HYD-1</b> | <b>Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration.</b> (See Section 3.11, Hydrology and Water Quality).     |



### Significance after Mitigation

With implementation of Mitigation Measures GEO-1 and HYD-1 (as described in Section 3.11, Hydrology and 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 3.8-6 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 low. In addition, no liquefaction or landslide areas have been mapped near or within the project site. Baseline conditions at the project site do not show signs of geologic units or soil that are unstable and could potentially result in on-or off-site landslide, lateral spreading, liquefaction, or collapse. The project site is not located within a mapped area of known land subsidence (Appendix H of this EIR). However, as described previously, Eneva et al. (2019) has documented land subsidence at the project site attributed to existing geothermal activity within the HGF. Land subsidence up to 1.7 inches/year is occurring on-site with some subsidence and uplift off-site. This potential impact associated with subsidence 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 subsidence to a level less than significant.

### Mitigation Measure(s)

**GEO-1 Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.**

### Significance after Mitigation

With implementation of Mitigation Measure GEO-1, potential impacts associated with subsidence 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 3.8-7 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 discussed in Section 3.8.1 above, on-site soils are classified as Site Class D, which are characterized by a stiff soil profile with stiff clays as deep as 40 feet bgs. However, surface clays exhibit moderate swell potential, expanding when wet, shrinking when dry (Appendix H of this EIR). To accommodate the sites moderate swell potential, the development of the OEC foundation, concrete flatwork, and asphaltic concrete pavements shall include provisions for mitigating potential swelling forces and reduction in soil strength caused by soil saturation (Appendix H of this EIR). Likewise, the native soil has moderate to very severe levels of chloride ion concentration which can cause corrosion of reinforcing steel, anchor bolts and other buried metallic conduits. Preventative measures for the corrosion of steel can be achieved by using steel pipes coated with epoxy corrosion inhibitors,

asphaltic and epoxy coatings, or by encapsulating portions of pipe lying above groundwater with a minimum of three inches of densely consolidated concrete (Appendix H of this EIR).

Despite the project site's moderate swell potential and corrosive soils, project construction and operation would not result in substantial direct or indirect risks to life or property because of adherence to County building standards and CBC requirements for building on expansive soils. Moreover, Mitigation Measure GEO-1 would identify any potential hazards for building at the project site with recommended engineering practices that would reduce potential project impacts to a level less than significant.

#### Mitigation Measure(s)

**GEO-1            Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.**

#### Significance after Mitigation

With implementation of Mitigation Measure GEO-1, potential impacts associated with expansive soils and corrosive 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 3.8-8    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 wastewater?***

The proposed project does not include any septic tanks or wastewater disposal systems. Therefore, the project would have no impact on the project site soil and its capacity to adequately support the use of septic tanks or alternative wastewater disposal systems. No impact would occur.

#### Mitigation Measure(s)

No mitigation measures are required.

***Impact 3.8-9    Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

The project site is in the Salton Basin near the shoreline of ancient Lake Cahuilla. The lake covered much of the Imperial Valley and created an extensive lacustrine environment. Lake Cahuilla experienced several fill recession episodes before it finally dried up about 300 years ago. In 1905, the Colorado River overflowed into the Salton Basin creating the present-day Salton Sea. As previously noted, the project site is generally underlain by deposits from periodic flooding of the Colorado River and Lake Cahuilla (Appendix H of this EIR). Sediments from this formation have yielded fossilized remains of continental vertebrates, invertebrates, and plants at numerous previously recorded fossil sites in the Imperial Valley. Therefore, the project site is considered paleontologically sensitive.

Although unlikely, 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 Measure GEO-2 would reduce the potential impact on paleontological resources to a level less than significant.

## Mitigation Measure(s)

**GEO-2 Paleontological Resources.** In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.

## Significance after Mitigation

Implementation of Mitigation Measure GEO-2 would 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.

## 3.8.4 Decommissioning/Restoration and Residual Impacts

### Decommissioning/Restoration

At the end of the project's useful life, all equipment and facilities will be properly abandoned and dismantled. The geothermal production well and injection wells will be abandoned in conformance with the well abandonment requirements of the DOGGR. CalGEM requirements will be prepared and implemented. The abandonment plan would describe the proposed approach to facility abandonment, equipment removal, disposal, and site restoration. All above-ground equipment will be dismantled and removed from the entire site. The surface of the site would be restored to conform to approximate pre-Project land uses (e.g., agriculture or open space).

No impacts are anticipated during the decommissioning and restoration, all ground disturbance would have occurred during the construction phase of the project.

### Residual

With implementation of Mitigation Measure GEO-1, impacts related to strong seismic ground shaking, subsidence, 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 Measure GEO-2 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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## 3.9 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 and Greenhouse Gas Technical Report* prepared by Catalyst Environmental Solutions. This report is included in Appendix D of this EIR.

### 3.9.1 Existing Conditions

#### Greenhouse Gases

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHGs, particularly those generated from the production and use of fossil fuels.

GHGs refer to atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and water vapor, among others. While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy.

The dominant GHG emitted is CO<sub>2</sub>, mostly from fossil fuel combustion. GHGs differ in how much heat each can trap in the atmosphere (i.e., global warming potential [GWP]). When accounting for GHGs, all types of GHG emissions are expressed in terms of carbon dioxide equivalent (CO<sub>2</sub>e) and are typically quantified in metric tons (MT) or million metric tons. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO<sub>2</sub>, the most abundant GHG. The definition of GWP for a particular GHG is expressed relative to CO<sub>2</sub> over a specified time period. CH<sub>4</sub> traps over 25 times more heat per molecule than CO<sub>2</sub>, and N<sub>2</sub>O absorbs 298 times more heat per molecule than CO<sub>2</sub>. State law defines GHGs as any of the following compounds: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulfur hexafluoride (SF<sub>6</sub>) (California HSC Section 38505(g)).

**CO<sub>2</sub>** is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO<sub>2</sub> is produced when an organic carbon compound, such as wood, or fossilized organic matter, such as coal, oil, or natural gas, is burned in the presence of oxygen. CO<sub>2</sub> is removed from the atmosphere by CO<sub>2</sub> "sinks", such as absorption by seawater and photosynthesis by ocean dwelling plankton and land plants, including forests and grasslands; however, seawater is also a source of CO<sub>2</sub> to the atmosphere, along with land plants, animals, and soils, when CO<sub>2</sub> is released during respiration. Whereas the natural production and absorption of CO<sub>2</sub> is achieved through the terrestrial biosphere and the ocean, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood.

**CH<sub>4</sub>** is a colorless, odorless non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH<sub>4</sub> is combustible, and it is the main constituent of natural gas—a fossil fuel. CH<sub>4</sub> is released when organic matter decomposes in low oxygen environments. Natural sources include wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals, such as cattle, rice paddies and the buried waste in landfills. Over the last 50 years, human activities, such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH<sub>4</sub>. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

**N<sub>2</sub>O** is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N<sub>2</sub>O is naturally produced in the oceans and in rainforests. Man-made sources of N<sub>2</sub>O include the use of fertilizers in agriculture, nylon and nitric acid production, cars with catalytic converters and the burning of organic matter. Concentrations of N<sub>2</sub>O also began to rise at the beginning of the industrial revolution.

**Chlorofluorocarbons (CFC)** are gases formed synthetically by replacing all hydrogen atoms in CH<sub>4</sub> or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically un-reactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Because of the discovery that they are able to destroy stratospheric ozone (O<sub>3</sub>), an ongoing global effort to halt their production was undertaken and has been extremely successful, so much so that levels of the major CFCs are now remaining steady or declining; however, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

**HFCs** are synthesized chemicals that are used as a substitute for CFCs. Out of all of the GHGs, HFCs are one of three groups with the highest GWP. HFCs are synthesized for applications, such as automobile air conditioners and refrigerants.

**PFCs** have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

**SF<sub>6</sub>** is an extremely potent GHG. SF<sub>6</sub> is very persistent, with an atmospheric lifetime of more than 1,000 years. Thus, a relatively small amount of SF<sub>6</sub> can have a significant long-term impact on global climate change. SF<sub>6</sub> is human-made, and the primary user of SF<sub>6</sub> is the electric power industry. Because of its inertness and dielectric properties, it is the industry's preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity. SF<sub>6</sub> is used extensively in high voltage circuit breakers and switchgear, and in the magnesium metal casting industry.

## Statewide Greenhouse Gas Emissions Inventory

In 2021, CARB released the California GHG inventory covering calendar year 2019 emissions. In 2019, California emitted 418.2 million gross metric tons of CO<sub>2</sub>e including from imported electricity. The current inventory covers the years 2000 to 2019 and is summarized in Table 3.9-1. 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 3.9-1, combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2019, accounting for approximately 39.7 percent of total GHG emissions in the state (CARB 2021).

**Table 3.9-1. California Greenhouse Gas Emissions Inventory 2000 to 2019**

Sector	Total 2000 Emissions (MMTCO <sub>2</sub> e)	Total 2018 Emissions (MMTCO <sub>2</sub> e)
Agriculture	30.97	31.8
Commercial and Residential	43.95	43.8
Electric Power	104.75	58.8
Industrial	96.18	88.2
Transportation	178.40	166.1
Recycling and Waste	7.67	8.9
High GWP Gases	6.28	20.6

Source: CARB 2021

Notes:

GWP=global warming potential; MMTCO<sub>2</sub>e=million metric tons of CO<sub>2</sub> 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).

### 3.9.2 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*

Executive Order (EO) S-3-05, signed by previous Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

### *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 31 – 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.

#### *Senate Bill 100 of 2018*

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 Renewable Portfolio Standard (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.

#### *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.

#### *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<sub>2</sub>e requires the reduction of 169 million MTCO<sub>2</sub>e, or approximately 28.3 percent, from the state's projected 2020 BAU emissions level of 596 million MTCO<sub>2</sub>e.

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<sub>2</sub>e, 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<sub>2</sub>e; therefore, the 2020 GHG emissions limit established in response to AB 32 is now slightly higher than the 427 million MTCO<sub>2</sub>e in the initial Scoping Plan.

In December 2017, CARB's Climate Change Scoping Plan was 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 (CARB 2017).

CARB adopted the latest update to the Climate Change Scoping Plan in November 2022. The 2022 Scoping Plan for Achieving Carbon Neutrality lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. 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 2022b).

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.

## 3.9.3 Impacts and Mitigation Measures

### Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to GHG emissions are considered significant if any of the following occur:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs

As discussed in Section 15064.4 of the CEQA Guidelines, the determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

1. Quantify greenhouse gas emissions resulting from a project; and/or
2. Rely on a qualitative analysis or performance based standards.

A lead agency should consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

### South Coast Air Quality Management District's Interim Thresholds

The ICAPCD has not adopted 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, the projected emissions are compared to the SCAQMD Interim Threshold of 10,000 metric tons of CO<sub>2</sub>e annually.

While significance thresholds used in the South Coast Air Basin are not binding on the ICAPCD or County of Imperial (and some elements of SCAQMD's thresholds may not be relevant to the project), they are instructive as a comparative metric of the project's potential combined GHG impact. This threshold is also appropriate as the SCAQMD GHG thresholds were formulated based on similar geography and climate patterns as found in Imperial County and are also employed for use in CEQA GHG analyses in the Riverside County portion of the SSAB, the same air basin that encompasses the proposed project. Therefore, the 10,000-metric ton of CO<sub>2</sub>e threshold is appropriate for this analysis.

### 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, combined project emissions were modeled using the CalEEMod, version 2022.1. 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 (Appendix D of this EIR).

### Impact Analysis

#### ***Impact 3.9-1 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 proposed project would generate GHG emissions during construction and routine operational activities.





**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 3.9-2 shows the proposed project's construction-related GHG emissions. As previously described above, in the absence of an established threshold from the ICAPCD, construction emissions were compared to SCAQMD's significance threshold of 10,000 metric tons of CO<sub>2</sub>e per year. As shown in Table 3.9-2, construction emissions would result in a maximum of 17,592 metric tons of CO<sub>2</sub>e/year.

**Table 3.9-2. Estimated Project Construction GHG Emissions**

Construction Year	GHG (MTCO <sub>2</sub> e/year)
2025	17,592
2026	7,606.1
<b>Total</b>	<b>25,198</b>

Source: Appendix D of this EIR

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 3.9-3 shows the total GHG emissions for project construction amortized over a 30-year timeframe would result in 839.93 metric tons of CO<sub>2</sub>e per year. Therefore, the construction emissions are less than the SCAQMD's screening threshold of 10,000 metric tons of CO<sub>2</sub>e per year. This impact would be less than significant.

**Operation.** The proposed project would be staffed by 1-2 personnel. Annual operation and maintenance trips to the project site would be negligible, adding up to six trips per day to the existing operations at the plant. Additional sources of GHG emissions associated with operations include those related to landscape equipment use for routine maintenance work, water use, and operation of auxiliary stationary equipment (i.e., emergency diesel generator and emergency diesel fire pump).

As shown in Table 3.9-3, operational emissions would contribute approximately 97 metric tons of CO<sub>2</sub>e per year and would be less than the SCAQMD's screening threshold of 10,000 metric tons of CO<sub>2</sub>e per year. The total annual GHG emissions for the proposed project are estimated to be 940.89 metric tons of CO<sub>2</sub>e per year.

**Table 3.9-3. Proposed Project Amortized Annual GHG Emissions**

Emission Source	GHG (MTCO <sub>2</sub> e/year)
Construction (amortized over 30-year life of project)	839.93
Operations (i.e., mobile, area, water)	97
Leaking SF <sub>6</sub>	3.96
<b>Total</b>	<b>940.89</b>

Source: Appendix D of this EIR

The proposed substation includes new circuit breakers that would potentially be insulated with SF<sub>6</sub>. As shown in Table 3.9-3, the project would leak SF<sub>6</sub>, contributing approximately 3.96 metric tons of CO<sub>2</sub>e per year. It is assumed that up to three circuit breakers will be insulated with SF<sub>6</sub> with an estimated 25 pounds of SF<sub>6</sub> gas per circuit breaker resulting in a total of 75 pounds of SF<sub>6</sub> gas required at the site. Consistent with the IEC standard for new equipment leakage, a 0.5 percent per year leakage rate is assumed (U.S. EPA 2016). Accordingly, an estimated 0.375 pounds (or 3.96 metric tons of CO<sub>2</sub>e per year) of SF<sub>6</sub> would be released annually. Regarding management of project-related emissions leaking SF<sub>6</sub>, the project would be required to comply with CARB Regulation for Reducing

Sulfur Hexafluoride Emissions from Gas Insulated Switchgear (Title 16, Sections 95350-95359 of the California Code of Regulations). Compliance with this regulatory measure would ensure consistency with intent of Scoping Plan Measure H-6, High Global Warming Potential Gas Reductions from Stationary Sources. Inventories of SF<sub>6</sub> that would be associated with the project would be documented and annually reported to U.S. EPA and CARB. Therefore, with compliance to the regulations mentioned above, implementation of the proposed project would result in a less than significant impact associated with the generation of GHG emissions.

Mitigation Measure(s)

No mitigation measures are required.

***Impact 3.9-2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?***

Project-generated GHG emissions would not exceed either the SCAQMD significance thresholds, which were 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 new, low-GHG emitting power-generating facilities, 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 clean, renewable energy is one of the measures identified under the Scoping Plan to reduce statewide GHG emissions. The proposed project would increase output from geothermal resources, a source of low-carbon baseload that replaces fossil fuel use and reduces GHG emissions from power generation.

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 GHGs.

Mitigation Measure(s)

No mitigation measures are required.

### 3.9.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

Similar to construction activities, decommissioning and restoration would result in GHG emissions below allowable thresholds. Construction activities during decommissioning and restoration would adhere to Mitigation Measures AQ-1 through AQ-6 outlined in Section 3.4, Air Quality of this EIR, further reducing GHG emissions. Therefore, the impact is considered less than significant.



## Residual

The proposed project's combined GHG emissions would result in a less than significant impact. Project operation 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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## 3.10 Hazards and Hazardous Materials

Information contained in this section is summarized from publicly available information including the Department of Toxic Substances (DTSC) EnviroStor and State Water Resources Control Board's (SWRCB) GeoTracker). A *Hazard Assessment* was conducted for the project to evaluate the potential risk of release associated with the proposed isopentane tanks. This assessment is included in Appendix I of this EIR.

### 3.10.1 Existing Conditions

A hazardous material is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including waste, may be considered hazardous if it is specifically listed by statute as such or if it is toxic, ignitable, corrosive, or reactive. The potential for an accident is increased in regions near roadways that are frequently used for transporting hazardous material and in regions with agricultural or industrial facilities that use, store, handle, or dispose of hazardous material. Hazardous material incidents are one of the most common technological threats to public health and the environment. Incidents may occur as the result of natural disasters, human error, and/or accidents (Imperial County 2015).

#### Records Review

##### EnviroStor

DTSC maintains EnviroStor, a data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further. A desktop review was completed on February 2, 2024, for the project site. No hazards facilities and sites were identified to on the project site or within one mile of the project site (DTSC 2024).

##### 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 February 2, 2024, for the project site. No reported cases were found on the project site or within one mile of the project site (SWRCB 2024).

#### Hazardous Materials on Project Site

The proposed Dogwood geothermal power plant would be located within the existing fenceline of the Heber 2 Geothermal Energy Complex (HGEC), operated by the Second Imperial Geothermal Company, a subsidiary of ORMAT which includes the Heber 2, Heber South, and Goulds 2 geothermal energy facilities located at 855 Dogwood Road, Heber, CA (APN 054-250-31). There are currently five 10,000-gallon isopentane vessels within the HGEC. Isopentane is a watery colorless liquid with a gasoline-like odor. It is considered to be extremely flammable and has the potential to explode when

heating (International Labour Organization 2014). There are no other isopentane tanks or OECs within the ignition zone identified for the proposed isopentane tank.

#### Wildfire Risk

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 1997). The project site is not located in areas considered wildlands, as the vast majority of the surrounding area is cultivated farmlands. According to the Fire Hazard Severity Zone Viewer provided by the California Department of Forestry and Fire Protection, the project area 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 2023).

#### Airports

The nearest airport to the project site is the Calexico International Airport, located approximately two miles southeast of the project site. According to Figure 3B of the Imperial County Airport Land Use Compatibility Plan (ALUCP), no portion of the project site is located within the Calexico International Airport's land use compatibility zones (ALUC 1996).

### 3.10.2 Regulatory Setting

This section identifies and summarizes federal, 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 11011 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 OSHA 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, clean-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.



### 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.

### County of Imperial 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.

### Imperial County Airport Land Use Compatibility Plan

The Imperial County 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.

## 3.10.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project-related impacts related to hazards and hazardous materials, the methodology employed for the 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

<b>Impact 3.10-1</b>	<b><i>Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</i></b>
--------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------

Although considered minimal, it is anticipated that the proposed project will use 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 project 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 projects 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

Spill response plans would be developed prior to project construction and operation or prior to the storage on-site of an excess of 55 gallons of hazardous materials, and personnel would be made aware of the procedures for spill cleanup and the procedures to report a spill. Spill cleanup materials and equipment appropriate to the type and quantity of chemicals and petroleum products expected would be located onsite and personnel shall be made aware of their location.

The small quantities of chemicals to be stored at the project site during construction include equipment and facilities maintenance chemicals. These materials would be stored in their appropriate containers in an enclosed and secured location, such as portable outdoor hazardous materials storage cabinets equipped with secondary containment to prevent contact with rainwater. The portable chemical storage cabinets may be moved to different locations around the project site as construction activity locations shift. The chemical storage area would not be located immediately adjacent to any drainage. Disposal of excess materials and wastes would be performed in accordance with local, state, and federal regulations. Additionally, hazardous material storage and management will be conducted in accordance with requirements set forth by the ICFD, Imperial County Office of Emergency Services, DTSC, and CUPA for storage and handling of hazardous materials. Further, construction activities would occur according to OSHA regulatory requirements.

#### **Hazard Assessment – Isopentane Storage/Use**

The OEC units for the proposed Dogwood geothermal plant require the installation of two 20,000-gallon isopentane vessels for storage of motive fluid used in geothermal energy production. Isopentane is a regulated substance by the USEPA. The HGEC is classified as Prevention Program 3 and is regulated by USEPA's Risk Management Program for Chemical Accidental Release Prevention (40 CFR 68 .20-68.42) because isopentane is stored on site in excess of 10,000 lbs. Isopentane would be delivered to the project site by a licensed commercial transport company, in accordance with US DOT regulations for the transport of dangerous goods.

A Hazard Assessment (HA) was prepared to assess the potential effects and risks of the additional isopentane storage/use by the proposed Dogwood geothermal plant (Appendix I of this EIR). The HA was conducted to fulfill the Hazard Assessment Offsite Consequence Analysis (OCA) requirements of the following regulations:

- 40 CFR §68.65 – Environmental Protection Agency (EPA) “Risk Management Plan (RMP)”
- 19 CCR 2750.1 to 2750.9 – California Code of Regulation “California Accidental Release Prevention (CalARP) Program”

The HA analyzed the isopentane storage/use by identifying the worst-case scenario and endpoints of concern (as defined by EPA RMP and 40 CFR 68.22) including the following:

1. Explosion (an overpressure of 1 pound per square inch [psi])
2. Radiant heat/Exposure Time (a radiant heat of 5 kW/m<sup>2</sup> for 40 seconds)
3. Lower Flammability Limit (as provided by NFPA)

The Areal Locations of Hazardous Atmospheres (ALOHA) modeling software was used to determine the distance to the endpoint for the worst-case release scenario analysis. Please refer to the Appendix I for a detailed discussion of the modeling assumptions. The vulnerability zone resulting from this analysis was then reviewed. A vulnerability zone is defined as a circle whose center is the point of



release and its radius is the length of the endpoint, which is predicted by the dispersion model (e.g., ALOHA).

Using the criteria mentioned above, the HA assessed the worst-case scenario of a catastrophic failure of one of the two new 20,000-gallon isopentane tanks. The storage vessel is capable of storing a maximum of 18,000 gallons of isopentane, taking into account administrative controls. According to the Chevron Phillips Chemical Company safety data sheet, the density of isopentane is 5.14 lbs./gal, which yields a total mass of 92,520 pounds of isopentane held in the storage vessel. The worst-case scenario considers the catastrophic failure of the 20,000-gallon isopentane storage vessel, which would result in a release of the entire contents of the vessel, into the secondary containment area. As modeled in the HA, the worst-case scenario event would have an impact up to 0.068 miles, or 357 feet (Table 3.10-1). There are zero residents and zero housing units within 357 feet.

**Table 3.10-1. Worst-Case Scenario Results Summary**

Worst-Case Release Scenario	Regulated Substance	Endpoint	Endpoint Distance
20,000 gallon	Isopentane	Overpressure of 1 pound per square inch	119 yards/ 357 feet/ 0.068 miles

Source: Appendix I of this EIR

The HA model contains built in mitigation assumptions. Specifically, once a release has occurred, mitigation systems (structures, equipment, or activities) that help minimize the transport of material to the atmosphere would be activated. Mitigation systems can be characterized as passive or active systems:

- **Passive mitigation** systems do not require activation, an energy source, or movement of components to perform their intended function.
- **Active mitigation** systems do require activation, an energy source, and/or movement of components to perform their intended function.

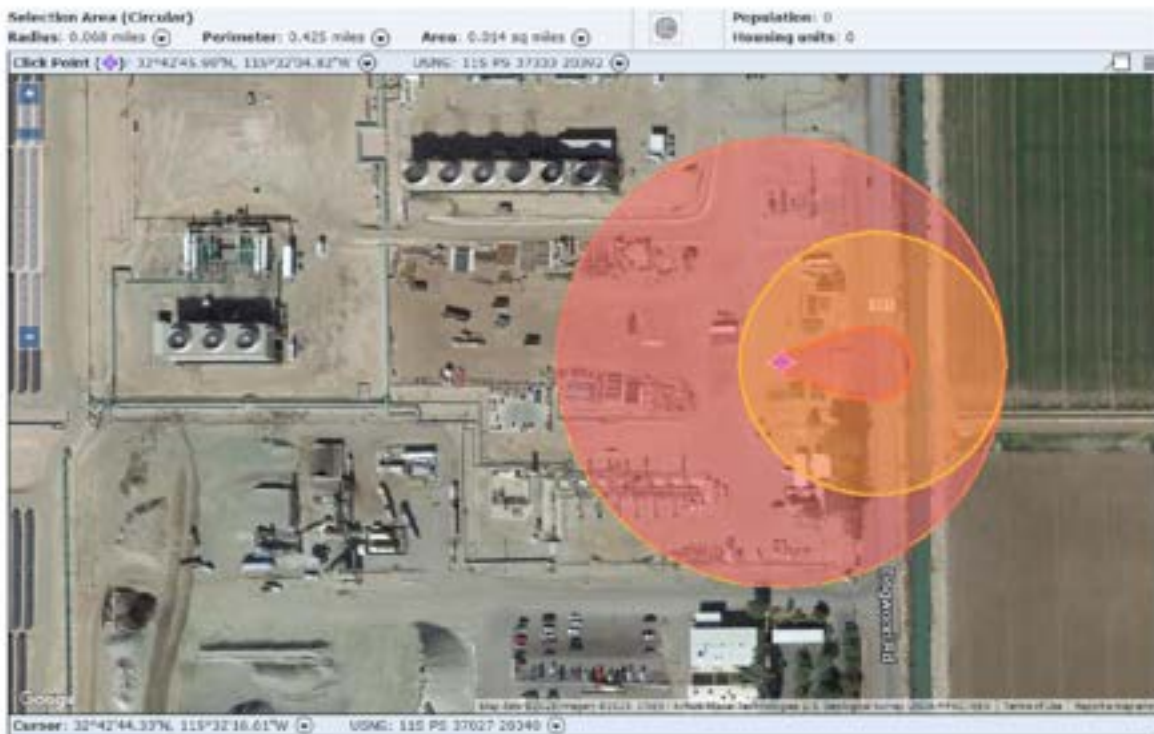
For the worst-case release scenario, the secondary containment area built with concrete around the isopentane vessel was considered as a passive mitigation system in the offsite consequence analysis. The dimensions of the containment area determine the surface area of the pool of isopentane that will lead to the worst-case scenario of the vapor cloud explosion. There are no other isopentane or OECs within the ignition zone associated with the proposed isopentane tank; therefore, there would be no associated cascading ignition events.

The closest potentially affected public receptors during a worst-case scenario are the residences approximately 3,500 feet to the northeast of the isopentane tanks. However, the proposed location of the proposed isopentane storage tanks is 125 feet from S. Dogwood Road. As shown in Figure 3.10-1, if a member of the public were driving along S. Dogwood Road at the time of the worst-case scenario they could suffer injury. In addition, fire rescue crews could also suffer injury responding to an isopentane leak or explosion; therefore, there is a potentially significant impact to the public through the use of isopentane. Implementation of Mitigation Measure HAZ-1 would reduce potential hazards to the public attributed to the storage, transport, and use of isopentane motive fluid to levels less than significant.

**Figure 3.10-1. Worst-Case Modeling**



**WCS MARPLOT 5.1.1 Map for Isopentane Storage Vessel**



**Receptors Within the Threat Zone**

Source: Appendix I of this EIR



## Mitigation Measure(s)

- HAZ-1**      **Isopentane Management Measures.** A certified fire protection engineer survey and analysis of current and proposed fire suppression and detection equipment will be performed to evaluate the current systems performance and coverage of protection prior to construction. This analysis will evaluate proposed fire suppression and detection equipment in conjunction with existing equipment and be reviewed and approved by the Imperial County Fire Department and OES prior to building permits approval. The following measures will be required for the project:
1. All isopentane storage tanks will be protected by approved automatic fire suppression equipment. All automatic fire suppression will be installed and maintained to the current adapted fire code and regulation.
  2. An approved automatic fire detection system will be installed as per the California Fire Code. All fire detection systems will be installed and maintained to the current adapted fire code and regulations.
  3. Fire department access roads and gates will be in accordance with the current adapted fire code and the facility will maintain a Knox Box for access on site.
  4. Applicants will provide product containment areas(s) for both product and water run-off in case of fire applications and retained for removal.
  5. Each tank will be equipped with an automated water suppression system.
  6. Each tank will be equipped with two flame detectors and one gas detector (for a total of 4 flame detectors and 2 gas detectors for the two tanks).
    - a. In the case of an isopentane leak, the gas detector(s) will detect it immediately and send a notification to the operator at the control room (manned 24/7) to mobilize fixing the leak.
    - b. In case of a fire, the flame detector(s) will detect it and immediately start the automatic fire suppression system.
    - c. In case of a fire, there will also be a horn and strobe system that will turn on automatically to alert the plant employees.
  7. Concrete containment areas will be constructed for the isopentane tanks.
  8. Isopentane vessels will rarely be filled to 90 percent capacity.
  9. Isopentane safety-control measures will be established.
  10. A blast wall will be built between the two proposed isopentane vessels.
  11. Diking and impoundment of the proposed isopentane tanks shall be installed to minimize the magnitude and extent of a tank failure.

## Significance after Mitigation

Implementation of Mitigation Measure HAZ-1 would require a certified fire protection engineer survey and analysis of current and proposed fire suppression and detection equipment to be performed to evaluate the current systems performance and coverage of protection prior to construction. This would ensure that the proposed isopentane tanks are designed to be equipped with fire suppression systems.

Implementation of Mitigation Measure HAZ-1 would reduce potential hazards to the public attributed to the storage, transport, and use of isopentane motive fluid to levels less than significant.

**Impact 3.10-2**      ***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?***

As discussed under Impact 3.10-1, a HA for the worst-case scenario leak/release of isopentane was conducted. Despite the closest residents being outside the radius of concern (399 feet) from the simulated explosion, there is still a potentially significant hazard to members of the public (Figure 3.10-2). This would occur if a member of the public was using S. Dogwood Rd adjacent to the isopentane tank at the time of the worst-case scenario explosion. In addition, there is a potentially significant hazard created for first responders responding to the potential explosion. Hazards include fire, exposure to vapors, and potential burns. However, through the implementation of Mitigation Measure HAZ-1, the potentially significant hazard to the public through reasonably foreseeable upset and accident conditions involving the release of isopentane would be reduced to a less than significant level.

In addition, a review of information from EnviroStor and GeoTracker reveals 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 one mile of the project site. No significant hazard to the public is anticipated attributable to past hazardous materials or active cleanups sites.

**Mitigation Measure(s)**

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

**Impact 3.10-3**      ***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 one-quarter mile of an existing school. The closest school is Heber Elementary School, located approximately 0.60 miles to the north of the project site. Therefore, the project would have no impact on emitting or handling hazardous or acutely hazardous materials substances or waste within one-quarter mile of an existing or proposed school.

**Mitigation Measure(s)**

No mitigation measures are required.

**Impact 3.10-4**      ***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?***

As discussed under Impact 3.10-2, the project site is not listed as a hazardous materials site on EnviroStor and GeoTracker. Therefore, implementation of the 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 3.10-5** *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 airport to the project site is the Calexico International Airport, located approximately two miles southeast of the project site. According to Figure 3B of the Imperial County Airport Land Use Compatibility Plan (ALUCP), no portion of the project site is located within the Calexico International Airport's land use compatibility zones (ALUC 1996). 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. No impact would occur.

### Mitigation Measure(s)

No mitigation measures are required.

**Impact 3.10-6** *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Imperial County Office of Emergency Services has provided three plans addressing evacuation and evacuation responsibilities for County Fire, Police, and the OES among other topics related to emergency preparedness. The three plans (IC Emergency Operations Plan; Multi-Jurisdiction Hazard Mitigation Plan; and Hazardous Materials Area Plan) do not identify specific evacuation routes.

The project applicants would coordinate any construction activities and use of oversized loads or movement of construction/decommissioning equipment with Imperial County Department of Public Works (ICDPW) and/or California Department of Transportation (Caltrans) and the El Centro Highway Patrol office. Further, the project applicants shall coordinate with DPW for any requested dedication of rights-of-way needed for S. Dogwood Road for the consideration of existing and any future road needs. Lastly, the project applicants shall file for an encroachment permit for any work or proposed work in the affected County or Caltrans road rights-of-way and for any and all new, altered or unauthorized existing driveway(s) to access the lot or lots and for any proposed road crossings. Thus, the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the 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 3.10-7** *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, the potential for a major fire in the unincorporated areas of the County is generally low (County of Imperial 1997). The project site is not located in areas



considered wildlands, as the vast majority of the surrounding area is cultivated farmlands. According to the Fire Hazard Severity Zone Viewer provided by the California Department of Forestry and Fire Protection, the project area 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 2023). Therefore, there would be no impact associated with risk involving wildland fires.

#### Mitigation Measure(s)

No mitigation measures are required.

### 3.10.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

During decommissioning and restoration of the project site, the applicants or its successor in interest would be responsible for the removal, recycling, and/or disposal of all solar arrays, inverters, transformers and other structures on the project site. The project applicants anticipate using the best available recycling measures at the time of decommissioning.

Solar panels are considered an RCRA-regulated waste. Solar panels used for the proposed solar facilities may contain materials such as cadmium, lead, or selenium. Thus, solar panels would be required to be disposed of at facilities permitted to accept such material (Class I; hazardous wastes). Clean Harbors Waste north of the project site is permitted to dispose of Class 1 waste materials and would be utilized to prevent any impact associated with their disposal.

Decommissioning/restoration activities would not result in a potential impact associated with wildfires (the project site is not susceptible to wildfires) or impediment to an emergency plan.

#### Residual

Implementation of Mitigation Measure HAZ-1 would reduce potential hazards to the public attributed to the storage, transport, and use of isopentane motive fluid to levels less than significant. 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.

## 3.11 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.

### 3.11.1 Existing Conditions

#### Drainage

The project site is within 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 Imperial Valley is characterized as a closed basin and, therefore, all runoff generated within the watershed discharges into the Salton Sea. The southern portion of the project site is located within the New River watershed (Hydrologic Unit Code [HUC-10] 1810020411) and the northern portion of the project site is located within the Alamo River watershed ([HUC-10] 1810020408) (USGS 2023a).

As shown in Figure 3.11-1, the Central Main Canal and several smaller IID canals and drains pass through the project area. The alfalfa fields in the project area are graded for flood irrigation and most were undergoing irrigation during the survey and were either very muddy or had standing water. The v-ditches present in the solar energy field are all concrete lined (Appendix F of this EIR).

#### Flooding

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Panel 06025C2075C) (FEMA 2008), the project site is within Zone X (unshaded), which is an area determined to be outside of the 0.2 percent annual chance of a flood.

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**Imperial Irrigation District (IID) Legend**

● IID_Gates	■ Dogwood Geothermal Plant Site	— Gen-He Line
— IID_Open_Channel	■ Haber 2 Peracetic Solar Facility	— Gen-He line Connection to Dogwood
■ Imperial County_Fields	■ Dogwood Peracetic Solar Facility	● Injection Well
	— Existing Pipeline	● Production Wells
	— New Pipeline	

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## 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.

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.

Based on the 305(b)/303(d) Integrated Report prepared by the Colorado River Basin RWQCB (SWRCB 2022), the following water features are impaired: Imperial Valley Drains, New River, Alamo River, and the Salton Sea. Specific impairments listed for each of these water bodies (or Category 5) are identified below:

- Imperial Valley Drains: Impaired for ammonia, chlordane, chlorpyrifos, dichlorodiphenyldichloroethylene (DDE), dichlorodiphenyltrichloroethane (DDT), dieldrin, disulfoton, imidacloprid, polychlorinated biphenyls (PCBs), sedimentation/siltation, selenium, toxaphene, and toxicity.
- New River: Impaired for ammonia, bifenthrin, chlordane, chlorpyrifos, cyhalothrin, lambda, cypermethrin, DDD, DDE, DDT, diazinon, dieldrin, disulfoton, hexachlorobenzene, imidacloprid, indicator bacteria, malathion, mercury, naphthalene, nutrients, organic enrichment/low dissolved oxygen, PCBs, pyrethroids, sediment, selenium, toxaphene, toxicity, and trash.
- Alamo River: Impaired for ammonia, chlordane, chlorpyrifos, cyhalothrin, lambda, cypermethrin, DDD, DDT, diazinon, dieldrin, enterococcus, escherichia coli, malathion, PCBs, pyrethroids, sedimentation/siltation, selenium, toxaphene, and toxicity.
- Salton Sea: ammonia, arsenic, chloride, chlorpyrifos, DDE, DDT, enterococcus, low dissolved oxygen, nutrients, salinity, and toxicity.

## Groundwater Hydrology

The project site is located within the Imperial Valley Groundwater Basin (Basin No: 7-030), which covers approximately 1,870 surface square miles. The physical groundwater basin extends in the southeastern portion of California at the border with Mexico. The basin lies within the southern part of

the Colorado Desert Hydrologic Region, south of the Salton Sea. The basin has two major aquifers, separated at depth by a semi-permeable aquitard that averages 60 feet thick and reaches a maximum thickness of 280 feet. The average thickness of the upper aquifer is 200 feet with a maximum thickness of 450 feet. The data regarding faults controlling groundwater movement is uncertain; however, as much as 80 feet of fine-grained, low permeability prehistoric lake deposits have accumulated on the valley floor, which result in locally confined aquifer conditions.

Groundwater recharge within the basin is primarily from irrigation return. Other recharge sources are deep percolation of rainfall and surface runoff, underflow into the basin, and seepage from unlined canals which traverse the valley. Groundwater levels within a majority of the basin have remained stable from 1970 to 1990 because of relatively constant recharge and an extensive network of subsurface drains.

Groundwater quality varies extensively throughout the base; however, is generally unusable for domestic and irrigation purposes without treatment (California Department of Water Resources 2004).

### 3.11.2 Regulatory Setting

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

#### Federal

##### *Clean Water Act*

The U.S. EPA is the lead federal agency responsible for managing water quality. The CWA of 1972 is the primary federal law that governs and authorizes the U.S. EPA and the states to implement activities to control water quality. The various elements of the CWA that address water quality and that are applicable to the project are discussed below. Wetland protection elements administered by the USACE under Section 404 of the CWA, including permits for the discharge of dredged and/or fill material into waters of the United States, are discussed in Section 3.5, 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, Alamo River, and the Salton Sea. Table 3.11-1 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.
- **Hydrowater Generation (POW)** – Use of water for hydropower generation.
- **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 3.11-1. Beneficial Uses of Receiving Waters**

Beneficial Uses	Imperial Valley Drains	Alamo River	Salton Sea
AQUA	--	--	X
FRSH	X	X	--

Beneficial Uses	Imperial Valley Drains	Alamo River	Salton Sea
IND	--	--	P
POW		P	--
REC I	X	X	X
REC II	X	X	X
WARM	X	X	X
WILD	X	X	X
RARE	X	X	X

Source: RWQCB 2023

AQUA=aquaculture; FRSH=freshwater replenishment; IND=industrial service supply; P=Potential Uses; POW = Hydrowater Generation; 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' Stormwater Pollution Prevention Plan (SWPPP) and perform monitoring of stormwater discharges and unauthorized non-stormwater discharges.

Construction activities are regulated under the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit) which covers stormwater runoff requirements for projects where the total amount of ground disturbance during construction exceeds 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 3.11-2 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.

*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.

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

General Plan Policies	Consistency with General Plan	Analysis
<i>Conservation and Open Space Element</i>		
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 SWPPPs, which will incorporate the requirements referenced in the State Regulatory Framework, design features, and BMPs.
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. The proposed project would also 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.

General Plan Policies	Consistency with General Plan	Analysis
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 proposed project does not contain a residential component, nor would it place housing or other structures within a 100-year flood hazard area.
<i>Water Element</i>		
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. The proposed project would also 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 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 proposed 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.

Source: Imperial County 2016; Imperial County 1997.

*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 proposed 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.

7. Finish pad elevations should be indicated on the plans, which are at or above the 100-year frequency flood elevation identified by the engineer for the parcel. Finish floor elevations should be set at least 6 inches above the 100-year flood elevation.
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 2012).

### 3.11.3 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

<b>Impact</b> <b>3.11-1</b>	<b><i>Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade groundwater water quality?</i></b>
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### Construction

Construction of the project includes site preparation, grading, foundation construction, dust control, construction of the proposed pipelines, and associated structures will be required. The proposed Dogwood geothermal plant, substation, and new injection well will be located in an area currently used for materials storage and supporting operations. The development area for the proposed Dogwood geothermal plant is completely disturbed from energy generation operations and devoid of any vegetation, surface waters, or existing facilities that would require relocation or demolition. However, the proposed solar and well development sites have canals, drainages, and v-ditches used for irrigation surrounding them.

During the construction phase, sedimentation and erosion could 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 Best Management Practices (BMPs) is critical in preventing discharge to surface waters/drainages. The proposed 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 proposed 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 affect onsite waters such as drainages and canals. 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 of 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 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. 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*

The proposed project would result in an increase of approximately 1,400 square-feet of impervious surfaces resulting from installation of equipment footings/foundations. 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, 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. As such, upon implementation of Mitigation Measure HYD-2, impacts would be reduced to a level less than significant.

Hazardous materials associated with the operation of the geothermal plant will be stored at the HGEC. Two 20,000-gallon isopentane tanks for motive fluid storage will be located adjacent to the OEC generating unit. The release of the isopentane motive fluid either through natural causes (e.g., earthquake) or accidental (e.g., human error) could impact surface water quality. However, as addressed in Section 3.10, Hazards and Hazardous Materials, of this EIR, significant impacts related to the leak or spill of isopentane would be reduced to a less than significant level with the implementation of Mitigation Measure HAZ-1.

### *Mitigation Measure(s)*

The following mitigation measures would be required:

**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.
- HAZ-1**      **Isopentane Management Measures.** (See Section 3.10, Hazards and Hazardous Materials, of this EIR).

### *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.

Implementation of Mitigation Measure HAZ-1 would reduce potential hazards to the public attributed to the storage, transport, and use of isopentane motive fluid to levels less than significant.

**Impact 3.11-2**      ***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 require the drilling of three new geothermal production wells and one new injection well. The production wells would be completed to depths between 1,000 and 4,000 feet. Casing depths will comply with California Department of Conservation – Geologic Energy Management Division (CalGEM) Regulations (Chapter 4, Article 3, Section 1723, 2018). The geothermal production wells will bypass any groundwater reservoirs in favor of geothermal aquifers. Any water needed for fugitive dust control, or other BMPs that require water will be obtained through the project applicant's existing IID contract. No groundwater wells will be drilled, nor will the project require the use of groundwater. As such, no impact on groundwater supply or recharge would occur.

### *Mitigation Measure(s)*

No mitigation measures are required.

**Impact 3.11-3**      ***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 proposed PV module supports and other associated infrastructure for the project 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, 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. Therefore, upon implementation of Mitigation Measure HYD-1, impacts related to erosion would be reduced to a level less than significant.

*Mitigation Measure(s)*

No additional measures beyond Mitigation Measure HYD-1 are required.

**Impact 3.11-4**      ***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 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 less than significant impacts associated with the alteration of drainage patterns resulting in on- or off-site flooding. Upon implementation of Mitigation Measure HYD-2, impacts would be less than significant.

*Mitigation Measure(s)*

No additional measures beyond Mitigation Measure HYD-2 are required.

**Impact 3.11-5** *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 3.11-1 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 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)*

No additional measures beyond Mitigation Measure HYD-1 are required.

**Impact 3.11-6** *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 for construction or operations. 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 06025C2075C) (FEMA 2008), the project site is located within Zone X. The FEMA Zone X 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 3.11-7      *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 over 25 miles north 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. 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 3.11-8      *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?***

As described under Impact 3.11-1 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.

### 3.11.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

Decommissioning and restoration activities would result in similar impacts on hydrology and water quality as would occur during construction of the proposed project. The primary water quality issue associated with decommissioning/restoration would be potential impacts on surface water quality, as the decommissioning activities would be similar to construction activities and would be considered a significant impact. However, during decommissioning, soil erosion would be controlled in accordance with NPDES General Construction Permit(s) and project-specific SWPPP. Compliance with requirements and best available control technologies in place at the time of decommissioning are anticipated to be similar to, or more stringent than, those currently required. Compliance with all applicable water quality regulations would reduce the project's impacts during decommissioning to a level less than significant. Impacts on other water resource issues, including alteration of drainage

patterns, and contributing to off-site flooding would be less than significant. There would be no impact associated with inundation from impacts on groundwater recharge and supply, flooding, tsunamis, or seiche zones.

### Residual

With implementation of the mitigation measures listed above, implementation of the proposed 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 level less than significant. Based on these circumstances, the proposed project would not result in any residual significant and unmitigable adverse impacts on surface water hydrology and water quality.



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## 3.12 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 area. 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 applicable 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.

### 3.12.1 Existing Conditions

The project site is located on approximately 125 acres of privately-owned lands in southern Imperial County, California, approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calexico jurisdictional limit.

Three separate Conditional Use Permit (CUP) applications have been filed with the County of Imperial for the construction and operation of various facilities. The three CUP applications or individual site locations consist of the following:

- CUP 23-0020: Dogwood Geothermal Energy Project
- CUP 23-0021: Heber 2 Solar Energy Project
- CUP 23-0022: Heber Field Company (HFC) Geothermal Wells and Pipeline Project

Table 3.12-1 identifies the assessor parcel numbers (APN) associated with the project site, the APN acreage, project site component approximate acreage, General Plan land use designation, and zoning. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC.

**Table 3.12-1. Project Assessor Parcel Numbers, Acreages, General Plan Land Use, and Zoning**

APN	APN Acreage	Site Component Acreage	General Plan Land Use	Zoning
054-250-031	39.93	~5.68	Heber Specific Plan Area	A-2-G-SPA
059-020-001	246.61	~117.59	Urban	A-2-G-U
054-250-017	160.08	~2	Heber Specific Plan Area	A-2-G-SPA
<b>Total</b>	446.62	~125.27	--	--

APN=assessor parcel number; A-2-G-SPA=General Agriculture with Geothermal Overlay in Special Plan Area; A-2-G-U=General Agriculture with Geothermal Overlay in Urban Area

### Dogwood Geothermal Energy Project (CUP 23-0020)

The Dogwood Geothermal Energy Project would be located on APNs 054-250-031 and 059-020-001. The proposed geothermal power plant would be located within the existing fenceline of the HGEC, operated by the Second Imperial Geothermal Company, a subsidiary of ORMAT which includes the Heber 2, Heber South, and Goulds 2 geothermal energy facilities located at 855 Dogwood Road, Heber, CA (APN 054-250-31). The development area for the Dogwood geothermal plant is completely disturbed from existing energy generation operations and devoid of any vegetation, surface waters, or existing facilities that would require relocation or demolition.

As shown in Figure 3.12-1, the proposed Dogwood geothermal plant site would be located on APN 054-250-031, which has a designation of Heber Specific Plan Area under the County's General Plan. The proposed Dogwood solar facility site would be located on APN 059-020-001, which has a designation of Urban under the County's General Plan. As shown in Figure 3.12-2, the proposed Dogwood geothermal plant site is currently zoned General Agriculture with a Geothermal Zone Overlay in Special Plan Area (A-2-G-SPA). The proposed Dogwood solar facility site is currently zoned General Agriculture with a Geothermal Zone Overlay in an Urban Area (A-2-G-U).

### Heber 2 Solar Energy Project (CUP 23-0021)

The proposed Heber 2 solar energy facility site would be located southeast of the HGEC and in the northern portion of APN 059-020-001. As shown in Figure 3.12-1, the Heber 2 solar energy facility site would be located within the area designated as Urban under the County's General Plan. As shown in Figure 3.12-2, the proposed Heber 2 solar energy facility site is currently zoned A-2-G-U.

### HFC Geothermal Wells and Pipeline Project (CUP-23-0022)

The proposed HFC Geothermal Wells and Pipeline Project would be located on two parcels. Two wells would be located within APN 059-020-001 with a small segment of pipeline (approximately 1,000 feet) developed within APN 059-020-001 connecting to the existing pipeline network. A third well would be installed adjacent to an existing geothermal well approximately 1,500 feet due east of the HGEC (APN 054-250-017). APN 054-250-017 is currently used for the cultivation of crops, specifically alfalfa.

As shown in Figure 3.12-1, the HFC Geothermal Wells and Pipeline Project site would be located within areas of the project site designated as Heber Specific Plan Area and Urban under the County's General Plan. As shown in Figure 3.12-2, the HFC Geothermal Wells and Pipeline Project site is currently zoned A-2-G-SPA and A-2-G-U.

### Renewable Energy Overlay Zone

The County adopted the RE and Transmission Element, which includes RE and Geothermal Zones (RE Overlay Map). The RE and Geothermal Overlay Zones are designated within the RE and Transmission Element, which was adopted by the County in 2016. The Geothermal Overlay Zone is concentrated in areas determined to be the most suitable for the development of Geothermal and/or RE facilities while minimizing the impact to other established uses. As shown in Figure 3.12-2, the entire project site is located within the Geothermal Overlay Zone.

Figure 3.12-1. General Plan Land Use Designations

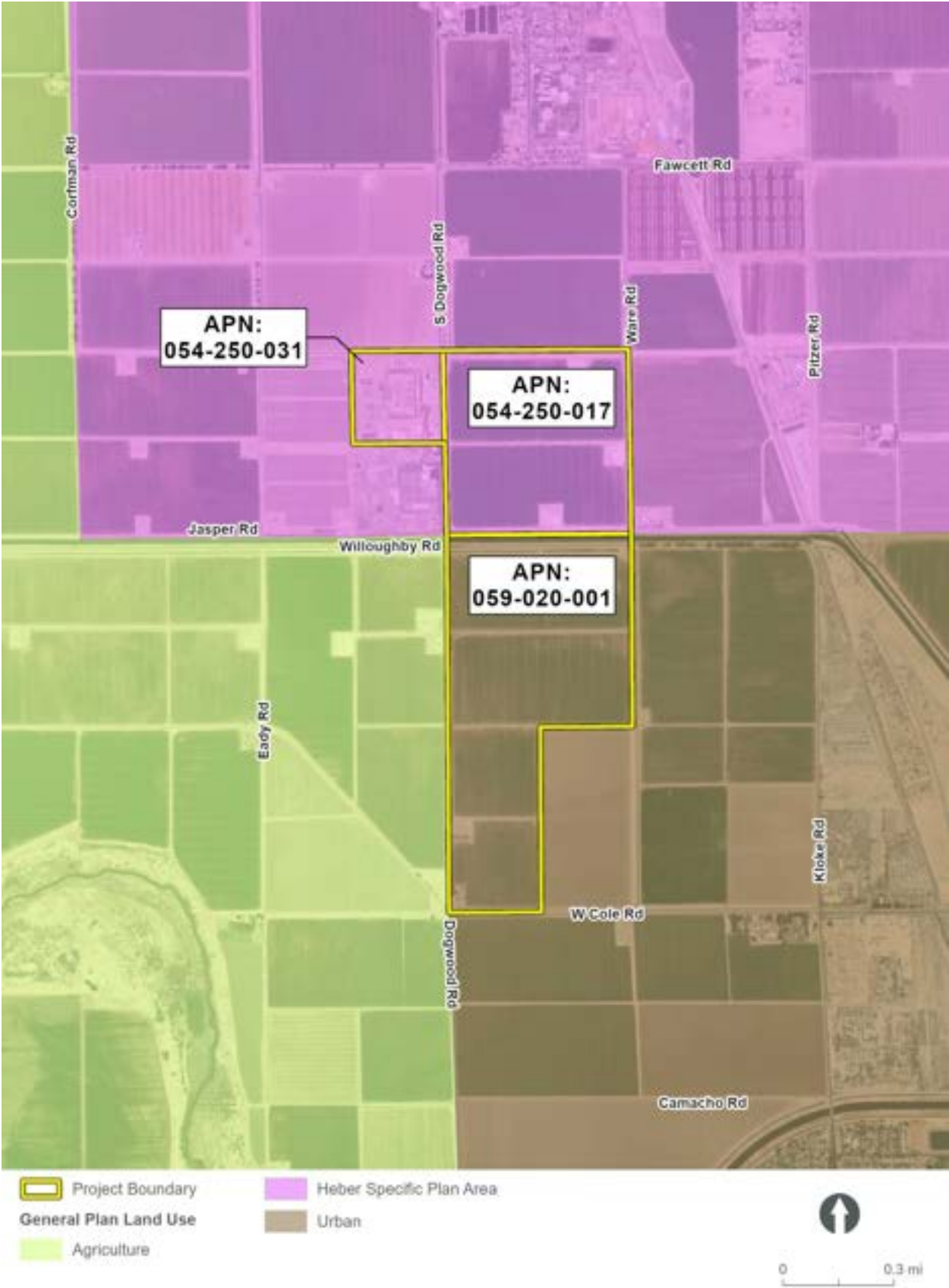
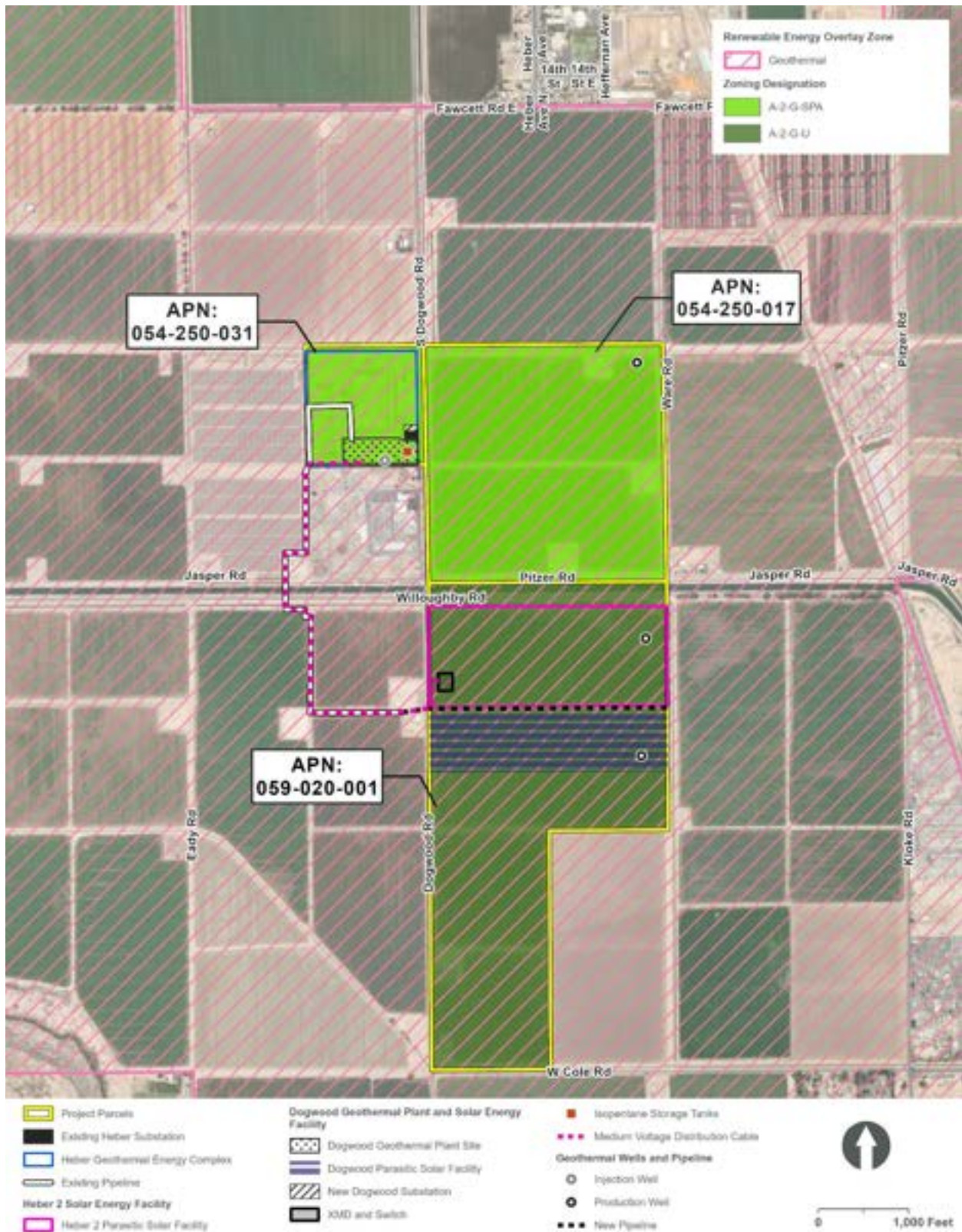




Figure 3.12-2. Zoning Designations





## Established Residential Communities

The project site is located in a sparsely populated portion of Imperial County. There are no established residential communities located within or in the vicinity of the project site. The nearest established residential community is located along E. Fawcett Road, approximately 2,985 feet north of the project site in the City of Heber. Table 3.12-2 summarizes the nearest residences in the vicinity of the project site and distance to the nearest project components.

**Table 3.12-2. Sensitive Receptors in Proximity to Project Components**

Sensitive Receptor	Nearest Project Component	Distance to Nearest Project Component (Feet)
Residence (104 Jasper Rd.)	Heber 2 Solar Facility	540
Residence (600 Dogwood Rd.)	Dogwood Solar Facility	2,900
Residential Area (E. Fawcett Rd.)	Production Well	2,985
Residences (153, 175, 195 E. Cole Blvd.)	Dogwood Solar Facility	3,825

## Nearby Airports

The nearest airport to the project site is the Calexico International Airport, located approximately two miles southeast of the project site. According to Figure 3B of the Imperial County Airport Land Use Compatibility Plan (ALUCP), no portion of the project site is located within the Calexico International Airport's land use compatibility zones (ALUC 1996).

### 3.12.2 Regulatory Setting

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

#### State

##### *State Planning and Zoning Laws*

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning.

The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period or more.

The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific zone district, are required to be consistent with the general plan and any applicable specific plans.

## Regional

### *Southern California Association of Governments – 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

### *Imperial County 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 Renewable Energy (RE) and Transmission Element includes the RE and Geothermal Overlay Zones. 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. As previously mentioned, the project site is located within the Geothermal Overlay Zone, which is considered as part 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 3.12-2. 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 3.12-3. Project Consistency with Applicable General Plan Policies**

Applicable Policies	Consistency Determination	Analysis
<b>Land Use Element</b>		
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 proposed project includes the necessary supporting infrastructure and would not require new community-based infrastructure. The proposed project would be required to construct supporting drainage infrastructure on-site consistent with County requirements and mitigation measures prescribed in Section 3.11, Hydrology/Water Quality, of the EIR. Once the proposed project is operational, a limited amount of water would be required for solar panel washing and fire protection. No septic system would be required for the proposed 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 RE and Geothermal Overlay Zones, which authorizes the development and operation of RE projects with an approved CUP. The Geothermal Overlay Zone is concentrated in areas determined to be the most suitable for the development of RE and Geothermal facilities while minimizing the impact to other established uses.  The project site is located within the Geothermal Overlay Zone. Therefore, the proposed project would be sited in a suitable location for the transmission of renewable energy (geothermal and solar).
Public Facilities. Objective 8.9: Require necessary public utility rights-of-way when appropriate.	Consistent	The proposed project would not include dedication of ROW to facilitate the placement of project-related facilities.
Protection of Environmental Resources. Objective 9.6: Incorporate the strategies of the Imperial County AQAP in land use planning decisions and as amended.	Consistent	Dust suppression will be implemented in accordance with a dust control plan approved by the ICAPCD. Section 3.4, Air Quality, discusses the project's consistency with the AQAP in more detail.

Applicable Policies	Consistency Determination	Analysis
<b><i>Circulation and Scenic Highways Element</i></b>		
Safe, Convenient, and Efficient Transportation System. Objective 1.1: Maintain and improve the existing road and highway network, while providing for future expansion and improvement based on travel demand and the development of alternative travel modes.	Consistent	The proposed project would include limited operational vehicle trips and would not be expected to reduce the current LOS at affected intersections, roadway segments, and highways. The proposed project does not propose residential or commercial development and therefore would not require new forms of alternative transportation to minimize impacts to 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 3.15, Transportation, a traffic study was prepared for the project and determined that proposed project would have a less than significant impact on the circulation network.  Once the proposed project is complete, the site will be staffed with 1-2 onsite employees. During operations, the proposed project would generate minimal vehicle trips (11 trips per day). The project would not reduce the current level of service at affected intersections, roadway segments, and highways.
<b><i>Noise Element</i></b>		
Noise Environment. Objective 1.3: Control noise levels at the source where feasible.	Consistent	As discussed in Section 3.13, Noise and Vibration, no individual or cumulative pieces of construction equipment would exceed the 75 dBA Imperial County construction noise standard during any phase of construction at the nearest noise-sensitive receptor. Project operational noise would not exceed County daytime or nighttime 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. As discussed in Section 3.13, Noise and Vibration, no individual or cumulative pieces of construction equipment would exceed the 75 dBA Imperial County construction noise standard during any phase of construction at the nearest noise-sensitive receptor. Project operational noise would not exceed County daytime or nighttime standards.
<b><i>Conservation and Open Space Element</i></b>		
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 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.

Applicable Policies	Consistency Determination	Analysis
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, the proposed project has the potential to impact burrowing owl and bird species. However, with the implementation of Mitigation Measures BIO-1, <u>BIO-6, BIO-7, and BIO-9 through BIO-11</u> <del>through BIO-4</del> , these impacts would be reduced to a level less than significant. The site is not designated or otherwise identified as critical habitat for any species.
Preservation of Cultural Resources. Objective 3.1: Protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance.	Consistent	A cultural resources report was prepared for the project site. As discussed in Section 3.6, Cultural Resources, the proposed project has the potential to encounter undocumented archaeological resources and human remains. Mitigation Measures CUL-1 and CUL-2 have been identified to reduce potential impacts to a level less than significant.
Preservation of Agricultural Lands. Goal 4: The County will actively conserve and maintain contiguous farmlands and prime soil areas to maintain economic vitality and the unique lifestyle of the Imperial Valley.	Consistent	The project would temporarily convert land designated as Prime Farmland and Farmland of Statewide Importance to non-agricultural uses. Although the project would convert lands currently under agricultural production, the project applicant is proposing agriculture as the end use and is required to 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 contents will include addressing the removal, recycling, and/or disposal of all project structures on the site, as well as restoration of the site to its pre-project condition. Therefore, the proposed project would not permanently convert Prime Farmland and Farmland of Statewide Importance to non-agricultural uses. Please refer to Section 3.3, Agricultural Resources, which provides a more detailed analysis of the project's consistency with applicable agricultural goals and objectives.
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 3.11, 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.
Conservation of Energy Sources. Objective 6.2: Encourage the utilization of alternative passive and renewable energy resources.	Consistent	The proposed project entails the construction and operation of a geothermal plant, which is considered an alternative source of energy.
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, Discretionary and Enhanced Air Quality Measures. 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, Discretionary and Enhanced Air Quality Measures. 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	The project site is located entirely within the RE Overlay Zone.
<b><i>RE and Transmission Element</i></b>		
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 RE facilities.	Consistent	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 proposed project. With incorporation of Mitigation Measures BIO-1 through BIO-4 <sup>11</sup> identified in Section 3.5, Biological Resources, less than significant impacts would result.
Objective 1.6: Encourage the efficient use of water resources required in the operation of renewable energy generation facilities.	Consistent	The proposed project would obtain water for construction and decommissioning activities, including grading, and dust control from the Applicant's existing contract with IID. Water necessary for well drilling would be obtained from local irrigation canals in conformance with IID requirements.
Objective 1.7: Assure that development of RE facilities and transmission lines comply with ICAPCD's regulations and mitigation measures.	Consistent	Dust suppression will be implemented including the use of water and soil binders during construction. Section 3.4, Air Quality, discusses the proposed project's consistency with ICAPCD's regulations in more detail.

Applicable Policies	Consistency Determination	Analysis
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	<p>Pending Imperial Irrigation District (IID) review, no upgrades to off-site transmission facilities are necessary. If upgrades to off-site facilities are later deemed necessary through an IID transmission study, recommendations could include protection upgrades and metering replacements at existing IID substations and/or upgrades to telecommunications, distribution lines, and transmission lines. Such upgrades would use existing infrastructure, easements, right-of-way, and corridors to the extent practicable.</p> <p>The new Dogwood substation will connect directly to the existing point of interconnection with the IID controlled grid.</p>
<b>Seismic and Public Safety Element</b>		
Land Use Planning and Public Safety. Goal 1: Include public health and safety considerations in land use planning.	Consistent	<p>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.</p> <p>Since the project site is located in a seismically active area, the project is required to be designed in accordance with the CBC. In conjunction with mitigation requirements outlined in the impact analysis, the risks associated with seismic hazards would be minimized.</p> <p>A preliminary geotechnical report has been prepared for the proposed project. The preliminary geotechnical report has been referenced in this environmental document. Additionally, a design-level geotechnical investigation would be conducted to evaluate the potential for site specific hazards associated with seismic activity.</p>
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 projects.		
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.		

Applicable Policies	Consistency Determination	Analysis
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.		
<b>Water Element</b>		
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.
<b>Housing Element</b>		
Not Applicable. The proposed project is a renewable energy project and does not include the development of housing.		

Source: County of Imperial 2008

**Notes:**

AQAP=air quality attainment plan; CBC=California Building Code; CUP=conditional use permit; EIR=environmental impact report; GHG=greenhouse gas; ICAPCD=Imperial County Air Pollution Control District; IID=Imperial Control District; LOS=level of service; 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.

### **Permitted and Conditional Uses**

**A-2 Zoning.** Pursuant to Title 9, Division 5, Chapter 8 of the Land Use Ordinance the purpose of the A-2 zone is to “designate areas that are suitable and intended primarily for agricultural uses (limited) and agricultural related compatible uses” (County of Imperial 2020).

Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone:

- n) Oil, gas and geothermal exploration meeting requirements specified in Division 17*
- s) Solar energy extraction generation provided that is for on-site consumption only*

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:

- y) Electrical generation plants (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*
- z) Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*
- bb) Facilities for the transmission of electrical energy (100-200 kv)*
- ii) Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*
- rr) Major Geothermal projects per Division 17*
- ww) Resource extraction and energy development as per Division 17*
- aaa) Solar energy electrical generator*

**Height Limit in A-2 Zone.** Section 90508.07 of the Land Use Ordinance limits the height of all non-residential structures and specifically states in Section 90508.07(c) that, “Non-Residential structures and commercial communication towers shall not exceed one hundred twenty (120) feet in height, and as may be required by the ALUC plan.”

**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” (ICPDS 2017).

Title 9, Division 17 of the Land Use Ordinance includes the RE Overlay Zone, which authorizes the development and operation of renewable energy projects, with an approved CUP. Chapter 3 of Title 9, Division 17 sets forth additional specific standards for geothermal projects. Uses that are conditionally permitted require and require a CUP are 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 ALUCP provides the criteria and policies used by the Imperial County Airport Land Use Commission to assess compatibility between the principal airports in Imperial County and proposed land use development in the areas surrounding the airports. The ALUCP emphasizes review



of local general and specific plans, zoning ordinances, and other land use documents covering broad geographic areas.

The nearest airport to the project site is the Calexico International Airport, located approximately two miles southeast of the project site. According to Figure 3B of the Imperial County Airport Land Use Compatibility Plan (ALUCP), no portion of the project site is located within the Calexico International Airport's land use compatibility zones (ALUC 1996).

### 3.12.3 Impacts and Mitigation Measures

#### Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to land use/planning are considered significant if any of the following occur:

- Physically divide an established community
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect

#### Impact Analysis

##### **Impact 3.12-1**      ***Would the project physically divide an established community?***

The project site is located in a sparsely populated portion of Imperial County. The nearest single-family residence is located approximately 360 feet east of the eastern boundary of the project site along Jasper Road. Additional single-family residences are located approximately 0.5-mile southeast of the project site along Cole Road. However, there are no established residential communities located in the vicinity of the project site. The nearest established residential community is located approximately 0.5 mile north of the project site in the City of Heber. 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 3.12-2**      ***Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?***

The project's consistency with applicable land use plans, policies, and regulations is evaluated below.

#### **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 proposed project would temporarily convert Prime Farmland and Farmland of Statewide Importance to non-agricultural uses. Although the entire project falls within the RE Overlay Zone, which allows for the conversion of agricultural land for renewable energy production with an approved CUP, the loss of agricultural land classified as Prime Farmland and Farmland of Statewide Importance is considered a significant impact under CEQA. Therefore, implementation of Mitigation Measures AG-1a (Payment of Agricultural and Other Benefit Fees) and AG-1b (Site Reclamation Plan) would mitigate potential impacts to the land use conversion. Upon implementation of Mitigation Measures AG-1a and AG-1b, impacts would be reduced to a level less than significant. Therefore, no impacts due to a conflict with Connect SoCal would occur.

#### COUNTY OF IMPERIAL GENERAL PLAN

An analysis of the project's consistency with the General Plan goals and objectives relevant to the project is provided in Table 3.12-2. As shown in Table 3.12-2, the proposed project would generally be consistent with the goals and objectives of the General Plan.

#### COUNTY OF IMPERIAL LAND USE ORDINANCE

Development of the proposed project is subject to the County's zoning ordinance. The project site is located on three privately-owned legal parcels zoned A-2-G-SPA and A-2-G-U. Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone:

- n) Oil, gas and geothermal exploration meeting requirements specified in Division 17*
- s) Solar energy extraction generation provided that is for on-site consumption only*

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:

- y) Electrical generation plants (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*
- z) Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*
- bb) Facilities for the transmission of electrical energy (100-200 kv)*
- ii) Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*
- rr) Major Geothermal projects per Division 17*
- ww) Resource extraction and energy development as per Division 17*
- aaa) Solar energy electrical generator*

Further, Title 9, Division 17 of the Land Use Ordinance, includes the RE Overlay Zone, which authorizes the development and operation of renewable energy projects, with an approved CUP (ICPDS 2017). Chapter 3 of Title 9, Division 17 sets forth additional specific standards for geothermal projects. Therefore, the proposed project qualifies as permitted uses with the approval of the CUPs by the County to allow for the construction and operation of the proposed geothermal and solar energy facilities. With approval of the CUPs, the proposed project would not conflict with the County's zoning

ordinance. No impacts due to a conflict with the County of Imperial Land Use Ordinance(s) would occur.

#### **IMPERIAL COUNTY AIRPORT LAND USE COMPATIBILITY PLAN**

The nearest airport to the project site is the Calexico International Airport, located approximately two miles southeast of the project site. According to Figure 3B of the Imperial County Airport Land Use Compatibility Plan (ALUCP), no portion of the project site is located within the Calexico International Airport's land use compatibility zones (ALUC 1996). Therefore, the proposed project would not conflict with the Imperial County ALUCP, and no impact would occur.

#### *Mitigation Measure(s)*

No mitigation measures are required.

### **3.12.4 Decommissioning/Restoration and Residual Impacts**

#### **Decommissioning/Restoration**

Decommissioning and restoration would not physically divide an established community or conflict with any applicable land use plans, policies, or regulations. Decommissioning would be conducted in compliance with a required Reclamation Plan that would be implemented at the end of the proposed project's life and would adhere to Imperial County's decommissioning requirements. Further, decommissioning activities would be subject to mandatory compliance with applicable local, State, and federal regulations designed to avoid adverse impacts to the project area and surrounding environment.

#### **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 the CUPs 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.

## 3.13 Noise and Vibration

This section identifies the ambient noise environment for the project area and describes applicable federal, state, and local regulations, potential project-related noise and vibration impacts, and recommended mitigation measures to avoid or reduce potential impacts of the proposed project. The information for this section is summarized from a project-specific Noise Technical Report, prepared by Catalyst Environmental Solutions (Catalyst). This report is included in Appendix K of this EIR.

### 3.13.1 Existing Conditions

#### Fundamentals of Sound and Environmental Noise

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. When sound becomes excessive or unwanted, it is referred to as noise. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day and the type of activity during which the noise occurs, and the sensitivity of the individual.

Sound (noise) levels are measured and quantified with several metrics. All of them use the logarithmic decibel (dB) scale with 0 dB roughly equal to the threshold of human hearing. A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a 50 dB sound is added to another 50 dB sound, the total is only a 3 dB increase (to 53 dB). Thus, every 3 dB change in sound levels represents a doubling or halving of sound energy. Related to this is the fact that a less-than-3 dB change in sound levels is imperceptible to the human ear. Sound power level is the acoustic energy emitted by a source which produces a sound pressure level at some distance. While the sound power level of a source is fixed, the sound pressure level depends upon the distance from the source and the acoustic characteristics of the area in which it is located.

The frequency of sound is a measure of the pressure fluctuations per second, measured in hertz (Hz). Most sounds do not consist of a single frequency but consist of a broad band of frequencies differing in level. The characterization of sound level magnitude with respect to frequency is the sound spectrum. Many rating methods exist to analyze sound of different spectra. The method used for this analysis is A-weighting. The A-weighted scale (dBA) most closely approximates how the human ear responds to sound at various frequencies by progressively deemphasizing frequency components below 1,000 Hz and above 6,300 Hz and reflects the relative decreased sensitivity of humans to both low and extremely high frequencies (Appendix K of this EIR).

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise. Several methods are used for describing variable sounds including the equivalent level ( $L_{eq}$ ), the maximum level ( $L_{max}$ ), and the percent-exceeded levels. These metrics are derived from a large number of moment-to-moment A-weighted sound level measurements. Some common metrics reported in community noise monitoring studies are described below:

- $L_{eq}$ , the equivalent level, can describe any series of noise events of arbitrary duration, although the most common averaging period is hourly. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, sounds are described

in terms of an average level that has the same acoustical energy as the summation of all the time-varying events, and  $L_{eq}$  is the common energy-equivalent sound/noise descriptor.

- $L_{max}$  is the maximum sound level during a given time.  $L_{max}$  is typically due to discrete, identifiable events such as an airplane overflight, car or truck passing by, or a dog barking.
- $L_{90}$  is the sound level in dBA exceeded 90 percent of the time during the measurement period.  $L_{90}$  is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when no obvious nearby intermittent noise sources occur.
- $L_{50}$  is the median sound level in dBA exceeded 50 percent of the time during the measurement period.
- $L_{10}$  is the sound level in dBA exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period.  $L_{10}$  is sometimes called the intrusive sound level because it is caused by occasional louder noises like those from passing motor vehicles.

In determining the daily measure of community noise, it is important to account for the difference in human response to daytime and nighttime noise. Noise is more disturbing at night than during the day, and noise indices have been developed to account for the varying duration of noise events over time as well as community response to them. The Day-Night Average Level ( $L_{dn}$ ) is such an index.  $L_{dn}$  represents the 24-hour A-weighted equivalent sound level with a 10 dBA penalty added to the “nighttime” hourly noise levels between 10:00 p.m. and 7:00 a.m. Because of the time-of-day penalties associated with the  $L_{dn}$  index, the  $L_{eq}$  for a continuously operating sound source during a 24-hour period will be numerically less. The Community Noise Equivalent Level (CNEL), similar to  $L_{dn}$ , applies a 10 dBA penalty for noise levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m., and a 5 dBA penalty for noise levels the sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m. CNEL has been adopted by the State of California to define the community noise environment for development of the community noise element of a General Plan. Noise is also more disturbing the closer a receptor is to the source; noise levels decrease by 6 dB as the distance from its source doubles (Appendix K of this EIR).

## Fundamentals of Vibration

Ground-borne vibration consists of waves transmitted through solid material. Several types of wave motions exist in solids, unlike air, including compressional, shear, torsional, and bending. The solid medium can be excited by forces, moments, or pressure fields. Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hz.

Vibration may be defined in terms of the displacement, velocity, or acceleration of the particles in the medium material. In environmental assessments, where human response is the primary concern, velocity is commonly used as the descriptor of vibration level, typically expressed in inches per second (in/sec) or millimeters per second (mm/s). The amplitude of vibration can be expressed in terms of the wave peaks or as an average, called the root mean square. The root mean square level is generally used to assess the effect of vibration on humans. Like noise, vibration can be expressed in terms of decibels with a reference velocity of  $1 \times 10^{-6}$  in/sec. The abbreviation “VdB” is often used for vibration decibels to reduce the potential for confusion with sound decibels.

The two primary concerns with project-induced vibration, the potential to damage a structure and the potential to annoy people, are evaluated against different vibration limits. Studies have shown that the threshold of perception for the average person is a peak particle velocity (PPV) in the range of 0.2 to 0.3 mm/s (0.008 to 0.012 in/sec). Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level (Appendix K of this EIR).

### Ambient Noise Levels

Existing ambient noise in the vicinity of the project site is consistent with a rural agricultural landscape with the dominant noise sources consisting of vehicular traffic on local roads, the existing Heber 2 Complex, and the operation of agricultural equipment. The major source of vehicular noise is traffic along SR 86 and SR 111 and the Regional Arterials Dogwood Road and Jasper Road. SR 86 is a principal farm-to-market route for Imperial County agricultural products and carries a high percentage of heavy trucks.

The existing geothermal facilities adjacent to the project site also contribute to the existing noise environment. Typical sound power levels for the existing power plants and geothermal well pads are in the range of 113 dBA at the loudest noise source of the power plant and 92 dBA directly adjacent to each well. Noise from these stationary sources lessens at a rate of approximately 6 dB per doubling of distance, depending on such environmental conditions as topography, vegetation, and weather. Specifically, operational noise levels of an existing geothermal facility in Imperial County were recorded at 70 dBA  $L_{eq}$  at approximately 100 feet (Appendix K of this EIR).

### Sensitive Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses, as are commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

There are numerous sensitive receptors in proximity to project components including residences, Mt. View Cemetery, and Heber Elementary School. Table 3.13-1 summarizes the sensitive receptors in the project area and the distance to the nearest project component.

### Proximity to Airports

The nearest airport to the project site is the Calexico International Airport, located approximately two miles southeast of the project site.

**Table 3.13-1. Sensitive Receptors in Proximity to Project Components**

Sensitive Receptor	Nearest Project Component	Distance to Nearest Project Component (feet)
Residence (104 East Jasper Road)	Heber 2 Parasitic Solar Facility	540
Residence (600 Dogwood Road)	Dogwood Parasitic Facility	2,900
Residential Area (East Fawcett Road)	Production Well	2,985
Heber Elementary School	Production Well	3,400
Residences (153, 185, 195 East Cole Boulevard)	Dogwood Parasitic Facility	3,825
Mt. View Cemetery	Production Well	6,890

Source: Appendix K of this EIR

### 3.13.2 Regulatory Setting

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

#### Federal

No federal regulations govern offsite (community) noise. The Occupational Safety and Health Act of 1970 specifies measures designed to protect workers against the effects of noise exposure and lists permissible noise level exposure as a function of the amount of time to which a worker is exposed. Occupational Safety and Health Administration (OSHA) regulations also dictate hearing conservation program requirements and workspace noise monitoring requirements. OSHA requirements limit worker noise exposure to 90 dBA over an 8-hour work shift. Furthermore, if 8-hour worker noise exposure at a work site exceeds 85 dBA, the area must be posted as a noise hazard zone; and a hearing conservation program would be required.

United States Fish and Wildlife Service (USFWS) has established a level of 60 dBA equivalent continuous noise level ( $L_{eq}$ ) as the maximum permissible noise level to which certain riparian bird species may be subjected during the mating and nesting seasons.

#### State

State Government Code requires counties to draft a Noise Element for their General Plans to establish acceptable noise limits for various land uses. The Imperial County General Plan contains a Noise Element which provides land use compatibility criteria as Community Noise Equivalent Level (CNEL) for acceptable land use noise levels. CEQA Guidelines defining a significant noise effect require that the impacts of a project be considered cumulatively in conjunction with those of other projects planned for the area.

#### Local

##### *Imperial County Regulations*

Imperial County is the agency responsible for regulating and controlling noise through the Noise Element of the County General Plan and the Noise Ordinance of the County's Codified Ordinances.



The Noise Element of the Imperial County General Plan provides a program for incorporating noise issues into the land use planning process with a goal of minimizing adverse noise impacts to noise-sensitive receptors. The Noise Element specifies construction hours and noise limits and the acceptable property line operational noise levels at various land uses for day, evening, and night periods for the County Noise Ordinance.

#### *Imperial County General Plan Noise Element*

The Noise Element of the Imperial County General Plan examines noise sources and provides information to be used in setting land use policies to protect noise-sensitive land uses and for developing and enforcing a local noise ordinance. The Noise Element provides a program for incorporating noise issues into the land use planning process with a goal of minimizing adverse noise impacts to receptors such as residences, schools, and hospitals, which are sensitive to noise. The County identifies Noise Impact Zones for sensitive receptors likely to be exposed to significant noise (greater than 60 dBA CNEL or 75 dBA  $L_{eq}$ ) from roadways, railroads, airports, and agricultural activities. The purpose of the Noise Impact Zone is to define areas and properties where an acoustical analysis of a Project is required to demonstrate project compliance with land use compatibility requirements and other applicable environmental noise standards. Any property within 1,500 feet of an interstate highway or 1,100 feet of a State highway is within a Noise Impact Zone, as is any property within 0.25 mile (1,320 feet) of existing farmland that is in an agricultural zone.

An acoustical analysis is required for any action that would be located, all or in part, in a Noise Impact Zone. According to the Noise Element, if the future noise levels from the action are within the normally acceptable noise level guideline but result in an increase of 5 dBA CNEL or greater, the action would have a potentially significant noise impact and mitigation measures must be considered. If the future noise level after the action is completed is greater than the normally acceptable noise level, a noise increase of 3 dBA CNEL or greater should be considered a potentially significant noise impact; and mitigation measures must be considered.

Land use compatibility defines the acceptability of a land use in a specified noise environment. Noise/Land Use Compatibility Guidelines are provided in the Noise Element to evaluate potential noise impacts and provide criteria for environmental impact findings and conditions for project approval. An acoustical analysis is required to demonstrate conformance of a Project with Noise/Land Use Compatibility Guidelines. These guidelines categorize noise levels at residential land uses as “normally acceptable” up to 60 dBA day-night average sound level ( $L_{dn}$ ) or CNEL and as “conditionally acceptable” up to 70 dBA  $L_{dn}$  or CNEL.

Construction noise standards included in the Noise Element restrict construction equipment noise levels to 75 dBA  $L_{eq}$  when averaged over an eight-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 dBA  $L_{eq}$  when averaged over a one-hour period. In addition, construction equipment operation is limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. on Saturday. Further, no commercial construction operations are permitted on Sunday or holidays.

#### *Noise Ordinance*

The County enforces construction and operation noise standards specified in the Noise Element through the Noise Ordinance. Noise-generating sources in Imperial County are regulated under the Imperial County Codified Ordinances, Title 9, Division 7 (Noise Abatement and Control) (Imperial

County 2022). The noise standards of the Ordinance limit the hours of construction and the level of noise emitted by the construction, as well as the operational noise levels at various land uses for day, evening, and night. Noise limits are established in Chapter 2 of this ordinance and shown in Table 3.13-2.

**Table 3.13-2. Imperial County Property Line Noise Limits**

Zone	Time	Average Hourly Sound ( $L_{eq}$ )
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

Source: Imperial County Ordinance § 90702.00

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  $L_{eq}$ .

Property line noise limits 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 enforced through the County's code enforcement program on the basis of complaints received from persons impacted by excessive noise. 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. Noise received at the property line of a residence is limited to 50 dBA  $L_{eq}$  in the daytime and 45 dBA  $L_{eq}$  at night.

Under Section 90702.00 of the County's Codified Ordinances, sound level limits for industrial noise are set at 75 dBA  $L_{eq}$  on or beyond the boundary of the property line at any time. Average hourly noise in residential areas is limited to 50 to 55 dBA from 7:00 a.m. to 10:00 p.m. and to 45 to 50 dBA from 10:00 p.m. to 7:00 a.m.

### 3.13.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts on noise and vibration, 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 noise and vibration are considered significant if any of the following occur:

- 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.
- Generate excessive groundborne vibration or groundborne noise levels.
- For a project located in the vicinity of a private airstrip of 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.

## Methodology

The project construction and operation noise levels were estimated using the computer noise propagation model SoundPLAN Essential (version 5.1), which calculates noise impacts taking into account terrain features including relative elevations of noise sources, receivers, and intervening objects, ground effects due to areas of pavement and unpaved ground, and atmospheric effects on sound propagation.

### *Construction*

The potential construction noise levels onsite associated with project construction activities were estimated for each distinct construction phase (site preparation, project construction, well drilling and pipe interconnection, substation development and interconnection, and testing). The noise model conservatively assumes that construction equipment for each respective construction activity will be operated simultaneously and in a concentrated area nearest to the closest sensitive receptors. In actual practice, however, the types and numbers of construction equipment near any specific receptor location will vary over time. The project is anticipated to take approximately 16 to 24 months to install, test, and become fully operational.

Estimated vehicle trips associated with each phase of construction is presented in Table 2.4-2 and 2.4-3 of the Noise Technical Report (Appendix K of this EIR). For the purpose of this analysis, the principals of logarithmic summation are applied to estimate the maximum noise increase associated with construction traffic along local surface streets. Specifically, noise levels increase by 3 dBA when the number of similar noise sources double. The increase in delivery/haul trucks and construction worker vehicle trips are not anticipated to double the amount of traffic that currently exists in the surrounding area. As such, the increase in delivery/haul trucks and worker vehicles in the surrounding roadways is not anticipated to incrementally increase noise levels in the surrounding area by 3 dBA or more and are not analyzed further herein.

### *Operation*

Noise data from the ORMAT Tungsten Mountain facility, which is similar in design to the project, was used to model noise associated with geothermal plant operations using SoundPLAN Essential methodology for industrial sites. Accordingly, operation of the power plant is assumed to generate an average noise level of 62 dBA at 450 feet (equivalent to approximately 105 dBA at the source) with continuous operation (i.e., 24-hours per day). Similarly, the project wells would generate an average noise level of 72 dBA at 25 feet (equivalent to approximately 90 dBA at the source) with continuous operation. In addition to these sound source inputs, potential sound-occluding terrain and project features that define the three-dimensional sound were included in the propagation model space.

Due to the low number of additional trips associated with operation of the project, vehicles traveling to/from the project site are not expected to result in changes to noise levels in the surrounding area.

## Impact Analysis

**Impact 3.13-1** *Would the project 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?*

### Construction

Short-term construction noise impacts could result from land clearing and grading for well pads, solar fields, and work areas; transporting the drilling rig, associated equipment, workers, and materials to the well pad sites; well drilling; and construction of facilities at plant and parasitic solar fields, in addition to accessory facilities (including installing pipelines, power poles, and pumping units associated with each well).

For a conservative analysis, the cumulative noise for both phases of construction including drilling of all three production wells and injection well is assumed to occur simultaneously (although only one well would actually be drilled at any given time) and is propagated to the nearest sensitive receptors to estimate the maximum change in noise levels resulting from the proposed project as summarized in Table 3.13-3. As shown in Table 3.13-3, construction activities would not exceed the Imperial County daytime noise standard for construction activities of 75 dBA Leq at the nearest sensitive receptor and nighttime well drilling activities would not result in perceptible noise levels at the nearest sensitive receptors. Therefore, impacts would be less than significant.

**Table 3.13-3. Modeled Maximum Project Construction Sound Levels (Leq, dBA)**

Modeled Receptors	Modeled Daytime Construction Noise Level <sup>1</sup>	Modeled Nighttime Construction Noise Level	Presumed Ambient Noise Level (Day/Night)	Noise Standard <sup>2</sup> (Day/Night)	Exceed Standard?
S1 (Resident at 104 E. Jasper Road)	30.2	25.8	50/45	75	No
S2 (Residential Area off E. Fawcett Road)	7.4	4.7	50/45	45	No

Source: Appendix K of this EIR

Notes:

1. Modeled noise level is associated with construction equipment. Modeled construction noise levels less than ambient would not be expected to increase noise levels at the modeled receptors.
2. The noise standard for as provided in the Imperial County Noise Element specifies that noise levels shall not increase more than 5 dBA CNEL from measured ambient noise level in Noise Impact Zones that are currently within normally acceptable noise level guidelines. Per Section 90702.00 of the County's Codified Ordinances, sound level limits for industrial noise are set at 75 dBA Leq on or beyond the boundary of the property line at any time.



### Operation

Predicted daytime/nighttime noise levels attributed to concurrent operation of the project onsite stationary sources (i.e., OEC, ITLU, substation transformers, auxiliary facilities, production wells, injection wells) were propagated to two nearest sensitive receptors using the SoundPLAN noise model. Table 3.13-4 presents a summary of predicted project operational noise levels at the two nearest sensitive receptors. As summarized in Table 3.13-4, project-related operational noise would be below, and thus in compliance with the Imperial County noise standards which limits the increase in future noise levels to 5 dBA CNEL as a result of the action within Noise Impact Zones that are currently within normally acceptable noise level guidelines (i.e., 60 dB CNEL). Specifically, the project-related operation noise is estimated to be less than the assumed ambient daytime noise level of 50 dBA  $L_{eq}$  and nighttime noise level of 45 dBA  $L_{eq}$ . Thus, the project would not result in an increase in the assumed ambient noise level of 60 dBA CNEL. Therefore, the project would also not result in noise levels exceeding the threshold of 65 dBA CNEL established by the Imperial County noise standards, and impacts would be less than significant.

**Table 3.13-4. Modeled Maximum Project Operations Sound Levels (dBA)**

Modeled Receptors	Modeled 24-Hour Project Operation Noise Level <sup>1</sup> ( $L_{eq}$ )	Presumed Ambient Noise Level (CNEL)	Calculated CNEL (Project + Ambient)	Noise Standard <sup>2</sup> (CNEL/ $L_{eq}$ )	Exceed Standard?
S1 (Resident at 104 E. Jasper Road)	27.7	60	60	65/75	No
S2 (Residential Area off E. Fawcett Road)	14.3	60	60	65/75	No

Source: Appendix K of this EIR

**Notes:**

1. Modeled noise level is associated with construction equipment. Modeled construction noise levels less than ambient would not be expected to increase noise levels at the modeled receptors.
2. The noise standard for construction activities as provided in the Imperial County General Plan Noise Element specifies that construction noise shall not exceed 75 dBA at the nearest sensitive receptor. This standard is applicable for daytime noise given the restrictions on construction hours per the Noise Element. Nighttime noise standards are presumed to be any perceptible noise at the nearest sensitive receptor (i.e., and increase in 3 dBA above presumed ambient nighttime noise level of 45 dBA).

### Mitigation Measure(s)

No mitigation measures are required.

### **Impact 3.13-2 Would the project generate excessive groundborne vibration or groundborne noise levels?**

#### Construction

Construction would result in temporary ground vibration. Construction activities most likely to cause vibration include heavy construction equipment and drilling. Vibration levels from surface construction including demolition, excavation, pile driving, etc. are typically less than 0.10 to 0.20 in/sec at 10 feet from the source. Ground-borne vibration dissipates very rapidly with distance, reducing the typical

construction-related vibrations to less than the threshold of 0.2 in/sec for typical non-engineered timber and masonry buildings at a distance greater than 10 feet from the source and to an imperceptible level at about 200 feet from the source (Appendix K of this EIR).

Construction would result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. Construction would result in additional heavy vehicle trips on local roadways accessing the project site. Rubber-tire heavy vehicles traveling on roadways typically will not produce perceptible vibration at adjacent buildings. Roadways providing access to the project are located at a distance of more than 100 feet from any offsite residence or any other sensitive receptor structure.

Construction activities most likely to cause vibration include heavy construction equipment and site grading operations. Although all heavy, mobile construction equipment has the potential to cause at least some perceptible vibration when operating close to buildings, the vibration is usually short term and is not of sufficient magnitude to cause building damage. Heavy equipment such as dozers, loaders, and drill rig equipment would not be operated close enough to any residences or structures to cause vibration impact. Therefore, impacts would be less than significant.

#### *Operation*

Operation of the project would not result in vibrations perceptible to nearby receptors. As such, impacts would be less than significant.

#### *Mitigation Measure(s)*

No mitigation measures are required.

#### ***Impact 3.13-3 For a project located in the vicinity of a private airstrip of 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?***

The nearest airport to the project site is the Calexico International Airport, located approximately two miles southeast of the project site. According to Figure 4G of the Imperial County Airport Land Use Compatibility Plan (ALUCP), the project site is located outside of the noise contours of the Calexico International Airport (ALUC 1996). Therefore, the proposed project would not expose people to excessive airport noise levels and no impact is identified.

#### *Mitigation Measure(s)*

No mitigation measures are required.

### **3.13.4 Decommissioning/Restoration and Residual Impacts**

#### **Decommissioning/Restoration**

At the end of the project's useful life, all equipment and facilities will be properly abandoned and dismantled. The solar facilities require the project applicant to implement a comprehensive reclamation plan that would restore the project site to preexisting (pre-project) conditions following decommissioning of the project. Adhering to Imperial County standards for construction noise levels would reduce the noise and vibration impacts to below a level of significance.

All abandonment and decommissioning activities would be short-term and any noise from decommissioning equipment (e.g., cranes; excavators) would be similar to the construction impacts discussed in Section 3.13.3 above and would not be significant. Noise from energy operations would entirely cease with the discontinuation of geothermal energy generation activities/facilities.

### Residual

Adhering to the Imperial County standards for construction noise levels would reduce the noise and vibration impacts to below a level of significance.



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## 3.14 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 3.17, 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.

### 3.14.1 Existing Conditions

The project site is located approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calexico jurisdictional limit. The project site is located within the Imperial County Fire Department (ICFD)/Office of Emergency Services (OES) and the Imperial County Sheriff Department's areas of service.

#### *Fire Protection Services*

The project site is located within the ICFD/OES service area. 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 site is the fire station located at 1078 Dogwood, Suite 101 in Heber. The Heber station is located one mile north of the project site, along Dogwood Road.

#### *Law Enforcement 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 project site is located in the South patrol zone, and the county patrol office is located at 328 Applestill Road in El Centro. The Sheriff's office is located approximately 2.7 miles northeast of the project site.

### 3.14.2 Regulatory Setting

This section identifies and summarizes 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 3.14-1.

##### *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.



**Table 3.14-1. Project Consistency with Applicable General Plan Seismic and Public Safety Element**

Applicable General Plan Policies	Consistency Determination	Analysis
<b>Seismic and Public Safety</b>		
Goal 1: Include public health and safety considerations in land use planning.	Consistent	The project's CUP applications and site plans will be reviewed by the Imperial County Fire Department to ensure that the proposed facilities comply with state and local fire codes and fire safety features are met.
Objective 1.8: Reduce fire hazards by the design of new developments		
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 to reduce the potential for fire hazards. With regards to public safety and security, the project would include perimeter security fencing. In addition, there will be a security service that monitors the property.
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 Emergency Operations Plan*

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.

### 3.14.3 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 3.14-1**      ***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 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.

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, the project applicant will be required to consult and coordinate with the Fire Department to address any fire safety and service concerns so that adequate service is maintained. The project will prepare a thorough Emergency Response Plan (ERP) created with consultation from the ICFD. The project ERP will address all emergencies likely to occur at the site and requires an Emergency Coordinator who can work with County Fire Protection. The plan will contain information vital to emergency responder and engineering methods for protecting flammable isopentane tanks at the project site.

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 CUPs. 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 3.14-2** *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. With regards to public safety and security, the project would include perimeter security fencing. In addition, there will be a security service that monitors the property, thereby minimizing the need for police surveillance. Points of ingress/egress would be accessed via locked gates.

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 the CUPs 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.

### 3.14.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

At the end of the project's useful life, all equipment and facilities will be properly abandoned 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 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 proposed 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.



## 3.15 Transportation

This section addresses the project's impacts on traffic and the surrounding roadway network associated with construction and operation of the project. The following discussion describes the existing environmental setting in the surrounding area, the existing federal, state, and local regulations regarding traffic, and an analysis of the potential impacts of the proposed project. Information in this section is summarized from the *Traffic Technical Report* prepared by Catalyst Environmental Solutions. This report is included in Appendix L of this EIR.

### 3.15.1 Existing Conditions

As described in the Imperial County Circulation and Scenic Highways Element and the Imperial County Long Range Transportation Plan, the regional roadway network consists of one interstate route (I-8), seven State Routes (SR-7, SR-78, SR-86, SR-98, SR-111, SR-115, and SR-186), and several regionally significant arterials. Additionally, three international Ports of Entry (POEs) between the United States and Mexico are within the Imperial County limits: Calexico, Calexico East, and Andrade (Appendix L of this EIR).

#### Freeways

Freeways are controlled-access, high-speed roadways with grade-separated interchanges. They are intended to carry high volumes of traffic from region to region. The following freeways provide regional access to the project area:

- **Interstate 8 (I-8)** is the primary east-west route through Imperial County and runs for 172 miles from San Diego, California, to Yuma, Arizona. With two travel lanes, it spans 79 miles within Imperial County. From the west it connects to the western end of SR-98. In Imperial County, it intersects with SR-86, SR-111 (access to the international POE at Calexico), SR-7, and SR-115 and then reconnects to SR-98 at its eastern end. It also accesses the SR-186 connection to the Andrade POE. It serves regional, cross-border, and interstate traffic and provides access to desert recreational areas.

#### Major Highways

- **State Highway 98 (SR-98)** is a 56.9-mile east-west route that is entirely contained within Imperial County. It traverses the southern portion of Imperial Valley parallel to I-8 and the U.S./Mexico International Border. It begins at I-8 near Ocotillo, intersects SR-111 and SR-7, and terminates at I-8 near Midway Well. It is mostly two lanes with the exception of having four lanes through portions of the City of Calexico. It serves as an alternate route to I-8, providing access to many agricultural areas in the eastern part of the region, and is used for cross-border traffic.
- **State Highway 78 (SR-78)** is an 81.8-mile east-west route that crosses Imperial County from the San Diego County line to the north junction of SR-86, where it then merges and becomes SR-86 for 24 miles, and then becomes SR-78 again to the Riverside County line. It is typically a two-lane conventional highway except for where it is co-designated SR-86, where it was upgraded to a four-lane expressway or four-lane conventional highway.
- **State Highway 86 (SR-86)** is a 90.8-mile north-south route serving Imperial and Riverside counties. It begins at SR-111 near the U.S./Mexico International Border and extends northward

(roughly parallel to SR-111) along the western shore of the Salton Sea, where it ends at Avenue 46 in the City of Indio. It is a two-lane road in Imperial County and ends at the Riverside County line as a four-lane expressway. It intersects several State routes, including I-8 and SR-78 (where it shares the 24-mile alignment) and continues north to cross the Imperial County/Riverside County line, intersecting SR-195 and SR-111.

- **State Highway 111 (SR-111)** runs north from the downtown Calexico POE for 64 miles except for a 1.2-mile break within Brawley, where it shares an alignment with SR-78. From the Calexico POE to SR-98, it functions primarily as a city street and provides access to many local businesses.
- **State Highway 7 (SR-7)** is a 6.7-mile north-south route from the Calexico East POE to I-8. It is a four-lane highway with access control at the Calexico East POE, SR-98, and direct access to I-8 for the movement of international commercial goods.
- **State Highway 115 (SR-115)** is a 33.6-mile north-south route that begins at the junction with I-8 east of Holtville and ends at the junction with SR-111 in Calipatria. It includes a segment that shares alignment with SR-78, and it is typically a two-lane conventional highway with some short four-lane segments. It serves as an alternate route to SR-86 and SR-111 and is important in facilitating the movement of interregional agricultural goods and intraregional travel between various cities within the County.

## Regional Arterials

The regional roadway system features several important arterials that generally run in either an east-west or north-south orientation. The important north-south arterials (listed from west to east) include Forrester Road, Austin Road, Imperial Avenue, and Dogwood Road. The important east-west arterials in the project area (listed from south to north) include Jasper Road, Heber Road, McCabe Road, and Ross Road.

## Existing Traffic Volumes

Imperial County establishes Level of Service (LOS) standards to assess the performance of a street or highway system and the capacity of a roadway. LOS is a professional industry standard by which the operating conditions of a given roadway segment or intersection are measured. LOS ranges from A through F, where LOS A represents the best operating conditions and LOS F represents the worst operating conditions. LOS A facilities are characterized as having free flowing traffic conditions with no restrictions on maneuvering or operating speeds; traffic volumes are low and travel speeds are high. LOS F facilities are characterized as having forced flow with many stoppages and low operating needs. Additionally, with the growth of Imperial County, transportation management and systems management will be necessary to preserve and increase roadway “capacity.” LOS standards are used to assess the performance of a street or highway system and the capacity of a roadway.

Table 3.15-1 summarizes the existing Annual Average Daily Trips (ADT) for road segments in the vicinity of the project. Imperial County targets LOS C as the minimum acceptable level of service (Imperial County 2008). As shown in Table 3.15-1, Dogwood Road from SR-86 to SR-98 exceeds this guideline, and is currently operating at LOS D.

**Table 3.15-1. Existing Road Conditions**

Segment	Direction	Limits	Capacity at LOS C <sup>1</sup>	ADT <sup>2</sup>	LOS
I-8	E-W	From Forrester Rd. to SR-111	60,000	35,000	B
SR-86	E-W	From Dogwood Rd. to SR-111	44,600	4,200	A
SR-98	E-W	From Dogwood Rd. to SR-111	7,100	21,800	F
SR-111	N-S	From I-8 to Northern Calexico City Limits	40,000	34,500	C
McCabe Rd.	E-W	From SR-86 to Dogwood Rd.	7,100	4,146	C
McCabe Rd.	E-W	From Dogwood Rd. to SR-111	7,100	2,607	B
Jasper Rd.	E-W	From SR-111 to Bowker Rd.	7,100	495	A
Forrester Rd.	N-S	From I-8 to McCabe Rd.	7,100	1,366	A
Austin Rd.	N-S	From I-8 to McCabe Rd.	7,100	1,408	A
Dogwood Rd.	N-S	From SR-86 to SR-98	7,100	8,360	D

Source: Appendix L of this EIR

Notes:

1 - Capacity based on Table 5 (Imperial County Standard Street Classification Average Daily Vehicle Trips) from Imperial County's General Plan Circulation and Scenic Highways Element (Imperial County 2008)

2- Regional highway volumes on Caltrans facilities were obtained from Caltrans Traffic Census Program (Caltrans 2022). Regional arterial volumes on Imperial County facilities were obtained from Imperial County (2022).

## Transit Network

Imperial Valley Transit (IVT) is an inter-city fixed route bus system, subsidized by the Imperial Valley Association of Governments, 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 2023).

The project site is not within the Fixed Route Transportation system and, therefore, would not receive regular bus service to the project site or within the vicinity of the project site. The nearest IVT bus stop is located at the Imperial Valley Mall, which is approximately four miles north of the project site.

## Bicycle Facilities

None of the roadway segments within the vicinity of the project site are designated as bicycle facilities.. However, Dogwood Road is proposed as a Class I multi-use path in the Imperial County Regional Active Transportation Plan (Imperial County Transportation Commission 2022). Class I multi-use paths (frequently referred to as “bicycle paths”) are physically separated from motor vehicle travel routes, with exclusive rights-of-way for non-motorized users like bicyclists and pedestrians.

### 3.15.2 Regulatory Setting

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

#### State

##### *California Department of Transportation*

The State of California Department of Transportation (Caltrans) has responsibility over the design, construction, maintenance, and operation of the California State Highway System. Caltrans has jurisdiction over State highway right-of-way and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. The project does not include any components which would encroach into Caltrans jurisdiction.

##### *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, 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.

#### Regional

##### *SCAG 2020-2045 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 that 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 an LOS “C” or better (County of Imperial 2008).

### 3.15.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to transportation, 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 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 generation during and after construction, and roadway conditions for roads that would be utilized to access the project site for construction.

#### *Project Trip Generation*

#### **CONSTRUCTION**

The project is anticipated to take 16 to 24 months to install, test, and become fully operational. Project construction activities will require workers to arrive and depart the project site daily. Additionally, some heavy-truck traffic will occur to deliver and remove equipment and materials to/from the site. Apart

from the direct construction traffic described above, some ancillary trips would also occur related to non-heavy truck deliveries, construction management staff, periodic inspections, etc.

Typically, each worker would be expected to arrive and depart the site at least once, resulting in a daily trip rate of two vehicle trips per worker per day for all 15 workers. Given the site's close proximity to Heber, some workers could be expected to leave and return to the site once per day on breaks. Conservatively assuming 50 percent of workers left and returned once per day (e.g., for lunch), this would result in a daily trip rate of four vehicle trips per worker per day for 8 workers.

Vendor and haul trips consist of heavy vehicle trips to the site includes delivery of construction equipment and materials, as well as transport of equipment and other materials to be removed from the site. Heavy-vehicle trips would not be expected to occur uniformly over the course of the construction period, but rather on occasion as delivery and removal of equipment/materials is required. For the purposes of this temporary construction traffic generation evaluation, 40 daily vendor truck trips and 10 haul trips were conservatively assumed to occur in conjunction with the estimated construction worker load of 15 workers. The daily distribution of truck trips over the course of the 12-hour workday is also expected to be variable; for this analysis, a conservative estimate of 20 percent of daily trips was assumed to occur during both the AM and PM commuter peak hours. As trucks are larger and heavier than passenger cars, the reduced acceleration, braking, and handling characteristics, a Passenger Car Equivalent (PCE) factor of 2.5 is applied to each truck trip to account for the effects of these heavy vehicles within the traffic stream on flat terrain (per the HCM methodology).

The project's construction trip generation is summarized in Table 3.15-2. Accordingly, the total number of vehicle trips generated by project construction is conservatively estimated at 171 PCE trips per day, with 91 total trips during the AM peak hour and 91 total trips during the PM peak hour.

**Table 3.15-2. Construction Trip Generation**

Trip Type	Quantity	Maximum Daily Volumes (ADT)			AM Peak Hour			PM Peak Hour		
		Rate	PCE	Volume	In	Out	Total	In	Out	Total
Workers	15 workers	3/worker	1.0	46	46	0	46	0	46	46
Vendor	20 vehicles	2/vehicle	2.5	100	10	10	20	10	10	20
Haul	5 vehicles	2/vehicle	2.5	25	12.5	12.5	25	12.5	12.5	25
<b>Total</b>				<b>171</b>	<b>68.5</b>	<b>22.5</b>	<b>91</b>	<b>22.5</b>	<b>68.5</b>	<b>91</b>

Source: Appendix L of this EIR

#### OPERATION

Once the proposed project is complete, the site will be staffed with 1-2 onsite employees. The daily trip rates used for determining the project's operations worker trip generation are based on the 10th Edition of ITE Trip Generation manual for General Light Industrial workers. Deliveries of materials required for operations to the site would be vary and would be sporadic throughout the work week. However, for a conservative analysis, it is assumed that one delivery of materials per day will be supplied to the project site (i.e., one vendor truck per day). These vendor trips would generally not occur during peak hours but are considered as such herein for a conservative analysis. Table 3.15-3 provides the estimated average daily on-road project trip generation (i.e., trips to and from the site) for operation of the proposed project.



**Table 3.15-3. Operation Trip Generation**

Trip Type	Quantity	Maximum Daily Volumes (ADT)			AM Peak Hour			PM Peak Hour		
		Rate	PCE	Volume	In	Out	Total	In	Out	Total
Workers	2 workers	3.05/worker	1.0	6	6	0	6	0	6	6
Vendor	1 vehicle	2/vehicle	2.5	5	2.5	2.5	5	2.5	2.5	5
<b>Total</b>				<b>11</b>	<b>8.5</b>	<b>2.5</b>	<b>11</b>	<b>2.5</b>	<b>8.5</b>	<b>11</b>

Source: Appendix L of this EIR

### VMT

The County has not adopted its own VMT thresholds, for this reason the OPR's Technical Advisory on Evaluating Transportation Impacts on CEQA (December 2018) was used to evaluate VMT impacts. OPR's Technical Advisory provides guidance for lead agencies to evaluate transportation impacts from projects based on VMT metrics. It provides screening criteria, which can be used to quickly identify whether a project should be expected to cause a less-than-significant impact related to VMT. Per OPR's Technical Advisory, projects may be screened out as follows:

- Small Projects: projects generate fewer than 110 trips per day,
- Local Serving Retail (generally less than 50,000 square feet in building area),
- Location-Based (low VMT areas, within ½ mile of an existing major transit stop, or along a high-quality transit corridor), and
- Provision of affordable housing.

### Impact Analysis

***Impact 3.15-1 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 PCE 171 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). Once the proposed project is complete, the site will be staffed with 1-2 onsite employees. During operations, the proposed project would generate 11 trips per day.

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 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 3.15-2 Would the project conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?**

Construction of the proposed project would result in nominal and short-term increases in vehicle trips by construction workers and construction vehicles on area roadways. These trips would include construction workers commuting to and from the project site, haul truck trips associated with the transfer and disposal of materials, and material and equipment deliveries. The number of construction-related trips would vary each day, depending on construction phase, planned activity, and material needs. Table 3.15-4 summarizes the maximum estimated project daily VMT for construction and operations.

**Table 3.15-4. Maximum Project Daily VMT**

Trip Type	Number of One-Way Trips	One-Way Trip Length (miles) <sup>2</sup>	Daily VMT (miles)
Workers <sup>1</sup>	46	10.2	469
Vendor	40	225	9,000
Haul	2	20	40
<b>Temporary Construction Maximum Total Daily VMT</b>			<b>9,509</b>
Workers <sup>1</sup>	6	10.2	61.2
Vendor	2	11.9	23.8
Haul <sup>3</sup>	0	20	0
<b>Operations Total Daily VMT</b>			<b>85</b>

Source: Appendix L of this EIR

#### Notes:

1. The daily trip rates used for determining the project's construction and operation worker trip generation are based on the 10th Edition of ITE Trip Generation manual for General Light Industrial workers. A maximum of 15 construction workers are assumed and 2 operational workers for this conservative estimate.
2. Trip lengths consist of default CalEEMod values with exception of vendors for delivery of project equipment during construction, with deliveries of solar panels, geothermal equipment, etc. assumed to originate at Port of Long Beach, approximately 225 miles from the project site.
3. All truck trips are assigned to vendor deliveries.

OPR's Technical Advisory on Evaluating Transportation Impacts on CEQA (December 2018) recommends the use of VMT metrics when analyzing land use projects and plans. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less than significant transportation impact. Per CEQA Guidelines, §15064.3 subdivision (a), 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks and is not applied for heavy-duty trucks. Accordingly, construction of the project would generate 46 on-road passenger vehicle trips and operations would result in 6 daily passenger vehicle trips which is much fewer than the screening threshold for small projects of 110 on-road passenger vehicle trips. 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 3.15-3 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)?**

The proposed project would not result in any changes to any roads, intersections, streets, highways, nor would it provide any incompatible uses to the street and highway system. All vehicles that would be used for travel to and from the project site would be licensed and comply with all appropriate transportation laws and regulations including obtaining and adhering to provisions of any required permits for oversized loads. As such, no impact related to transportation design hazards would occur.

*Mitigation Measure(s)*

No mitigation measures are required.

**Impact 3.15-4 Would the project result in inadequate emergency access?**

All proposed facilities would be constructed within the property boundaries of the project site and would not affect emergency vehicle access to the facility or any roadway. Emergency vehicle access is identified and designated at the Dogwood site, and these areas would not be changed as result of the proposed project.

At the time of final design for the project, and as a Condition of Approval of the project, the applicant will submit a final Haul Route Study that identifies what road improvements, if any, are requested by Department of Public Works and a cost estimate. The applicant would work with Department of Public Works to address the appropriate improvements and Applicant's responsibility for the cost of improvements, if required. The haul route study would include the following components:

1. Pictures and/or other documents to verify the existing conditions of the roads proposed to be utilized for haul routes
2. The haul route study shall evaluate impacts 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, which would include a requirement that the Applicant provide financial security to maintain the road(s) to be utilized during construction as identified on the approved haul route study. The Applicant would be responsible to repair any damages caused by construction traffic during construction and maintain the applicable road(s) in a safe condition. The use of the proposed access roads is 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.

### 3.15.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

As presented above, construction traffic would not result in a significant impact on any of the roadway segments or intersections because of the low volume of traffic. A similar scenario would occur during the decommissioning and site restoration stage for the 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 project.

## 3.16 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.

### 3.16.1 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

The Cultural Resource Assessment prepared for the project (Appendix G of this EIR) contains a detailed description of the prehistoric, ethnographic, and historic context of the project region.

#### Native American Outreach

##### *Sacred Lands File Results*

PaleoWest contacted the Native American Heritage Commission (NAHC) for a review of the Sacred Land Files (SLF) on January 19, 2023. The objective of the SLF search was to determine if the NAHC had any knowledge of Native American cultural resources (e.g., traditional use or gathering area, place of religious or sacred activity, etc.) within the immediate vicinity of the project area. The NAHC responded on February 28, 2023, stating that the SLF search resulted in positive results.

The NAHC recommended that the Ewiiapaay Band of Kumeyaay Indians and the Torres-Martinez Desert Cahuilla Indians be contacted to request information on known Native American cultural resources in the project vicinity. In addition, the NAHC provided a list of 24 individuals representing 16 Native American tribal groups that may also have knowledge of cultural resources in the project area. Outreach letters that included a map of the project area were sent to the Native American contacts on March 1, 2023, with follow up emails and phone calls conducted on March 15, 2023. A summary of the Native American outreach letters is provided in Appendix G of this EIR.

As of March 23, 2023, the following four comments have been received:

- Ray Teran of the Viejas Band of Kumeyaay Indians (“Viejas”) responded via email on March 1, 2023, requesting a project plan and description, specifically as it relates to ground disturbance. PaleoWest responded later that day stating that information on the full extent of ground disturbance was not yet known but that it is anticipated that some ground disturbance will take place in most of the Project area that was shown on the map provided in the outreach letter. Mr. Teran responded via email on March 2, 2023, stating he had reviewed the proposed project and at this time has determined that the project site has cultural significance or ties to Viejas. He further noted that cultural resources have been located within or adjacent to the

proposed project and requested that a Kumeyaay Cultural Monitor be on site for ground-disturbing activities. In addition, he requested that the Viejas be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains.

- On March 2, 2023, Jill McCormick, the Historic Preservation Officer of the Quechan Indian Tribe, responded via email and stated that the tribe does not wish to provide PaleoWest with any comment on the project.
- Rebecca Osuna, Chairperson of the Inaja-Cosmit Band of Indians, stated on March 15, 2023, that the project is outside of the tribe's geographic area and she had no comments at this time.
- Lisa Cumper, Tribal Historic Preservation Officer for the Jamul Indian Village, discussed the proposed project on the phone with PaleoWest staff on March 15, 2023, and noted that the tribe would defer to more local Native American groups.

#### *AB 52 Tribal Notification*

In accordance with AB 52, Imperial County, as the CEQA lead agency, sent an AB 52 consultation request letter to the Campo Band of Mission Indians and Fort Yuma-Quechan Indian Tribe on January 19, 2024.

### 3.16.2 Regulatory Setting

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

### 3.16.3 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 3.16-1** ***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?*

AB 52 was passed in 2014 and took effect on July 1, 2015. It establishes a new category of environmental resources that must be considered under CEQA called tribal cultural resources (PRC 1074) and establishes a process for consulting with Native American tribes and groups regarding those resources. AB 52 requires a lead agency to begin consultation with a California Native American Tribe that is traditionally and culturally affiliated with the geographic areas of the proposed project.

In accordance with AB 52, the County provided notification of the proposed project to Native American tribes that the County understands to be traditionally and culturally affiliated with the geographic area of the proposed project. This notification was provided in a letter sent via certified mail on January 19, 2024, to the Campo Band of Mission Indians and Fort Yuma-Quechan Indian Tribe. 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. To date, the Campo Band of Mission Indians and Fort Yuma-Quechan Indian Tribe have not responded that indicate the potential for traditional cultural properties or sacred sites.

As previously mentioned in Section 3.16.1 above, the NAHC responded on February 28, 2023, stating that the SLF search resulted in positive results. The NAHC recommended that the Ewiiapaayp Band of Kumeyaay Indians and the Torres-Martinez Desert Cahuilla Indians be contacted to request information on known Native American cultural resources in the project vicinity. In addition, the NAHC provided a list of 24 individuals representing 16 Native American tribal groups that may also have knowledge of cultural resources in the project area. Outreach letters that included a map of the project area were sent to the Native American contacts on March 1, 2023, with follow up emails and phone calls conducted on March 15, 2023. Ray Teran of the Viejas Band of Kumeyaay Indians (“Viejas”) responded via email on March 2, 2023, stating he had reviewed the proposed project and at this time has determined that the project site has cultural significance or ties to Viejas. He further noted that cultural resources have been located within or adjacent to the proposed project and requested that a Kumeyaay Cultural Monitor be on site for ground-disturbing activities. In addition, he requested that Viejas be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains. Implementation of Mitigation Measure TCR-1 would ensure that the potential impacts on unidentified tribal cultural resources do not rise to the level of significance.

### *Mitigation Measure(s)*

**TCR-1** If previously unidentified tribal cultural resources are identified during construction activities, construction work within 100 feet of the find shall be halted and directed away from the discovery until a Secretary of the Interior qualified archaeologist and tribal representative assesses the significance of the resource. The archaeologist, in consultation with Imperial County and any interested Tribes, shall make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are determined to be a tribal cultural resource as defined in PRC Section 21074.

### *Significance After Mitigation*

The proposed project has the potential to impact unidentified tribal cultural resources during construction. However, implementation of Mitigation Measure TCR-1 would reduce this potential impact to a less than significant level.

## 3.16.4 Decommissioning/Restoration and Residual Impacts

### Decommissioning/Restoration

#### Decommissioning/Restoration

At the end of the project's useful life, all equipment and facilities will be properly abandoned and dismantled. No impact is anticipated from restoration activities as the ground disturbance and associated impacts will have occurred during the construction phase of the proposed project.

### Residual

With implementation of Mitigation Measure TCR-1, potential impacts on unidentified tribal cultural resources would be reduced to a level less than significant. No unmitigable impacts on tribal cultural resources would occur with implementation of the proposed project.



## 3.17 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, storm 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.

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.

### 3.17.1 Existing Conditions

#### Water Service

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 of 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.

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 per year (AFY) of IID's Colorado River water supply to serve new non-agricultural projects. As of February 2023, a balance of 23,800 acre-feet per year (AFY) remains available under the IWSP for new non-agricultural projects.

#### Groundwater

The project site is located within the Imperial Valley Groundwater Basin (Basin No: 7-030), which covers approximately 1,870 surface square miles. The physical groundwater basin extends in the southeastern portion of California at the border with Mexico. The basin lies within the southern part of the Colorado Desert Hydrologic Region, south of the Salton Sea. The basin has two major aquifers, separated at depth by a semi-permeable aquitard that averages 60 feet thick and reaches a maximum thickness of 280 feet. The average thickness of the upper aquifer is 200 feet with a maximum thickness of 450 feet. The data regarding faults controlling groundwater movement is uncertain; however, as much as 80 feet of fine-grained, low permeability prehistoric lake deposits have accumulated on the valley floor, which result in locally confined aquifer conditions.

Groundwater recharge within the basin is primarily from irrigation return. Other recharge sources are deep percolation of rainfall and surface runoff, underflow into the basin, and seepage from unlined canals which traverse the valley. Groundwater levels within a majority of the basin have remained stable from 1970 to 1990 because of relatively constant recharge and an extensive network of subsurface drains.

Groundwater quality varies extensively throughout the base; however, is generally unusable for domestic and irrigation purposes without treatment (California Department of Water Resources 2004).

### 3.17.2 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 water supply assessment if:

- The project meets the definition of the Water Code Section 10912:

For the purposes of this part, the following terms have the following meanings:

(a) “Project” means any of the following:

1. A proposed residential development of more than 500 dwelling units.
2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
3. A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
4. A proposed hotel or motel, or both, having more than 500 rooms.
5. A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
6. A mixed-use project that includes one or more of the projects specified in this subdivision.
7. A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then “project” means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system’s existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system’s existing service connections.

##### *California Water Code*

Water Code Sections 10656 and 10657 restrict state funding for agencies that fail to submit their urban water management plan to the Department of Water Resources. In addition, Water Code Section 10910 describes the WSA that must be undertaken for projects referred under PRC Section 21151.9, including an analysis of groundwater supplies. Water agencies are given 90 days from the start of consultation in which to provide a WSA to the CEQA lead agency. Water Code Section 10910 also specifies the circumstances under which a project for which a WSA was once prepared would be

required to obtain another assessment. Water Code Section 10631 directs that contents of the urban water management plans include further information on future water supply projects and programs and groundwater supplies.

#### *Water Quality Control Plan for the Colorado River Basin*

The Water Quality Control Plan for the Colorado River Basin (or Basin Plan) 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 Irrigation District Interim Water Supply Policy (IWSP) 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, while the Integrated Regional Water Management Plan was pending approval. 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 water 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 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 (TLCFP)*

The Imperial Irrigation District Temporary Land Conversion Fallowing Policy was adopted by the IID Board of Directors on May 8, 2012. This policy developed a framework for a temporary, long-term fallowing program to work in concert with the IWSP, and in line with the coordinated land use/water supply strategy.

The TLCFP works to coordinate land use/ water supply policy that would assign water supplies to categories of use consistent with land use zoning designations and adapt to land use changes as non-agriculture projects are sited in agricultural zones through the County CUP system (i.e., Renewable Energy Overlay). Renewable energy 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 water treatment to meet potable water standards. This fallowing program satisfies multiple district objectives and serves to reduce the conservation and water use demands on other IID water users and thus provides district-wide benefits.

### 3.17.3 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

#### Impact Analysis

##### ***Impact 3.17-1 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?***

The proposed project would obtain water for construction and decommissioning activities, including grading, and dust control from the applicant's existing contract with IID. For the first two-to-four months of development, 5,000 gallons per day (gpd) of water will be required and approximately 2,000 gpd (0.006 acre feet) for the remaining 12-18 months of construction. In total, 1.1 million gallons of water (10.1 acre-feet) will be used for on-site construction. Water necessary for well drilling would be obtained from local irrigation canals in conformance with IID requirements. Approximately 50,000 gpd (1.53 acre-feet) would be required for drilling activities. In addition to obtaining water from canals, temporary pipelines could be used for water delivery to well sites. All temporary pipelines would be above ground immediately adjacent to access roads.

Once the project is operational, the water demand would decline significantly to approximately 325 gpd (0.36 acre-feet per year). The OEC's are air cooled and would require minimal water to operate. Additional water would be stored on-site for fire prevention measures including an automatic fire suppression system as a safety measure for the two double-walled 20,000-gallon isopentane storage tanks as per the California Fire Code as adopted by the Imperial County Code. Also, some water would be required for washing of solar panels. The project will not require additional water from the IID for operations and will be covered under the existing contract.

As of February 2023, a balance of 23,800 AFY remains available under the IWSP for new non-agricultural projects. The 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 project would have sufficient water supplies available to serve the project from existing entitlements and resources, and impacts would be less than significant.

#### *Mitigation Measure(s)*

No mitigation measures are required.

### 3.17.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

At the end of the project's useful life, all equipment and facilities will be properly abandoned and dismantled. All abandonment and decommissioning activities would be short-term and utilities from

decommissioning equipment (e.g., cranes; excavators) would be similar to the construction impacts discussed above and would not be significant. 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 to the water supply of Imperial County; therefore, no mitigation is required. The proposed project would not result in residual impacts.

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## 4 Analysis of Long-Term Effects

### 4.1 Growth-Inducing Impacts

In accordance with Section 15126.2(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 December 2023 was 18.3 percent (State of California Employment Development Department 2024). The applicant expects to utilize construction workers from the local and regional area, a workforce similar to that involved in the development of other geothermal and 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 complete, the facilities will be staffed with 1-2 full-time employees. The project would require routine maintenance and unscheduled maintenance as needed. The solar facilities will be monitored remotely with visitation on as needed basis and security personnel will perform periodic site visits. The proposed project would not result in a substantial growth in the area, as the number of employees required to operate and maintain the facilities is minimal.

The project would construct two parasitic solar photovoltaic facilities - one to provide auxiliary power to the proposed Dogwood Geothermal plant and one for the existing Heber 2 plant. The California Energy Commission (CEC) considers these two solar facilities behind-the-meter, which means that the energy generated by the solar arrays exclusively feeds the geothermal plants and does not directly enter the transmission grid. The energy generated by the solar facilities will be collected by an on-site substation and then transferred to the plants via a short transmission cable. The solar facilities will



effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy and allow more geothermal energy to enter the grid. Before entering the grid, a new substation will be built near the Dogwood plant to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. Pending Imperial Irrigation District (IID) review, no upgrades to off-site transmission facilities are necessary. If upgrades to off-site facilities are later deemed necessary through an IID transmission study, recommendations could include protection upgrades and metering replacements at existing IID substations and/or upgrades to telecommunications, distribution lines, and transmission lines. Such upgrades would use existing infrastructure, easements, right-of-way, and corridors to the extent practicable. The new Dogwood substation will connect directly to the existing point of interconnection with the IID controlled grid.

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 X1-2 that a benefit of the Renewable Portfolio Standard is displacing fossil fuel consumption within the state. The proposed 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 proposed 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. Project approvals would include 15-year CUPs, each with a single 15-year renewal.

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 for the project. 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 projects 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 projects’ incremental contribution to the cumulative effects on each resource considered in Chapter 3, Environmental Analysis. When the projects’ incremental contribution to a significant cumulative impact is considerable, mitigation measures to reduce the projects’ “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 sites 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 projects' 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 projects 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 projects 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 sites.

## 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 proposed project in Chapter 3 of this EIR. Table 5-1 includes projects known at the time of release of the NOP of the Draft EIR, as well as additional projects that have been proposed since the NOP date. Figure 5-1 provides the general location for each of these projects in relation to the project site.

**Table 5-1. Projects Considered in the Cumulative Impact Analysis**

Map Label <sup>1</sup>	Project Name	Project Type	Distance from Project Site (miles)	Size (acres)	Capacity (MW)	Status <sup>2</sup>
1	Campo Verde	PV Solar Facility	15.6	1,990	140	Operational
2	Laurel 1	PV Solar Facility	15	171	325	Approved – Not Built
3	Laurel 2	PV Solar Facility	15.4	280	325	Approved – Not Built
4	Laurel 3	PV Solar Facility	18	587	325	Approved – Not Built
5	Laurel 4	PV Solar Facility	14.3	342	325	Approved – Not Built
6	CED Westside Canal Battery Storage	Battery Storage	15.9	148	2,000	Pending Entitlement
7	Vega SES Solar	PV Solar Facility	13.1	574	100	Approved – Not Built
8	Centinela Solar*	PV Solar Facility	10.5	2,067	275	Approved – Not Built
9	Drew Solar	PV Solar Facility	9.6	762.8	100	Approved - Under Construction
10	Le Conte Battery Storage	Battery Storage	10.3	5	125	Pending Entitlement
11	Imperial Solar South	PV Solar Facility	10	838.6	200	Operational
12	Centinela Solar*	PV Solar Facility	10.5	2,067	275	Operational
13	Calexico I-B	PV Solar Facility	9	4,228	600	Approved - Under Construction
14	Wistaria Ranch Solar**	PV Solar Facility	7.5	2,793	250	Approved – Not Built
15	Wistaria Ranch Solar**	PV Solar Facility	7.5	2,793	250	Approved - Under Construction
16	Calexico I-A	PV Solar Facility	9	4,228	600	Approved - Under Construction

**Table 5-1. Projects Considered in the Cumulative Impact Analysis**

Map Label <sup>1</sup>	Project Name	Project Type	Distance from Project Site (miles)	Size (acres)	Capacity (MW)	Status <sup>2</sup>
17	Iris Cluster - Rockwood	PV Solar Facility	7.5	1,422	360	Operational
18	Wistaria Ranch Solar**	PV Solar Facility	7.5	2,793	250	Operational
19	Iris Cluster - Ferrell	PV Solar Facility	6.6	1,422	360	Approved - Under Construction
20	Calexico II-B	PV Solar Facility	6.4	4,228	600	Operational
21	Mount Signal Solar	PV Solar Facility	8.9	4,237	594	Operational
22	Iris Cluster - Iris	PV Solar Facility	5.9	1,422	360	Approved - Under Construction
23	Calexico II-A	PV Solar Facility	3.5	4,228	600	Operational
24	Imperial Solar 1	Geothermal	0	1,130	250	Operational
25	Heber 2 Geothermal Energy Complex	Geothermal	0	40	33	Operational
26	Heber 1 Parasitic Solar	Parasitic Solar Facility	0	106	20	Pending Entitlement

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 (<https://icpds.maps.arcgis.com/apps/webappviewer/index.html?id=0d869c18d11645cc918391fdcac24b80>). Accessed on April 4, 2024.

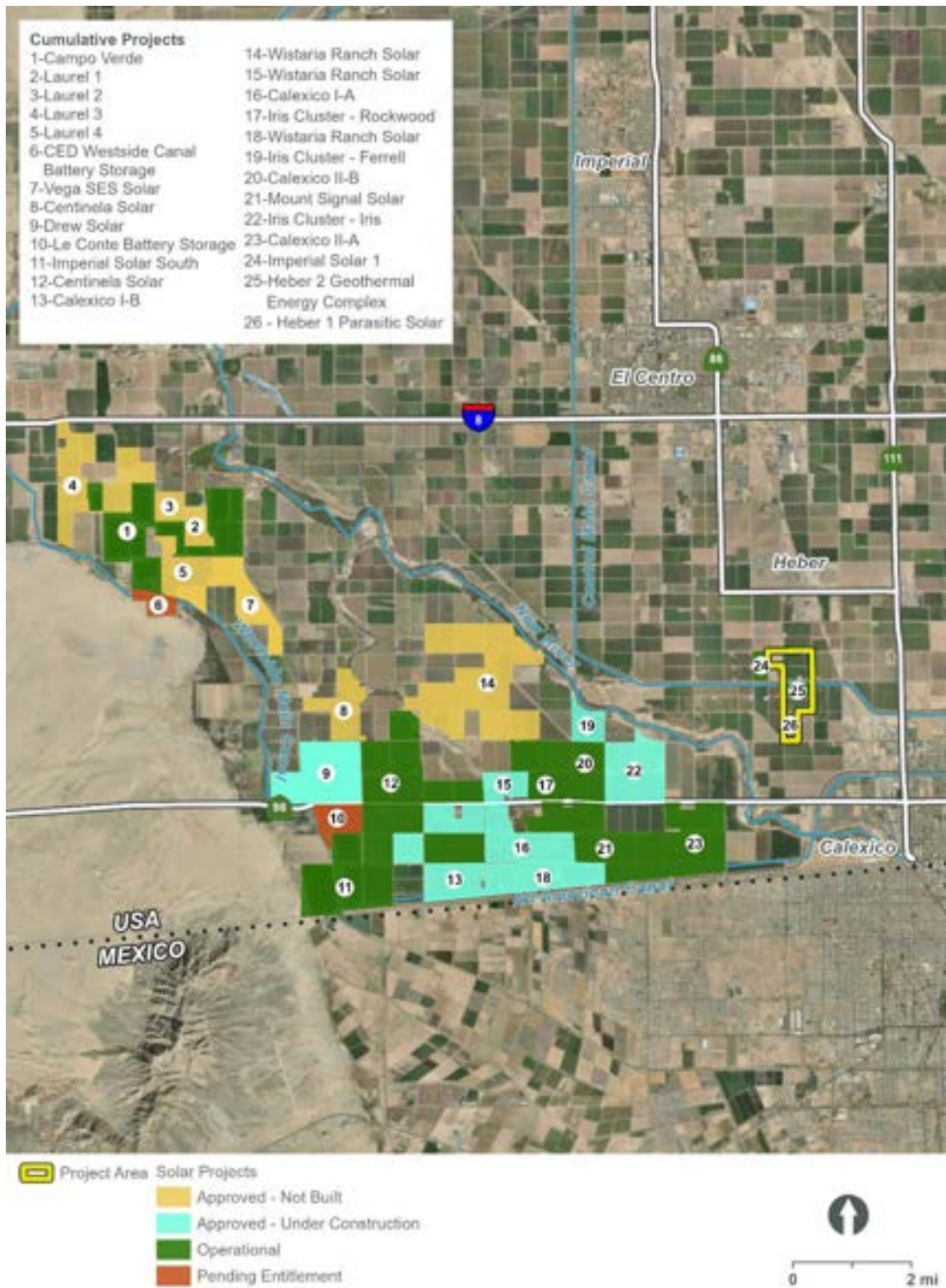
MW – megawatts; PV – photovoltaic

\* Centinela Solar Project is listed as Cumulative Project No. 8 and 12 in Table 5-1. This is due to portions of the project site being constructed in different phases.

\* Wistaria Ranch Solar Project is listed as Cumulative Project No. 14, 15 and 18 in Table 5-1. This is due to portions of the project site being constructed in different phases.



Figure 5-1. Cumulative Projects



\* Centinela Solar Project is identified as Cumulative Project No. 8 and 12 in Figure 5-1. This is due to portions of the project site being constructed in different phases.

\* Wistaria Ranch Solar Project is identified as Cumulative Project No. 14, 15 and 18 in Figure 5-1. This is due to portions of the project site being constructed in different phases.

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### 5.3.1 Aesthetics and Visual Resources

The cumulative study area for projects considered in the visual resources cumulative impact analysis considers a 5-mile radius from the project site. Views beyond 5 miles are obstructed by a combination of the flat topography coupled with the Earth's curvature. The short-term visual impacts of the project would be in the form of general construction activities including grading and use of construction machinery. Longer-term visual impacts of the project would be in the form of the presence of isopentane storage tanks, solar array grids, substation, medium voltage distribution cable, and drilling equipment.

As discussed in Section 3.2, Aesthetics, the proposed facilities would be located near the existing HGEC, which is comprised of three stand-alone geothermal power plants: Heber 2, Heber South, and Goulds 2, and is completely devoted to geothermal energy generation. Surrounding land uses in the project vicinity are primarily for industrial facilities, energy facilities, and agricultural cultivation. The Imperial County General/Zoning Plan allows for Major Geothermal Projects on the project site and, taking into account the existing geothermal power plants, the proposed project would not substantially impact the visual character of the site or its surroundings. Therefore, impacts associated with degrading the existing visual character or quality of the project site are considered less than significant.

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. 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. Cumulative projects including the Imperial Solar Energy Center South, Centinela Solar, Wistaria Ranch, Campo Verde, and others south of I-8 would not have a cumulative effect on a scenic vista because they are located in an area that is not identified as a designated scenic resource and would not affect a scenic vista. All cumulative projects would not impact scenic resources within a state scenic highway as no designated state scenic highway is located within 5 miles of these cumulative projects.

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 project would result in the temporary conversion of approximately 106.88 acres of Important Farmland (22.94 acres of Prime Farmland and 83.94 acres of Farmland of Statewide Importance). Thus, the proposed project would incrementally add to the temporary conversion of agricultural land in Imperial County. According to the California Department of Conservation, in 2020, approximately 519,891 acres out of a total of 1,028,522 acres

in Imperial County is classified as Important Farmland (California DOC n.d.). Table 5-2 summarizes the percentage of each type of farmland in the County that would be converted by the proposed project.

**Table 5-2. Percentage Conversion of Farmland by Proposed Project**

Agriculture Classification	Total Acreage in Imperial County (2020)	Approximate Acreage Converted on Project Site	Project Percentage of County Acreages
Prime Farmland	188,365	22.94	0.01
Farmland of Statewide Importance	289,002	83.94	0.03
Unique Farmland	1,767	0.0	0.0
Farmland of Local Importance	40,757	0.0	0.0
<b>Total</b>	<b>519,891</b>	<b>106.88</b>	<b>0.02</b>

Source: California DOC n.d.

As shown in Table 5-2, the Prime Farmland and Farmland of Statewide Importance within the project site comprises approximately 0.04 percent (0.01 + 0.03) of the total Important Farmland in the County. Thus, the proposed project would temporarily convert a very small fraction of the total Important Farmlands in the County and have a minimal effect on agricultural land on a cumulative scale. Furthermore, the conversion would be temporary and last for the duration of the project's useful life which is expected to be up to 30 years.

The project would be constructed on land currently zoned A-2-G-SPA and A-2-G-U. Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone:

- n) Oil, gas and geothermal exploration meeting requirements specified in Division 17*
- s) Solar energy extraction generation provided that is for on-site consumption only*

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:

- y) Electrical generation plants (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*
- z) Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*
- bb) Facilities for the transmission of electrical energy (100-200 kv)*
- ii) Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*
- rr) Major Geothermal projects per Division 17*
- ww) Resource extraction and energy development as per Division 17*
- aaa) Solar energy electrical generator*

Upon approval of a CUPs, 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 designations 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 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, the following cumulative projects (listed in Table 5-1) are already constructed and operational:

- Campo Verde
- Imperial Solar South
- Centinela Solar (portion of project site already operational)
- Iris Cluster - Rockwood
- Wistaria Ranch Solar (portion of project site already operational)
- Calxico II-B
- Mount Signal Solar
- Calxico II-A
- Imperial Solar 1
- Heber 2 Geothermal Energy Complex

The remaining cumulative projects are either pending entitlement or approved and not constructed, and not anticipated to involve overlapping construction activities with the proposed project. 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<sub>3</sub> and PM<sub>2.5</sub>. On November 13, 2009, EPA published Air Quality Designations for the 2006 24-Hour Fine Particle (PM<sub>2.5</sub>) NAAQS wherein Imperial County was listed as designated nonattainment for the 2006 24-hour PM<sub>2.5</sub> NAAQS. However, the nonattainment designation for Imperial County is only for the urban area within the County and it has been determined that the proposed project is not located within the nonattainment boundaries for PM<sub>2.5</sub>.

The AQAP for the SSAB, through the implementation of the AQMP and SIP for PM<sub>10</sub>, sets forth a comprehensive program that will lead the SSAB into compliance with all federal and state air quality standards. With respect to PM<sub>10</sub>, 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 emit criteria pollutants from the use of combustion sources such as diesel off-road equipment (e.g., tractors, cranes, generators, etc.), and on-road mobile sources associated with construction-related vehicle travel. The proposed project would also generate air emissions during construction as a result of soil disturbance and fugitive dust emissions. Likewise, the other cumulative projects that are approved, but not yet built or pending entitlement identified in Table 5-1 would result in the generation of air emissions during construction activities.

With respect to the proposed project, during construction, the project would generate PM<sub>10</sub>, PM<sub>2.5</sub>, ROG, CO, SO<sub>2</sub>, and NO<sub>x</sub> emissions during each active day of construction. As discussed in Section 3.4, Air Quality, the proposed project's daily construction emissions would exceed the ICAPCD thresholds for NO<sub>x</sub> and PM<sub>10</sub>. However, implementation of Mitigation Measures AQ-1 through AQ-4 and Mitigation Measure AQ-6, the project would not exceed the ICAPCD's thresholds of significance during construction and would reduce potential impacts to a level less than significant. However, the proposed project's impact could be cumulatively considerable because the Imperial County portion of the SSAB is nonattainment already for O<sub>3</sub> and PM<sub>10</sub> under state standards and for O<sub>3</sub> and PM<sub>2.5</sub> federal standards. Thus, existing O<sub>3</sub> and PM<sub>10</sub> levels in the SSAB are at unhealthy levels during certain periods. Additionally, the cumulative construction effects could again be experienced in the future during decommissioning and site restoration activities.

Several of the projects listed in Table 5-1 are already constructed and in operation. In the event the proposed project is constructed in conjunction with those pending entitlement or approved for construction, each project would be subject to mitigation pursuant to ICAPCD's Regulations. Therefore, the cumulative impact would be reduced to a level less than significant through compliance with these measures. Further, because the proposed project will be required to implement measures consistent with ICAPCD regulations designed to alleviate the cumulative impact associated with fugitive dust (PM<sub>10</sub>) and NO<sub>x</sub>, the project's contribution would be rendered less than cumulatively considerable and is therefore, less than significant.

## Operation

Project-generated increases in emissions would be predominately associated with isopentane emissions and emissions related to landscape equipment use for routine maintenance work. The proposed project's combined operational emissions would not exceed the ICAPCD thresholds for CO, ROG, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub>; 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, which establishes a GHG emissions reduction target for the State to reduce GHG emissions to 80 percent below 1990 levels by 2050.

However, from a cumulative air quality standpoint, the potential cumulative impact associated with the generation of O<sub>3</sub>, PM<sub>2.5</sub> and PM<sub>10</sub> emissions during operation of the cumulative projects is a consideration because existing O<sub>3</sub> and PM<sub>10</sub> levels in the SSAB are at unhealthy levels during certain periods. Imperial County is classified as non-attainment for PM<sub>2.5</sub> for the urban areas of Imperial County. However, the project's operational contribution to O<sub>3</sub>, PM<sub>2.5</sub> and PM<sub>10</sub> would be below a level of significance. As with the construction phases, the cumulative projects would be required to comply with ICAPCD's Regulation VIII for dust control (Regulation VIII applies to both the construction and operational phases of projects). As a result, the ICAPCD would be required to comply with the various dust control measures and 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 that sets forth a comprehensive program for SSAB's 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 projects 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, the project has the potential to result in impacts on biological resources. These impacts are generally associated with the potential construction-related effects to burrowing owl and bird species.

Burrowing Owls are protected by the CDFW mitigation guidelines for burrowing owl (CDFW 2012) and Consortium guidance (1993), which require a suite of mitigation measures to ensure direct effects to burrowing owls during construction activities are avoided and indirect effects through burrow destruction and loss of foraging habitat are mitigated at prescribed ratios. Mitigation measures identified in Section 3.5, Biological Resources, contain these requirements thereby minimizing potential impacts on these species to a less than significant level. Additionally, as provided in Section 3.5, Biological Resources, special-status bird species have a potential to be present. As a result of project-related construction activities, one or more of these species could be impacted. However, with the implementation of mitigation as identified in Section 3.5, Biological Resources, these impacts would be reduced to a level of less than significant, primarily through avoidance of direct and indirect impacts to these species via pre-construction surveys and monitoring requirements during construction. Similarly, the cumulative projects within the geographic scope of the project would be



required to comply with the legal framework as described above, and similar avoidance and minimization measures. 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. No state or federally protected wetlands exist within the project's jurisdictional survey area. The IID irrigation canals and drains meet the requirements for jurisdictional waters, however none of the jurisdictional features are within the project footprint except for the proposed medium voltage distribution cable. The medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Central Main Canal at the existing above-ground pipeline span. The entire span of the medium voltage distribution cable would sit above the canal. Therefore, the proposed project would have no substantial adverse effect on state or federally protected wetlands, and impacts would be less than significant. Further, the proposed project would result in a net decrease in water demand, which would provide a benefit to IID's water budget and available supply for the Salton Sea. Implementation of the project would result in fallowing of currently irrigated agricultural fields. The IID's "Imperial Valley Natural Community Conservation Plan and Habitat Conservation Plan Planning Agreement No. 2810-2004-001-06 (February 2006) covers water conservation and irrigation and drainage of land to which IID delivers water to which the environmental impacts and various approaches to mitigate potential impacts to the Salton Sea include fallowing agricultural lands as identified in the HCP Final EIR/EIR. EIR Section 3.17.2 discusses the IID's Interim Water Supply Policy (IWSP) for Non-Agricultural Projects and Temporary Land Conversion Fallowing Policy (TLCFP) adopted by the IID and according to the TLCFP "This fallowing program satisfies multiple district objectives and service to reduce the conservation and water use demands on other IID water uses and thus provide district-wide benefits."

The proposed project would comply with these and other laws, regulations and guidelines and therefore would not contribute substantially to a cumulative biological resources impact. Similarly, the cumulative projects within the geographic scope of the proposed project will be required to comply with the legal frameworks set forth above, as well as others, and will be required to mitigate their impacts to a less than significant level. Therefore, the project would not contribute to a cumulatively considerable impact to biological resources, and cumulative impacts would be less than significant.

### 5.3.5 Cultural Resources

As described in Section 3.6, Cultural Resources, the proposed project will not result in any adverse change to the significance of the Central Main Canal as a historical resource under CEQA and no impact would occur. Although unlikely, the potential for unearthing a previously-undiscovered archaeological resource during construction does exist. This potential impact is considered significant. However, implementation of Mitigation Measure CUL-1 would reduce the potential impact associated with the inadvertent discovery of archaeological resources to a level less than significant. Implementation of Mitigation Measure CUL-2 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 and CUL-2, the proposed project would have a less than cumulatively considerable contribution to impacts on cultural resources.

During operations and decommissioning of the project, no additional impacts on archeological resources would be anticipated because the soil disturbance would have already occurred and been mitigated during construction.

### 5.3.6 Energy

Cumulative projects listed in Table 5-1 largely consist of utility-scale solar power generation facilities. The nature of these projects is such that, like the project, they would be consistent with the strategies of the CARB Climate Change Scoping Plan. In order to meet the SB 32 GHG emissions reduction mandate, the 2017 Scoping Plan relies on achievement of the RPS target of 60 percent of California's energy coming from renewable sources by 2030 and 100 percent renewable sources by 2045. The project and other similar projects are essential to achieving the RPS.

The main contribution of energy consumption from the project would be from construction equipment usage, haul truck trips, and employee trips during the construction phase and maintenance trips, and employee trips during project operation of the project. The project's emissions would, therefore, contribute to the increase in emissions in the transportation sector. Construction emissions would be finite and temporary and would cease at the end of construction activities. Electricity required during operations would be greatly offset by the electricity produced by the geothermal and solar facilities. Specifically, operation of renewable energy facilities would offset greenhouse gas emissions by replacing energy generated by fossil fuel power plants. The project would generate up to 47 MW of renewable energy, 25 MW of which would be net of energy that would be added to the power grid and be used in place of electricity generated by fossil fuel sources.

Although the project would result in a contribution to cumulative energy consumption in California, operation of the project could offset emissions from the electricity generation sector. Electricity required during operations would be greatly offset by the electricity produced by the geothermal and solar facilities. Specifically, operation of renewable energy facilities would offset greenhouse gas emissions by replacing energy generated by fossil fuel power plants. The project would generate up to 47 MW of energy that would be added to the power grid and be used in place of electricity generated by fossil fuel sources. Overall, the project would not contribute to cumulative energy consumption in California because operation of the project would provide electric power with negligible operational energy consumption over the long term when compared to traditional fossil-fueled generation

technologies. Thus, the project would not have a cumulatively considerable impact on energy consumption, would not conflict with any renewable energy plans, and cumulative impacts would be less than significant.

### 5.3.7 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. 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.

Although the project site is not located within a mapped area of known land subsidence, a study published in collaboration with the California Energy Commission in 2019 found surface deformation at the Heber Geothermal Field (HGF) connected to geothermal production and injection. The HGF is the area containing and surrounding the HGEC. Subsidence was occurring at the HGF up to -45 mm/year (-1.77 in/year). Furthermore, it was reported that an increase in injection resulted in ground uplift in the northwestern portion of the HGF; however, over time this uplift transitioned to subsidence with an increase in geothermal production (Eneva et al 2019). This potential impact is considered significant. However, implementation of Mitigation Measure GEO-1 would reduce the potential impact associated with the potential for land subsidence by requiring the preparation of a design-level geotechnical report to reduce impacts to a level less than significant.

None of the projects identified within the geographic scope of potential cumulative impacts would intersect or be additive to the project's site-specific geology and soils impacts; therefore, no cumulatively considerable effects are identified for geology/soils, and cumulative impacts would be less than significant.

Development of the proposed project, in combination with other projects in the area, has the potential to contribute to a cumulatively significant paleontological resources impact due to the potential loss of paleontological resources unique to the region. However, mitigation is included in this EIR to reduce potentially significant project impacts to paleontological resources during construction of the proposed project. Implementation of Mitigation Measure GEO-2 would ensure that the potential impacts on paleontological resources do not rise to the level of significance. Future projects with potentially significant impacts on paleontological resources would be required to comply with federal, state, and local regulations and ordinances protecting paleontological resources through implementation of similar project-specific mitigation measures during construction. Therefore, through compliance with regulatory requirements, standard conditions of approval, and Mitigation Measure GEO-2, the proposed project would have a less than cumulatively considerable contribution to impacts on paleontological resources.

### 5.3.8 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. The ICAPCD has not adopted a GHG significance threshold. SCAQMD has a screening threshold of 10,000 metric tons of CO<sub>2</sub>e per year, which was applied to the project's analysis as provided in Section 3.9, Greenhouse Gas Emissions.

As discussed in Section 3.9, Greenhouse Gas Emissions, the proposed project's CO<sub>2</sub> emissions would not exceed SCAQMD's screening threshold of 10,000 metric tons of CO<sub>2</sub>e per year. As the project's emissions do not exceed the SCAQMD's threshold, the proposed project would not result in a cumulatively considerable impact to GHG emissions and would not conflict with the State GHG reduction targets. Other cumulative projects identified in Table 5-1 largely consist of utility-scale solar facilities. The nature of these projects is such that they would be consistent with the strategies of the 2022 Climate Change Scoping Plan. In order to meet the AB 32 and SB 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. 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. The RPS target was updated in September 2018 under SB 100 to 60 percent by 2030. The project and other similar projects are essential to achieving the RPS.

The short-term minor generation of GHG emissions during construction, which is necessary to create new, low-GHG emitting power-generating facilities, 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. Based on these considerations, no significant long-term operational GHG impacts would occur and, therefore, project-related GHG impacts would not be cumulatively considerable.

### 5.3.9 Hazards/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 site. 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 other cumulative 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.

### 5.3.10 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) per Mitigation Measure HYD-1 would reduce water quality impacts. As with the proposed project, each of the cumulative projects would be required to comply with the Construction General Permit. The SWRCB has determined that the Construction General Permit protects water quality, is consistent with the CWA, and addresses the cumulative impacts of numerous construction activities throughout the state. This determination in conjunction with the implementation of mitigation would ensure short-term water quality impacts are not cumulatively considerable.

The project is not expected to result in long-term operations-related impacts related to water quality. The project would mitigate potential water quality impacts by implementing site design, source control, and treatment control BMPs. Some cumulative projects would require compliance with the SWRCB's NPDES general permit for industrial activities, as well as rules found in the CWA, Section 402(p)(1) and 40 CFR 122.26, and implemented Order No. 90-42 of the RWQCB. With implementation of SWRCB, Colorado River RWQCB, and County policies, plans, and ordinances governing land use activities that may degrade or contribute to the violation of water quality standards, cumulatively considerable impacts on water quality would be minimized to a less than significant level.

Based on a review of the FEMA Flood Insurance Rate Map, the project site is located within Zone X. The FEMA Zone X 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. 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.

Surface waters in the Imperial Valley ultimately drain into the Salton Sea via the New and Alamo Rivers as well as via irrigation drains and canals. Due to increased demand for water supplies in the region and IID water transfer agreements, increasing amounts of water are being consumed in Imperial Valley. In addition, water is also being transferred out of the Valley to population centers such as San Diego County, thus reducing inflows to the Salton Sea. 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 reduction of runoff to the Salton Sea during project construction and operation is not expected to combine with similar impacts of large scale proposed, approved and reasonably foreseeable renewable energy projects identified in Table 5-1. As such, the projects would not result in a significant cumulatively considerable impact on floodplains by constructing new facilities within an identified flood hazard zone. Likewise, cumulative impacts associated with runoff reduction would be less than cumulatively considerable.

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.

### 5.3.11 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 3.12, 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 3.12, Land Use/Planning, the project would not conflict with the goals and objectives of the County of Imperial General Plan. 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, 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 for cumulative projects listed in Table 5-1, that project would 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.

### 5.3.12 Noise and Vibration

When determining whether the overall noise (and vibration) impacts from related projects would be cumulatively significant and whether the project's incremental contribution to any significant cumulative impacts would be cumulatively considerable, it is important to note that noise and vibration are localized occurrences; as such, they decrease rapidly in magnitude as the distance from the source to the receptor increases. Therefore, only those related projects and identified in Table 5-1 that are in the vicinity of the project site and those that are considered influential in regards to noise and vibration would have the potential to be considered in a cumulative context with the project's incremental contribution.

As shown in Figure 5-1, there are two cumulative projects (Imperial Solar 1 and Heber 2 Geothermal Energy Complex) within close proximity of the proposed project. The proposed project's construction noise is not anticipated to be additive to the noise generated by these two cumulative projects because they are already operational. Similar to the proposed project, other cumulative projects would be required to comply with the County's construction noise standards. Construction activity is limited to the hours of 7 a.m. to 7 p.m. Monday through Friday, and 9 a.m. to 5 p.m. on Saturdays. Adhering to the County's construction hours would reduce the noise and vibration impacts to below a level of significance. Thus, the incremental contribution of the project to a cumulative noise impact would not be cumulatively considerable.

Stationary-source and vehicular noise from the aforementioned related projects would be similar in nature and magnitude to those discussed for the project in Section 3.13, Noise and Vibration. For the proposed project, no noise impacts have been identified. Thus, the incremental contribution of the project to significant cumulative noise impacts would not be cumulatively considerable.

### 5.3.13 Public Services

The project would result in increased demand for public services (fire protection service and law enforcement services) (Section 3.14, 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., geothermal and 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.

### 5.3.14 Transportation

During the construction phase of the proposed project, the maximum number of trips generated on a daily basis would be approximately PCE 171 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). Once the proposed project is complete, the site will be staffed with 1-2 onsite employees. During operations, the proposed project would generate 11 trips per day.

Since the proposed project is located in a rural portion of the County there are no fixed routes for alternative transportation or non-motorized travel within the general area of the project site that would be impacted by project construction or operation. Although the proposed project would increase VMT during the construction phase, these increases are temporary in nature.

The construction phasing of cumulative projects is not anticipated to overlap with the proposed project. Furthermore, the cumulative projects are not anticipated to use the same construction haul route as the proposed project. During operations, the proposed project would generate minimal trips to the project site. Based on these findings, the project would not result in cumulatively considerable roadway or intersection impacts, and this impact would be less than significant.

### 5.3.15 Tribal Cultural Resources

As discussed in Section 3.16, Tribal Cultural Resources, the Viejas Band of Kumeyaay Indians ("Viejas") responded via email on March 2, 2023 and determined that the project site has cultural significance or ties to Viejas Implementation of Mitigation Measure TCR-1 would ensure that the proposed project's potential impacts on unidentified tribal cultural resources do not rise to the level of significance. 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 on tribal cultural resources.

### 5.3.16 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.

As discussed in Section 3.17, Utilities and Service Systems, a total of 1.1 million gallons of water (10.1 acre-feet) will be used for project construction. Water necessary for well drilling would be obtained from local irrigation canals in conformance with IID requirements. Approximately 50,000 gpd (1.53



acre-feet) would be required for drilling activities. In addition to obtaining water from canals, temporary pipelines could be used for water delivery to well sites. All temporary pipelines would be above ground immediately adjacent to access roads. Once the project is operational, the water demand would decline significantly to approximately 325 gpd (0.36 acre-feet per year). The project will not require additional water from the IID for operations and will be covered under the existing contract.

As of February 2023, a balance of 23,800 AFY remains available under the IWSP for new non-agricultural projects. The project's estimated water demand would not affect IID's ability to provide water to other users in IID's water service area.

Additionally, as reported for IID's 2020 Temporary Land Conversion Fallowing Program, solar developments at the end of 2020 converted 12,404 acres of farmland, approximately half the acreage set aside by the County for conversion. These projects had a yield at-river of 65,964 AF of water in 2020 and 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, representing a significant cumulative net benefit to IID's water supply.

As a result, 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. Therefore, implementation of the proposed project would not impact forestry resources.

### 6.2 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.

### 6.3 Population and Housing

Development of housing is not proposed as part of the proposed project. The unemployment rate in Imperial County as of December 2023 was 18.3 percent (State of California Employment Development Department 2024). 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 (18.3 percent) (State of California Employment Development Department 2024), and the availability of the local workforce, construction of the proposed project would not have a growth-inducing effect.

Once construction is complete, the facilities will be staffed with 1-2 full-time employees. The project would require routine maintenance and unscheduled maintenance as needed. The solar facilities will be monitored remotely with visitation on as needed basis and security personnel will perform periodic site visits. The proposed project would not result in a substantial growth in the area, as the number of employees required to operate and maintain the facilities 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 a less than significant impact to population and housing.

## 6.4 Public Services

### 6.4.1 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.

### 6.4.2 Parks and Other Public Facilities

Once the project is complete, the facilities will be staffed with 1-2 full-time employees. The project would require routine maintenance and unscheduled maintenance as needed. The solar facilities will be monitored remotely with visitation on as needed basis and security personnel will perform periodic site visits. 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.

## 6.5 Recreation

The project site is not used for formal recreational purposes. Also, the proposed project would not result in a substantial growth in the area, as the number of employees required to operate and maintain the facilities is minimal. As such, the project would not significantly increase the use or accelerate the deterioration of regional parks or other recreational facilities. The temporary increase of population during construction that might be caused by an influx of workers would be minimal and not cause a detectable increase in the use of parks. Additionally, the project does not include or require the expansion of recreational facilities. Therefore, a less than significant impact is identified for recreation.

## 6.6 Utilities and Service Systems

**Wastewater Facilities.** Construction of the proposed facilities would not generate/discharge any wastewater. Portable toilets would be brought on-site per California Code of Regulations, Title 8, Section 1526, Subchapter 4, Construction Safety Orders Article 3, General §1526, Toilets at Construction Jobsites and disposed of at the appropriate wastewater facility, resulting in no impact to Regional Water Quality Control Board requirements. The HGEC employees have permanent bathrooms in the existing facilities, and no new wastewater would be generated from the operation of the proposed facilities. In addition, the OECs are air cooled and operate on a closed loop, do not consume any water and are therefore free of the environmental consequences that accompany water-based systems. Chemical additives are not required for the cooling tower operation and therefore there is no waste disposal. Impacts associated with wastewater facilities would be less than significant.

**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 facilities 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. 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.** All water necessary for the construction, operation, and decommissioning of the project would be obtained from the Applicant's existing contract with IID. Operational use of water resources for the project would be limited to domestic use within operations and maintenance buildings, solar panel washing, and fire protection services. Impacts associated with water facilities would be less than significant.

**Power.** The project would construct two parasitic solar photovoltaic facilities- one to provide auxiliary power to the proposed Dogwood Geothermal plant and one for the existing Heber 2 plant. The California Energy Commission (CEC) considers these two solar facilities behind-the-meter, which means that the energy generated by the solar arrays exclusively feeds the geothermal plants and does not directly enter the transmission grid. The energy generated by the solar facilities will be collected by an on-site substation and then transferred to the plants via a short transmission cable. The solar facilities will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy and allow more geothermal energy to enter the grid. Before entering the grid, a new substation will be built near the Dogwood plant to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. Pending Imperial Irrigation District (IID) review, no upgrades to off-site transmission facilities are necessary. If upgrades to off-site facilities are later deemed necessary through an IID transmission study, recommendations could include protection upgrades and metering replacements at existing IID substations and/or upgrades to telecommunications, distribution lines, and transmission lines. Such upgrades would use existing infrastructure, easements, right-of-way, and corridors to the extent practicable. The new Dogwood substation will connect directly to the existing point of interconnection with the IID controlled grid. Impacts associated with electric power facilities would be less than significant.

**Natural Gas.** No natural gas facilities are located near the project site and no natural gas hookup is required for the project. No impacts associated with natural gas facilities would occur.

**Telecommunications.** AT&T Corporation provides telephone service to Imperial County. Several companies provide wireless or cell phone services for the area as well. The project would not have an impact on any telecommunications.

**Solid Waste Facilities.** Solid waste generation would be minor for the construction and operation of the proposed project. Solid waste during construction will be disposed of in an approved solid waste disposal site in accordance with Imperial County Environmental Health Department requirements. Waste will be routinely collected and disposed of at an authorized landfill by a licensed disposal contractor. Trash would likely be hauled to the Calexico Solid Waste Site (13-AA-0004) located approximately 1.25 miles southwest of the project site in Calexico, CA. The Calexico Solid Waste Site has approximately 1,561,235 cubic yards of remaining capacity and is estimated to remain in operation through 2079 (CalRecycle 2019). The project would not 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.

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.

## 6.7 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 2023). 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.

## 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:

- Develop a geothermal power plant with minimal disturbance footprint and environmental impacts by siting the facility on an existing disturbed industrial site.
- Develop clean, renewable geothermal energy in the Heber Geothermal Zone pursuant to the Imperial County General Plan.
- Utilize a location that is in close proximity to existing energy generation facilities and electrical transmission system.



- Develop supporting renewable energy solar PV facilities to support the geothermal power plant operations.
- Use proven and established PV technology that is efficient and requires low maintenance.
- Provide renewable baseload energy and capacity to assist the State of California with meeting the objectives of Senate Bill 100 (100% Clean Energy Act of 2018) and the State's Renewables Portfolio Standard program.
- 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).

The proponent does not have control of an alternate site; if control were viable, the proponent would have to re-initiate the application process as a new project. Similar to the proposed project site, an alternate site would require environmental review once the proponent has prepared sufficient project description information. At present, the proponent does not have control of an alternate site. Alternative sites would also lack the benefits of located the proposed project next to existing facilities. Furthermore, geothermal resources (and solar facilities to complement them) are limited in their available locations. This alternative would likely be the most complex, costly, and time-consuming alternative to implement, and the environmental benefits are unlikely. For these reasons an alternative site was eliminated from further consideration in this EIR.

## 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 geothermal and solar energy facilities. The No Project/No Development Alternative would not meet 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 undeveloped 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 this alternative, no impacts related to light, glare, and aesthetic impacts would occur.

### Agricultural Resources

As discussed in Section 3.3, Agricultural Resources, implementation of the project would result in the temporary conversion of approximately 106.88 acres of land currently under or available for agricultural production to non-agricultural uses, as described below:

- Dogwood Geothermal Energy Project (CUP #23-0020): Approximately 5.31 acres of the Dogwood parasitic solar facility footprint are classified as Prime Farmland and 34.67 acres are classified as Farmland of Statewide Importance.
- Heber 2 Solar Energy Project (CUP #23-0021): Approximately 17.63 acres of the Heber 2 parasitic solar facility footprint are classified as Prime Farmland and 49.27 acres are classified as Farmland of Statewide Importance.

Compared to the proposed project, implementation of this alternative would avoid the conversion of Prime Farmland and Farmland of Statewide Importance. 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.

### 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 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 not result in air quality emissions compared to the proposed project, the majority of which would occur during construction. The No Project/No Development Alternative would not reduce the long-term need for renewable electricity generation. As a consequence, while the No

Project/No Development Alternative would not result in new impacts to air quality as a result of construction, it would likely not realize the overall benefits to regional air quality when compared to the operation of the proposed project.

## 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 nesting birds, this alternative would not result in construction activities 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.

## Energy

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. Compared to the proposed project, the No Project/No Development Alternative would not result in energy consumption associated with the operation of construction equipment. Therefore, no impact is identified for this alternative.

## 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. 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 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 and would not require the installation of two 20,000-gallon isopentane vessels on the project site. Compared to the proposed project, this alternative would avoid the potential hazards to the public attributed to the storage, transport, and use of isopentane motive fluid.

### 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. Therefore, compared to the proposed project, this alternative would avoid impacts to hydrology and water quality.

### Land Use/Planning

As discussed in Section 3.12, Land Use/Planning, the proposed project would not physically divide an established community or conflict with applicable plans, policies, or regulations. Under the No Project/No Development Alternative, the project site would not be developed and continue to be undeveloped land. Current land uses would remain the same. No CUPs would be required under this alternative. Under this alternative, no existing community would be divided, and no inconsistencies with planning policies would occur. No land use impacts would occur.

### Noise

This alternative would not require construction or operation of the project facilities; therefore, this alternative would not increase ambient noise levels within the vicinity of the project site. For this reason, no noise impacts would occur. As discussed in Section 3.13, Noise and Vibration, the proposed project would not result in significant noise impacts to sensitive receptors during construction and operation. Compared to the proposed project, this alternative would not generate noise and would not result in any noise or vibration impacts.

### 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.

## Transportation

There would be no new development under the No Project/No Development Alternative. Compared to the proposed project, 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.

## Tribal Cultural Resources

The proposed project would involve ground-disturbing activities that have the potential to disturb previously undocumented tribal cultural resources. 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 potential impacts to tribal cultural resources.

## Utilities and Service Systems

Compared to the proposed project, 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. Therefore, this alternative would result in no impacts to existing utilities or 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 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: Reduced Project Site

The purpose of this alternative is to avoid the Prime Farmland located within the project site. As discussed in Section 3.3, Agricultural Resources, implementation of the project would result in the temporary conversion of approximately 106.88 acres of land currently under or available for agricultural production to non-agricultural uses, as described below:

- Dogwood Geothermal Energy Project (CUP #23-0020): Approximately 5.31 acres of the Dogwood parasitic solar facility footprint are classified as Prime Farmland and 34.67 acres are classified as Farmland of Statewide Importance.

- Heber 2 Solar Energy Project (CUP #23-0021): Approximately 17.63 acres of the Heber 2 parasitic solar facility footprint are classified as Prime Farmland and 49.27 acres are classified as Farmland of Statewide Importance.

This alternative would avoid approximately 22.94 acres of Prime Farmland on the project site (5.31 acres on Dogwood parasitic solar facility footprint and 17.63 acres on the Heber 2 parasitic solar facility footprint). The size and MW output of the solar facilities would be slightly reduced under this alternative.

## 7.5.1 Environmental Impact of Alternative 2: Reduced Project Site

### Aesthetics

Under Alternative 2, the overall size of the solar energy facilities would be reduced. No significant visual aesthetic impact has been identified as the proposed project's facilities would not impact scenic resources, result in the substantial degradation of the existing visual character of the project site, or add a substantial amount of light and glare. As such, this alternative would not avoid or reduce any significant impacts identified for the project and the aesthetic impact would be similar to the proposed project.

### Agricultural Resources

Under Alternative 2, the conversion of approximately 22.94 acres of Prime Farmland to non-agricultural uses would be avoided on the project site. However, the solar facilities would still be located on land designated as Farmland of Statewide Importance and would still require mitigation for the temporary conversion of Farmland of Statewide Importance to non-agricultural uses to reduce significant impacts to a less than significant level. Impacts associated with contributing to the conversion of other agricultural lands or otherwise affecting agricultural operations would still occur, but would be less than would occur under the proposed project. Compared to the proposed project, this alternative would result in less of an impact on agricultural resources as compared to the proposed project.

### Air Quality

Under Alternative 2, air emissions during construction would be less than the proposed project because of the reduced site development. As discussed in Section 3.4, Air Quality, the proposed project would not exceed the ICAPCD's significance thresholds 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. Similar to the proposed project, this alternative would be consistent with existing AQMPs and would not result in the creation of objectionable odors. Compared to the proposed project, this alternative would result in less air quality impacts.

### Biological Resources

Under Alternative 2, the overall size of the solar energy facilities would be reduced. Although the overall size of the solar energy facilities would be reduced, there is still potential for impacts on special-

status species. Compared to the proposed project, this alternative would result in a reduction in impacts on biological resources, but would still require mitigation.

## Cultural Resources

Although the overall size of the solar energy facilities would be reduced, this alternative would still require ground-disturbing activities, which has the potential to disturb undocumented cultural resources that could qualify as historical resources or unique archaeological resources pursuant to CEQA, and human remains. Compared to the proposed project, this alternative would result in a reduction in impacts on cultural resources because of the reduced site development, but would still require mitigation related to monitoring for inadvertent discovery.

## Energy

Although the overall size of the solar energy facilities would be reduced, this alternative would still result in energy consumption associated with the operation of construction equipment. Compared to the proposed project, the No Project/No Development Alternative would result in slightly less energy consumption due to a reduced project site. However, impacts would be less than significant similar to the proposed project.

## Geology and Soils

Under Alternative 2, while the overall project footprint would be reduced, grading and construction of new facilities, such as the geothermal plant, solar facilities, and geothermal wells would still occur. Similar to the proposed project, this alternative would also be subject to potential impacts related to strong ground shaking, soil erosion, and paleontological resources, and incorporation of mitigation measures would be required 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

Under Alternative 2, the overall project footprint would be reduced, thereby contributing to reductions in GHG emissions during project construction. However, as a consequence of the reduced size of the project, 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. This alternative would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Similar to the proposed project, this alternative would not exceed SCAQMD's screening threshold of 3,000 metric tons of CO<sub>2</sub>e per year. This alternative would contribute to similar and desirable reductions in GHG emissions and associated contribution to global climate change through the production of renewable energy, although to a lesser degree. This alternative would have a similar impact as the proposed project.

## Hazards and Hazardous Materials

Similar to the proposed project, construction of this alternative would involve the limited use of hazardous materials, such as fuels and greases to fuel and service construction equipment. This alternative would still require the installation of two 20,000-gallon isopentane vessels on the project site and would require mitigation to reduce the potential hazards to the public attributed to the storage, transport, and use of isopentane motive fluid. Similar to the proposed project, no impact associated



with potential safety hazards to the public residing or working within proximity to a public airport would occur. Implementation of this alternative would result in a similar hazards and hazardous materials impact as the proposed project.

### Hydrology/Water Quality

Alternative 2 would result in modifications to the existing drainage patterns and the volume of storm water runoff, as this alternative would introduce impervious area on-site, although to a lesser degree than the proposed project. Because the overall project footprint would be reduced, this alternative would realize a minor reduction in the corresponding impacts on hydrology and on-site drainage; however, the same mitigation measures would be applicable to this alternative. Compared to the proposed project, this alternative would result in less of an impact on hydrology/water quality.

### Land Use Planning

Implementation of this alternative would not avoid or reduce a land use and planning impact, as no significant impact associated with the projects has been identified. As with the proposed project, this alternative would be consistent with the County Land Use Ordinance, Division 17, RE Overlay Zone, which authorizes the development and operation of RE projects with an approved CUP. Implementation of this alternative would be similar to the proposed project with respect to land use and planning.

### Noise

As with the proposed project, Alternative 2 would not result in significant noise impacts associated with construction activities. As with the proposed project, operational impacts associated with this alternative would not expose persons or generate noise levels in excess of applicable noise standards, exposure persons to, or generate excessive groundborne vibration, or expose persons to excessive aircraft noise. This alternative would have similar noise impacts as the proposed project.

### Public Services

Alternative 2 would require increased public services, specifically law enforcement and fire protection services. While the solar facilities would be slightly smaller, 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 projects. In this context, Alternative 2 would not reduce or avoid an impact related to transportation 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

Implementation of this alternative would not avoid or reduce a tribal cultural resources impact, as no significant impact associated with the projects has been identified. Impacts to tribal cultural resources under this alternative are similar to the proposed projects.

Although the overall size of the solar energy facilities would be reduced, this alternative would still require ground-disturbing activities, which has the potential to disturb undocumented tribal cultural resources. Compared to the proposed project, this alternative would result in a reduction in impacts on tribal cultural resources because of the reduced site development, but would still require mitigation.

## Utilities and Service Systems

Implementation of this alternative would result in an overall less demand for utilities, including water. However, this alternative would not avoid or reduce a significant impact associated with the project as a less than significant impact to utilities has been identified associated with the project. Implementation of this alternative would not achieve to the same degree the beneficial impacts of providing renewable energy. As compared to the proposed project, the overall demand for utilities would be less under this alternative.

## Conclusion

As shown on Table 7-1, this alternative would reduce impacts to agricultural resources, air quality, biological resources, cultural resources, hydrology/water quality, tribal cultural resources, and utilities/service systems.

## Comparison of Alternative 2: Reduced Project Site

Alternative 2 would meet most of the basic objectives of the proposed project and should remain under consideration. However, as a consequence of the reduced size of the project, 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.

## 7.6 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: agricultural resources, air quality, biological resources, cultural resources, hydrology/water quality, tribal cultural resources, and utilities/service systems.

**Table 7-1. Comparison of Alternative Impacts to Proposed Project**

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Reduced Project Site
Aesthetics	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Agricultural Resources	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact
Air Quality	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Less Impact
Biological Resources	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact (Avoid)	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact
Cultural Resources	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact (Avoid)	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact

**Table 7-1. Comparison of Alternative Impacts to Proposed Project**

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Reduced Project Site
Energy	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Geology and Soils	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact (Avoid)	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Similar Impact
GHG Emissions	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Hazards and Hazardous Materials	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Similar Impact
Hydrology/ Water Quality	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact (Avoid)	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact

**Table 7-1. Comparison of Alternative Impacts to Proposed Project**

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Reduced Project Site
Land Use/Planning	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Noise	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Public Services	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Transportation	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Similar Impact
Tribal Cultural Resources	Less than Significant with Mitigation	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant with Mitigation <i>Comparison to Proposed Project:</i> Less Impact

**Table 7-1. Comparison of Alternative Impacts to Proposed Project**

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Reduced Project Site
Utilities/Service Systems	Less than Significant	<i>CEQA Significance:</i> No Impact <i>Comparison to Proposed Project:</i> No Impact	<i>CEQA Significance:</i> Less than Significant <i>Comparison to Proposed Project:</i> Less Impact

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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:

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Priya Dhupar, Environmental Planner

Madison Gallagher, Environmental Planner

Sharon Jacob, Geographic Information Systems Analyst

Katherine Turner, Document Production Administrator

#### **HDR was assisted by the following consultants:**

#### **Catalyst Environmental Solutions**

- Biological Resources and Burrowing Owl Survey Report
- Geotechnical Site Assessment
- Noise Technical Report
- Preliminary Jurisdictional Report
- Transportation Technical Report
- Visual Resources Baseline and Sensitivity Report
- Water Quality Management Plan

**PaleoWest**

- Cultural Resource Assessment

**Risk Management Professionals, Inc.**

- Worst-Case Scenario Release Modeling

**SWCA Environmental Consultants**

- Glint and Glare Assessment

## 9.2 Persons and Organizations Contacted

No persons or organizations were contacted directly in preparation of the Draft EIR.



## Volume II of III

### Final Environmental Impact Report

#### Dogwood Geothermal Energy Project:

- Dogwood Geothermal Energy Project (CUP No. 23-0020)
- Heber 2 Solar Energy Project (CUP No. 23-0021)
- Heber Field Company Geothermal Wells & Pipeline Project (CUP No.23-0022)

SCH No. 2024010510

*Imperial County, California*

May 2025

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## 0.3 Responses to Comment Letters Received on the Draft EIR

This section contains responses to all comment letters received on the Draft EIR. The initial public comment period for the Draft EIR was from August 14, 2024 to October 2, 2024. This comment period was extended for an additional 45 days to be from October 1, 2024 to November 11, 2024. Further, in response to the one request for extension, submitted by California Unions for Reliable Energy (CURE's)/Adams Broadwell, the public comment period was extended again from November 23, 2024 to January 13, 2025. In total, the public comment period lasted from August 14, 2024 to January 13, 2025, totaling 152 days. Nine letters were received during the comment period. A copy of each letter with bracketed comment numbers on the right margin is followed by the response for each comment as indexed in the letter. The comment letters are listed in Table 0.3-1.

**Table 0.3-1. Dogwood Geothermal Energy Project Draft EIR Comment Letters**

Letter	Commenter	Date
A	California Department of Fish and Wildlife	September 30, 2024
B	Imperial Irrigation District	October 1, 2024
C	Imperial County Air Pollution Control District	October 2, 2024
D	Adams Broadwell Joseph & Cardozo	August 15, 2024
E	Adams Broadwell Joseph & Cardozo	September 18, 2024
F	Adams Broadwell Joseph & Cardozo	November 8, 2024
G	Adams Broadwell Joseph & Cardozo	November 14, 2024
H	Defenders of Wildlife	November 13, 2024
I	Imperial County Air Pollution Control District	January 13, 2024



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
Inland Deserts Region  
3602 Inland Empire Boulevard, Suite C-220  
Ontario, CA 91764  
[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

GAVIN NEWSOM, Governor  
CHARLTON H. BONHAM, Director



September 30, 2024  
Sent via email.

Luis Valenzuela  
Planner II  
County of Imperial, Planning and Development Services Department  
801 Main Street  
El Centro, CA 92243

RECEIVED

OCT 01 2024

IMPERIAL COUNTY  
PLANNING & DEVELOPMENT SERVICES

DOGWOOD GEOTHERMAL ENERGY PROJECT (PROJECT)  
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)  
SCH# 2024010510

Dear Mr. Valenzuela:

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a DEIR from County of Imperial for the Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.<sup>1</sup>

A-1

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

#### CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Id., § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

A-2

#### PROJECT DESCRIPTION SUMMARY

**Proponents:** OrHeber 3, LLC; Heber Field Company, LLC; and Second Imperial Geothermal Company

**Objective:** The objective of the Project is to construct and operate various facilities for three Conditional Use Permits, listed below:

<sup>1</sup> CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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1. Dogwood Geothermal Energy Project: construct a 25 net megawatt (MW) geothermal plant, a cooling tower, one substation, two 20,000-gallon isopentane above-ground storage tanks, 7 MW solar photovoltaic facilities, and a medium voltage distribution cable. Primary Project objective is to operate the geothermal plant, parasitic solar facility, and associated ancillary and auxiliary facilities.
2. Heber 2 Solar Energy Project: construct a 15 MW solar facility. Primary Project objectives include the operation of the parasitic solar facility to provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant. This energy would not enter the transmission grid.
3. Heber Field Company Geothermal Wells and Pipeline Project: construct three geothermal production and injection wells, and geothermal fluid pipeline. Primary Project objectives are the operation of the production and injection wells to handle geothermal fluid, and to transport geothermal fluid from the production wells to the power plants.

A-2  
cont.

**Location:** The Project is located on approximately 125 acres of privately-owned lands in southern Imperial County, California. It is approximately 1 mile south of the City of Heber jurisdictional limit and approximately 0.5 mile west from the City of Calexico jurisdictional limit. The Project site is within 3 accessor parcel numbers (APN) 054-250-031, 059020-001, and 054-250-017. The proposed geothermal power plant is generally located north of Jasper Road and west of South Dogwood Road.

**Timeframe:** 35 months of construction, starting the first quarter of 2025.

#### COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist City of Imperial in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, including those CDFW recommends in Attachment A, CDFW concludes that an Environmental Impact Report is appropriate for the Project.

A-3

#### I. Environmental Setting and Related Impact Shortcoming

**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 CDFW or USFWS?**

##### COMMENT 1:

**DEIR Section 3.5, Page 3.5-5 and Appendix E Section 3.1, Page 3-1**

**Issue:** One biological reconnaissance survey was conducted on February 21, 2023. The *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, March 2018) state that botanical field surveys need to be conducted when plants will be both evident and identifiable, with the appropriate timing (usually during flowering or fruiting) and number of visits to determine presence of special status species and floristic diversity.

A-4

**Specific impact:** The biological reconnaissance survey was only performed once at the end of the winter season (February 21, 2023). The DEIR determined that the five special-status species historically documented within five miles of the project area have a low potential for occurrence, but two of the species (Abrams' spurge and hairy stickleaf) do not have blooming periods in February. Adequate evaluation of

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the Project's impacts to special-status species relies upon accurate baseline conditions, which botanical field surveys would identify. Also, neither the DEIR nor the *Biological Resources and Burrowing Owl Survey* (Catalyst Environmental Solutions, 2024) include measures to avoid, minimize, or mitigate impacts to any special-status plant species, should they be found on the project site during construction.

**Why impact would occur:** The single reconnaissance survey conducted on February 21, 2023, does not follow the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, March 2018), and thus may not provide adequate baseline conditions to identify and evaluate impacts to special-status species. If any special-status plant species are found on the project site during construction, no avoidance, minimization, or mitigation measures are provided in the DEIR to ensure that impacts are reduced to less than significant levels.

**Evidence impact would be significant:** Sensitive plant species are listed under CESA as threatened, or endangered, or proposed candidates for listing; designated as rare under the Native Plant Protection Act; or plants that otherwise meet the definition of rare, threatened, or endangered species under CEQA. Plants constituting California Rare Plant Ranks 1A, 1B, 2A, and 2B generally meet the criteria of a CESA-listed species and should be considered as an endangered, rare or threatened species for the purposes of CEQA analysis. Take of any CESA-listed species is prohibited except as authorized by state law (Fish and Game Code, §§ 2080 & 2085). Fish and Game Code Sections 1900–1913 includes provisions that prohibit the take of endangered and rare plants from the wild and a salvage requirement for landowners.

**Recommended Potentially Feasible Mitigation Measure(s) (Regarding Project Description and Related Impact Shortcoming)**

**To reduce impacts to less than significant:** CDFW recommends botanical field surveys following the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, March 2018) be conducted annually prior to the start of construction by qualified personnel. One botanical field survey may be insufficient to detect plants that are not evident and identifiable every year. CDFW recommends mitigation measure BIO-5 Pre-Construction Plant Surveys, listed in Attachment A, to be incorporated into the DEIR.

**Would the Project interfere substantially with movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede use of native wildlife nursery sites?**

**COMMENT 2:**

**Section 3.5.3, Page 3.5-19; and Appendix E, Section 3.3, Page 3-6**

**Issue:** The DEIR does not consider the broader movement of long-billed curlew and northern harrier when assessing Project impacts to these two species. Both species were observed within or directly adjacent to the Project site, but neither species' migratory movements were considered.

**Specific impact:** During field surveys, both the long-billed curlew and northern harrier were observed within or directly adjacent to the Project site and the DEIR acknowledges that the Project site is within the winter range for long-billed curlew and that the northern harrier moves broadly during winter and migration season. However, Appendix E contradicts the DEIR by stating that no special status species and no habitat that would support special status species were observed in the Project area, other than habitat for burrowing owls.

A-4  
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A-5

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**Why impact would occur:** The migratory movements of both species may be adversely affected by Project construction and presence, but neither the DEIR nor Appendix E provides analysis or mitigation for this impact. Mitigation measure BIO-2 does not consider the impacts to habitat attributes or spatial habitat, including the loss of foraging habitat and increase in anthropogenic effects. Also, mitigation measure BIO-2 only considers impacts to birds found during nesting season and before construction; it does not consider impacts to birds during non-nesting or non-breeding season.

**Evidence impact would be significant:** While the long-billed curlew is not a current CDFW Species of Special Concern (SSC), it is a watch list species with a State rank of S2, signifying that the species was formerly an SSC and is imperiled with high risk of extirpation. The long-billed curlew's declining numbers are likely caused by agricultural practices and it's breeding range has retracted significantly in the last 80 years (Zeiner et al., 1990).

The northern harrier is a current CDFW-designed Species of Special Concern (CNDDB, July 2024). The primary threats to breeding northern harrier include the loss and degradation of nesting and foraging habitat, nest failure from human disturbance, and agricultural practices (Shuford, 2008).

The project proponent is responsible for complying with Fish and Game Code (FGC) sections (§) 3503, 3503.5, and 3513, which state the following: FGC § 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs or any bird, except as otherwise provided by Fish and Game Code or any regulation made pursuant thereto; FGC § 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto; FGC § 3513 states that it is unlawful to take or possess any migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act of 1918, as amended (16 United States Code § 703 et seq.).

**Recommended Potentially Feasible Mitigation Measure(s) (Regarding Mitigation Measure or Alternative and Related Impact Shortcoming)**

**Mitigation Measure BIO-2:**

**To reduce impacts to less than significant:** CDFW recommends a qualified biologist survey the Project area not only for breeding and nesting birds, but also for other bird activity, such as foraging, and for behavior possibly caused by Project activities, such as agitation, stress, and/or nest abandonment.

CDFW provides editorial suggestions for BIO-2 in Attachment A.

**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 CDFW or USFWS?**

**COMMENT 3:**

**Section 3.5.3, Page 3.5-18; Appendix E, Section 3.2, Page 3-2, and Appendix F, Section 3.2, Page 3-2**

**Issue:** There is a discrepancy between the DEIR, Appendix E, and Appendix F regarding the removal of arrow-wood thickets (*Pithecha sericea* Shrubland Alliance), which is recognized by CDFW as a sensitive natural community. No avoidance,

A-5  
cont.

A-5



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minimization, or mitigation measures are proposed for the potential impacts to arrow-weed thickets.

**Specific impact:** Appendix E states that "none of the arrow-weed thickets that occur within the survey area would be removed or disturbed by project activities with the exception of the thickets that would be spanned by the transmission line crossing of Beech Drain, Willoughby Road, Central Main Canal, and Dogwood Lateral 1." However, both the DEIR and Appendix F directly contradicted this analysis in numerous instances – the DEIR states, "none of the arrow-weed thickets that occur within the biological survey area (BSA) would be removed or disturbed by project activities" and Appendix F states, "The proposed transmission line connection would span Beech Drain, Central Main Canal, and Dogwood Lateral 1. A narrow band of arrow-weed thicket is present and would be spanned by the connection and would not be removed or disturbed by project activities."

A-6  
cont.

**Why impact would occur:** Since the DEIR states that none of the arrow-weed thickets within the BSA would be removed or disturbed, the DEIR concludes that the proposed Project would have a less than significant impact to the sensitive natural community and thus, no mitigation measures are required. CDFW is concerned, if Appendix E is accurate in the Project's disturbance activities, then there are no avoidance, minimization, or mitigation measures in the DEIR to ensure that impacts are reduced to less than significant levels.

**Evidence impact would be significant:** Arrow-weed thickets are listed on the CDFW Vegetation Classification and Mapping Program's (VegCAMP) Sensitive Natural Communities Only by Life Form list (CDFW, June 2023).

**Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact Shortcoming)**

**Mitigation Measure BIO-6:**

**To reduce impacts to less than significant:** CDFW recommends the DEIR includes avoidance, minimization or mitigation measures to ensure the project impacts are reduced to a less than significant level.

CDFW recommends mitigation measure BIO-6 Avoidance of Sensitive Natural Communities, listed in Attachment A, to be incorporated into the DEIR.

**COMMENT 4:**

**Section 3.5, Page 3.5-6 to 3.5-7**

**Issue:** The DEIR does not mention the potential occurrence of California black rail (*Lateralus jamaicensis coturniculus*) despite the proximity of the Project site to the species' yearlong range.

**Specific impact:** The Project site is within an approximate 10-mile radius to California black rail yearlong range that is west of the Project site (Zeiner, 1990). Arrow-weed (*Pluchea sericea*) is one of the wetland plant species that is commonly associated with black rail distribution and abundance in southern California (Conway and Sulzman, 2007).

A-7

**Why impact would occur:** The DEIR is unclear on if the arrow-weed thickets on the Project site will be removed (refer to Comment 3 above) and thus does not provide any avoidance measures for potential impacts, nor does it consider the California black rail's potential use of arrow-weed thickets on the Project site. Without clarity on the fate of the arrow-weed thickets on the Project site, California black rail may be

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significantly impacted from loss of potential foraging habitat, nest abandonment, and mortality.

**Evidence impact would be significant:** Consistent with CEQA Guidelines, Section 15380, the status of the California black rail as a threatened species under the California Endangered Species Act (Fish & G. Code, § 2050 et seq.) and as a Fully Protected species (Fish & G. Code § 3511) qualifies it as an endangered, rare, or threatened species under CEQA.

California black rail populations have been documented as declining in California in recent decades primarily as a result of habitat loss and degradation, particularly in southern California (Evens et al., 1991, Conway and Salzman, 2007). Outside of the San Francisco Bay estuary, where the majority of the population occurs, the sub-species exists in smaller, disjunct sub-populations that may not be sustained without frequent immigration (Evens et al., 1991 and Richmond et al., 2008). Black rail populations and their required habitat features are vulnerable to both human-caused and natural stressors. California black rails require a dense cover of upland vegetation for protection from predators (Eddleman et al., 1994 and Evens and Thome, 2015). Disturbance to nesting rails, such as humans intruding in the marsh, have been reported to cause rails to abandon nests or to try to defend nests, exposing eggs (Flores and Eddleman, 1993). Intrusion can alter habitat and cause mortality through crushing of rails that generally freeze in place and are hesitant to flush (Evens and Thome, 2015).

A-7  
cont.

**Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact Shortcoming)**

**Mitigation Measure BIO-2:**

**To reduce impacts to less than significant:** CDFW recommends measures to fully avoid impacting California black rail during Project construction. CDFW recommends a qualified biologist survey the Project area not only for breeding and nesting birds, including California black rail, but also for other bird activity, such as foraging, and for behavior possibly caused by Project activities, such as agitation, stress, and/or nest abandonment.

CDFW provides editorial suggestions for BIO-2 in Attachment A.

**II. Mitigation Measure or Alternative and Related Impact Shortcoming**

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 CDFW or USFWS?

**COMMENT 5:**

**Section 3.5.3, Page 3.5-16; BIO-4; and Appendix E Section 3.4, Page 3-7**

**Issue:** No burrowing owl mitigation was proposed for either direct impacts or indirect impacts, including injury, mortality, possible nest failures, loss of young, loss of nesting and wintering habitat, loss of foraging and dispersal habitat, or anthropogenic effects. CDFW considers measure BIO-4 to be an avoidance and minimization measure instead of a mitigation measure. The DEIR also does not consider or provide an impacts analysis for future temporal anthropogenic effects to burrowing owls or the loss of habitat and its associated attributes.

**Specific impact:** The DEIR states that burrowing owls have a moderate potential to occur within the Project site, but BIO-4 only provides avoidance and minimization

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measures for burrowing owls found on the Project site prior to construction. BIO-4 does not mitigate for the potential direct or indirect impacts that may occur as a result of the Project's construction.

Appendix E states that the Project site is suitable habitat for future burrowing owl inhabitation despite lack of current occupation but does not consider that the Project may alter future habitat in the area.

**Why impact would occur:** Mitigation measure BIO-4 only avoids and minimizes Project impacts for the burrows that are active and occupied at the time of pre-construction surveys. This lacks the temporal consideration of species occupancy and their use of the surrounding landscape for survival. Burrowing owls are dependent on burrows at all times of the year for survival and/or reproduction, evicting them from nesting, roosting, and satellite burrows may lead to indirect impacts or take. Loss of access to burrows will likely result in varying levels of increased stress on burrowing owls and could depress reproduction, increase predation, increase energetic costs, and introduce risks posed by having to find and compete for available burrows (CDFG, 2012).

**Evidence impact would be significant:** Take, possession or destruction of individual burrowing owls, their nests and eggs is prohibited under Fish and Game Code sections 3503, 3503.5 and 3513. Eviction of burrowing owls is a potentially significant impact under CEQA and mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (CEQA Guidelines, §§ 15126.4(a)(4)(B), 15064, 15065, and 16355). As stated in the Staff Report on Burrowing Owl Mitigation (CDFG, 2012), "the current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow".

Additionally, the California Fish and Game Commission has received a formal petition to list burrowing owls as threatened or endangered pursuant to CESA. This could potentially make take of this species under purview of CESA should the species become a candidate species later this year. This petition, which CDFW found contained sufficient scientific information to indicate the petition may be warranted, states that burrowing owls "face significant impacts from habitat loss caused by development of utility-scale solar" (Center for Biological Diversity et al., 2024).

**Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact Shortcoming)**

**Mitigation Measure BIO-4:**

**To reduce impacts to less than significant:** CDFW recommends County of Imperial follow the guidance of mitigating impacts to burrowing owls in the Staff Report on Burrowing Owl Mitigation (CDFG, 2012), including:

- (a) Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat such that the habitat acreage, number of burrows and burrowing owls impacted are replaced with permanent conservation of similar vegetation communities (grassland, scrublands, desert, urban, and agriculture) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area; and
- (b) Sufficiently large acreage, and presence of fossorial mammals.

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cont.

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**CDFW provides a burrowing owl protection and mitigation plan, and editorial suggestions for BIO-4 in Attachment A.**

A-8  
cont.

### III. Editorial Comments and/or Suggestions

A petition to list burrowing owls under the California Endangered Species Act (CESA) has been submitted to the California Fish and Game Commission. Since a determination has not yet been made on the petition, CDFW recommends that avoidance, minimization, and mitigation measures for burrowing owls consider both the potential for CESA listing and the retention of its current Species of Special Concern status. If the burrowing owl is listed as a candidate species under CESA, Project activities will need to either avoid impacts to the species, or the Project proponent obtain an incidental take permit from CDFW and the DEIR define mitigation that will bring the impact to a CESA-listed species to less than significant with mitigation incorporated.

A-9

### ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDb). The CNDDb field survey form can be filled out and submitted online at the following link: <https://wildlife.ca.gov/Data/CNDDb/Submitting-Data>. The types of information reported to CNDDb can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDb/Plants-and-Animals>.

A-10

### ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs. tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

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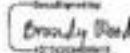
### CONCLUSION

CDFW appreciates the opportunity to comment on the DEIR to assist County of Imperial in identifying and mitigating Project impacts on biological resources.

A-12

Questions regarding this letter or further coordination should be directed to Lily Mu, Senior Environmental Scientist (Specialist) at (909) 544-2521 or [Lily.Mu@Wildlife.ca.gov](mailto:Lily.Mu@Wildlife.ca.gov).

Sincerely,

  
Brandy Wood

Brandy Wood  
Environmental Project Manager

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September 30, 2024  
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Attachments

Attachment A. Draft Mitigation, Monitoring, and Reporting Program

cc: Office of Planning and Research, State Clearinghouse, Sacramento

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**Attachment A**  
**Draft Mitigation, Monitoring, and Reporting Program**

**Draft Mitigation, Monitoring, and Reporting Program (MMRP)**  
CDFW provides the following language to be incorporated into the MMRP for the Project.

<b>Biological Resources (BIO)</b>		
<b>Mitigation Measure (MM) Description</b>	<b>Implementation Schedule</b>	<b>Responsible Party</b>
<p><b>BIO-2 Pre-Construction Nesting Bird Survey:</b></p> <p>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 preconstruction nesting-bird survey shall be conducted by a qualified avian biologist prior to Project-related disturbance within and adjacent to the Project area. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nesting locations and nesting behavior (including but not limited to copulation, carrying food or nesting materials, nest building, agitation, aggressive interaction, feigning injury, or distraction displays) to ensure that active bird-nests, including those for the northern-harrier, long-billed-curler, and burrowing-owl, will not be disturbed or destroyed. In addition, any clearing of vegetation that may occur is required to take place outside of the breeding season. The survey shall be completed no more than 3 days prior to initial ground disturbance. The nesting bird survey shall include the project area and all suitable areas, including trees, shrubs, bare ground, burrows, cavities, and structures 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 no-work disturbance-limit buffer zone around the nest, which will be based upon the biologist's best professional judgment, the birds' displayed behavior (agitation or stress), the nesting species, it's sensitivity to disturbance, nesting stage and expected types, and the intensity and duration of disturbance, using flagging or staking. The no-work buffer zone shall be clearly marked in a way that does not alert predators. Construction activities shall not occur within any no-work disturbance-limit buffer zones until the young birds have successfully fledged and the nest is deemed inactive by the qualified avian biologist.</p>	Prior to the start of Project related activities	Project Proponent
<p><b>BIO-4 Burrowing Owl Avoidance, and Minimization, and Mitigation</b></p> <p>Burrowing owl identified on site shall be mitigated per the guidance of the Staff Report on Burrowing Owl Mitigation (CDFG, 2012) such that (a) permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat such that the habitat acreage, number of burrows and burrowing owls impacted are replaced with permanent</p>	Prior to the start of Project related activities	Project Proponent



Luis Valenzuela, Planner II  
County of Imperial  
September 30, 2024  
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<p>conservation of similar vegetation communities (grassland, scrublands, desert, urban, and agriculture) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and (b) sufficiently large acreage, and presence of fossorial mammals.</p> <p>Take avoidance (pre-construction) surveys for burrowing owl shall be completed during the breeding and non-breeding seasons and within 14 days prior to the start of ground disturbance and 24 hours prior to project construction. Surveys shall be conducted by qualified biologists, 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.</p> <ul style="list-style-type: none"> <li>• If burrowing owl is identified during the non-breeding season (September 1 through January 31), a minimum 50-meter to 100-meter no-work buffer between active burrows and construction activities shall be established by the qualified biologist biological monitor for low-level disturbance. However, the minimum buffer shall be increased depending on the level of construction disturbance and construction activity (e.g., medium or high). 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.</li> <li>• If burrowing owl is identified during the breeding season (February 1 through August 31), then a 100-meter to 250-meter no-work an appropriate buffer will be established by the qualified biologist biological monitor in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012). A qualified biologist shall monitor the burrowing owls for any sign of distress and adjust the buffers as necessary to ensure no take occurs. Construction and disturbance activities within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present the burrow is inactive 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.</li> </ul> <p>If active burrows are present within the Project footprint and avoidance is infeasible, the following mitigation measures shall be implemented. If approved by CDFW through the Burrowing Owl Protection and Mitigation Plan (described below), passive relocation methods are to be used by the qualified biologist to exclude the owls out of the impact zone. Passive relocation shall only be done in the non-breeding season, where resident owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent</p>		
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Luis Valenzuela, Planner III  
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<p>survival, in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG, 2012) and a CDFW-approved Burrowing Owl Protection and Mitigation Plan. This includes covering or excavating all burrows and installing one-way doors into occupied burrows. This will allow any animals inside to leave the burrow but will exclude any animals from re-entering the burrow. If burrowing owls exhibit sign of stress in attempting to re-enter the burrow, the one-way-door shall be removed to prevent take of the individual. A period of at least 1 week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin. Only burrows that will be directly impacted by the Project shall be excavated and filled in to prevent their reuse. Off-site "replacement burrow site(s)" must consist of a minimum of two suitable, unoccupied burrows for every burrowing owl or pair to be passively relocated. As the Project construction schedule and details are finalized, a qualified biologist shall prepare a Burrowing Owl Protection and Mitigation Plan that will detail the approved, site-specific methodology proposed to avoid, minimize and mitigate impacts on this species. Passive relocation, destruction of burrows, construction of artificial burrows, and mitigation shall only be completed upon prior approval by and in coordination with CDFW. The Burrowing Owl Protection and Mitigation Plan shall include success criteria, remedial measures, active monitoring, and an annual report to CDFW, and shall be funded by the Project applicant. For the purposes of this mitigation measure, a "qualified biologist" is a biologist who meets the requirements set forth in CDFW's 2012 Staff Report on Burrowing Owl Mitigation and approved by CDFW.</p>		
<p><b>BIO-5 Pre-Construction Plant Surveys:</b></p> <p>Prior to the start of construction, a qualified biologist<sup>1</sup> shall conduct a botanical field survey following the methodology described in <i>Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities</i> (CDFW, March 2018). The survey shall be floristic in nature (i.e., identifying all plant species to the taxonomic level necessary to determine rarity), and shall be inclusive of areas proposed for disturbance and indirectly impacted by the Project. The results of the survey shall be documented in a letter report that will be submitted to San Bernardino County and CDFW. The survey shall be conducted annually until start of construction to ensure the floristic diversity is accurately captured and effective avoidance, minimization, and mitigation strategies are developed.</p> <p>If special-status plant species are observed during the pre-construction rare plant survey(s) within the development area of the Project, the Project shall be designed to reduce impacts to these species through the establishment of buffers, to the extent feasible.</p>	<p>Prior to the start of Project related activities</p>	<p>Project Proponent</p>

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<sup>1</sup> Botanical field surveyors should possess the following qualifications: Knowledge of plant taxonomy and natural community ecology; Familiarity with plants of the region, including special status plants; Familiarity with natural communities of the region, including sensitive natural communities; Experience with the CNDDB, DIOG, and Survey of California Vegetation Classification and Mapping Standards; Experience conducting floristic botanical field surveys as described in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW, March 2018), or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor; Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and Experience analyzing the impacts of projects on native plant species and sensitive natural communities.

<p>Buffer distances will be determined by the qualified biologist, typically 50 feet or greater from an identified special-status plant species, unless the Qualified Biologist determines a reduced buffer would suffice to avoid impacts to the species.</p> <p>If avoidance of special-status plant species is not feasible, a Special-Status Plant Relocation Plan shall be developed and implemented. The Special-Status Plant Relocation Plan shall address mitigation for special-status plants, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible nursery propagation, and planting; salvage and planting of bulbs as feasible; location of on-site receptor sites; land protection instruments for receptor areas; and funding mechanisms. The Special-Status Plant Relocation Plan shall include methods, monitoring, reporting, success criteria, adaptive management, and contingencies for achieving success.</p> <p>All special-status plant species identified on site shall be mapped onto a site-specific aerial photograph and topographic map and included on the construction, grading, fuel modification, and landscape plans.</p>		
<p><b>BIO-6 Avoidance of Sensitive Natural Communities:</b></p> <p>To the greatest extent practicable, Project plans shall avoid impacts to arrow-weed thickets. If arrow-weed thickets cannot be avoided, the Project applicant shall provide compensatory mitigation for direct impacts consisting of habitat acquisition at a minimum of a 3:1 ratio. Habitat acquisition sites shall be biologically equal or superior to existing conditions and must be conserved and managed in perpetuity.</p>	<p>Prior to the start of Project related activities</p>	<p>Project Proponent</p>

## Letter A

### California Department of Fish and Wildlife

September 30, 2024

- A-1** This comment is an introductory comment and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- A-2** This is an introductory comment that provides a general summary of the project and states the mission of the California Department of Fish and Wildlife (CDFW). This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- A-3** Comment acknowledged.
- A-4** CDFW specifically mentions that Abrams' spurge and hairy stickleaf do not have blooming periods in February, which is when the biological reconnaissance survey was completed. Abram's spurge flowers from September through November and occurs in sandy flats within Sonoran and Mojavean desert scrub. Hairy stickleaf flowers from April through May (Jepson Flora Project [JFP] 2024) and from March through May according to the California Native Plant Society Rare Plant Program (CNPS 2024). This plant species occurs in washes, fans, slopes, creosote-bush scrub, and Sonoran Desert scrub (rocky) (JPF 2024, CNPS 2024). The rationale for why both these species were determined to have a low potential to occur is due to a lack of habitat and only historic records in the project vicinity. Due to the developed nature of the Project area and high agricultural use, it is unlikely that these plants would be present and, even if they were, they would be restricted to the area within and around irrigation canals, which are the only areas that are not routinely disturbed by agricultural operations. The alfalfa fields are routinely disked and disturbed as part of current operations and access roads throughout are used by vehicles and equipment. The last documented occurrence of Abrams' spurge near the Project was in 1904. The last documented occurrence for hairy stickleaf near the Project was in 1961. Further, the Project does not propose to perform ground-disturbing work in or around the irrigation canals and, accordingly, would not disturb any sensitive plants, even if they were to exist there.

CDFW's recommendations for pre-construction plant surveys have been adopted in the Final EIR in Mitigation Measure BIO-2.

The EIR adopts CDFW's recommendation for two pre-construction botanical surveys, one sometime from September through November, and another in the spring. Due to the developed nature of the project area, ongoing disturbances due to agricultural operations, and lack of suitable habitat to support these rare plant species, it is highly unlikely that any individual plants would be observed within the project's disturbance area. If a rare plant were observed within the disturbance area during a pre-construction survey, it would need to be protected from disturbance, as outlined in Mitigation Measure BIO-2:

Prior to the start of construction, a qualified biologist shall conduct a botanical field survey following the methodology described in Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW, March 2018). The survey shall be floristic in nature (i.e., identifying all plant species to the taxonomic level necessary to determine rarity), and shall be inclusive of

areas proposed for disturbance and indirectly impacted by the Project. The results of the survey shall be documented in a letter report that will be submitted to Imperial County and CDFW. The survey shall be conducted annually until start of construction to ensure the floristic diversity is accurately captured and effective avoidance, minimization, and mitigation strategies are developed.

If special-status plant species are observed during the preconstruction rare plant survey(s) within the development area of the Project, the Project shall be designed to reduce impacts to these species through the establishment of buffers, to the extent feasible. Buffer distances will be determined by the qualified biologist, typically 50 feet or greater from an identified special-status plant species, unless the Qualified Biologist determines a reduced buffer would suffice to avoid impacts to the species.

If avoidance of special-status plant species is not feasible, a Special-Status Plant Relocation Plan shall be developed and implemented. The Special-Status Plant Relocation Plan shall address mitigation for special-status plants, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible nursery propagation, and planting; salvage and planting of bulbs as feasible; location of on-site receptor sites; land protection instruments for receptor areas; and funding mechanisms.

The Special-Status Plant Relocation Plan shall include methods, monitoring, reporting, success criteria, adaptive management, and contingencies for achieving success. All special-status plant species identified on site shall be mapped onto a site-specific aerial photograph and topographic map and included on the construction, grading, fuel modification, and landscape plans.

Botanical field surveyors will possess the following qualifications, and will be approved by Imperial County prior to any botanical field surveys: Knowledge of plant taxonomy and natural community ecology; Familiarity with plants of the region, including special status plants; Familiarity with natural communities of the region, including sensitive natural communities; Experience with the CNDDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards, Experience conducting floristic botanical field surveys as described in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW, March 2018), or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor; Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and Experience analyzing the impacts or projects on native plant species and sensitive natural communities.

**A-5** CDFW's comments on Mitigation Measure **BIO-4 (Pre-Construction Nesting Bird Survey)** (formerly Draft EIR Mitigation Measure BIO-2) have been incorporated into the Final EIR. These changes clarify and amplify the mitigation measure to ensure all impacts to bird species, including the long-billed curlew and northern harrier, from construction and other project activities will be reduced to less than significant levels.

**A-6** CDFW notes an inconsistency between Appendix E and Appendix F and the Draft EIR in terms of the discussion on potential disturbance to arrow-weed thickets. This is the excerpt from the Biological Resources and Burrowing Owl Survey Report (Appendix E of the Draft EIR):

"Arrow Weed Thicket: The *Pluchea sericea* Shrubland Alliance (arrow weed thickets) occur around springs, seeps, irrigation ditches, canyon bottoms, stream borders, and seasonally

flooded washes (Sawyer et al. 2009). Arrow weed thickets are recognized by CDFW as a sensitive vegetation type. The canals fall within the 500-foot buffer of the project footprint and thus within the survey area; however, none of the arrow weed thickets that occur within the survey area would be removed or disturbed by project activities with the exception of the thickets that would be spanned by the transmission line crossing of Beech Drain, Willoughby Road, Central Main Canal, and Dogwood Lateral 1.”

None of the arrow weed thickets that occur within the survey area would be removed or disturbed by project activities. There are arrow weed thickets present where the proposed distribution line would cross Beech Drain, Willoughby Road, Central Main Canal, and Dogwood Lateral 1, but the crossings would be on existing infrastructure and no vegetation removal or disturbance would be required. The arrow weed thickets would not be disturbed. This clarification has been made to Section 3.5 Biological Resources of the Final EIR.

To reiterate, the canals fall within the 500-foot buffer of the project footprint and thus within the survey area; however, none of the arrow weed thickets that occur within the survey area would be removed or disturbed by project activities. As described in the Draft EIR, Appendix E and Appendix F, no disturbance to arrow-weed thickets would occur as part of the project. All arrow-weed observed within the biological survey area was growing at or below the top of bank of canals. The project would not disturb these canals. Where the distribution line would have canal crossings, it would do so on an existing pipeline:

“A medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays.”

The Final EIR adopts CDFW’s recommendations for compensatory mitigation for direct impacts via habitat acquisition at a minimum of 3:1 ratio, if arrow-weed thickets cannot be avoided in Mitigation Measure BIO-3. This compensatory mitigation has been adopted as a precautionary measure, as no construction activities that would lead to a disturbance are proposed for the canals.

**A-7** As discussed in response to comment A-6, no Project activities are proposed to alter or disturb the local canals and, therefore, no impacts to arrow-weed would occur. All arrow-weed observed within the biological survey area was growing at or below the top of bank of canals. The project would not disturb these canals or the arrow-weed thickets growing along them. CDFW calls out the potential for black rail to be impacted if arrow-weed disturbances occur as a result of the project, because the black rails use arrow-weed habitats to forage and nest. No arrow-weed would be impacted, therefore, no loss of potential foraging habitat for black rail would occur. Moreover, pre-construction survey recommendations have been incorporated as a future precaution.

However, given the presence of arrow-weed thicket within the project area, the EIR has been revised to indicate that there is potential occurrence of California black rail in the vicinity. As discussed on EIR page 3.5-26, California black rail was determined to have a moderate likelihood of occurrence on the project site based on the presence of potentially suitable habitat. Further, as discussed on EIR page 3.5-26, the arrow-weed present at and below the top of bank of Beech Drain within the vicinity of the Project Site could support foraging habitat for California black rail, but this area is not proposed for disturbance. Implementation of

Mitigation Measure BIO-3, Avoidance of Sensitive Natural Communities would prevent adverse impacts to arrow-weed thickets and therefore no loss of potential foraging habitat for California black rail would occur. The impact would be less than significant.

- A-8** CDFW's comment letter contained revisions to the text of Mitigation Measure BIO-4 which included take avoidance surveys to be conducted during the breeding and non-breeding seasons. In response, two focused surveys for burrowing owls were conducted by a qualified biologist utilizing the methods detailed within Appendix D of the CDFG 2012 Staff Report on Burrowing Owl Mitigation. Burrowing owls were confirmed present during these two surveys. The Applicant will prepare an Incidental Take Permit application for submittal to CDFW. Additionally, per CDFW's comment letter, Final EIR Mitigation Measure BIO-7 (formerly Draft EIR Mitigation Measure BIO-4) has been revised to include a robust approach to burrowing owl mitigation, avoidance, and minimization, including the following measures:
- Burrowing Owl Protection and Mitigation Plan
  - Burrowing Owl Pre-Construction Surveys and Physical Barriers
  - Burrowing Owl Construction Monitoring
  - Avoidance
  - Passive Relocation and Land Management Planning
- A-9** As discussed on EIR page 3.5-28, burrowing owls and occupied burrows were confirmed present on the Project Site during surveys conducted in January and February 2025. Because the Project Area provides suitable habitat and was found to be occupied by burrowing owls, development of the Project would potentially impact individuals as well as remove the foraging habitat for the species. Therefore, impacts to burrowing owl and its habitat would be potentially significant. Formal consultation with CDFW and a State Incidental Take Permit (ITP) under California Fish and Game Code Section 2081 would be required and is recommended by CDFW (2025). CDFW recommends an ITP due to the potential for incidental take of burrowing owls and burrows in portions of the project work area where the required buffer distances indicated in the CDFW Staff Report (CDFG 2012) are infeasible due to the already small size of the project footprint. Several mitigation measures, as specified in the EIR and include MM BIO-1, MM BIO-6, MM BIO-7 and MM's BIO-9 through BIO-11, have been developed in consultation with CDFW to reduce impacts to burrowing owls to a less than significant level.
- A-10** Comment acknowledged. The Applicant will submit appropriate special status species and natural communities data identified as part of the project site biological resources surveys to the CNDDDB.
- A-11** The County acknowledges that payment of the environmental document filing fee is required for Project approval. The Project Applicants will provide payment upon submittal of the Notice of Determination of the Final EIR.
- A-12** The contact information for CDFW is received and acknowledged.





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October 1, 2024

Mr. Luis Valenzuela  
Planner II  
Planning & Development Services Department  
County of Imperial  
801 Main Street  
El Centro, CA 92243

**RECEIVED**

By Imperial County Planning & Development Services at 8:53 am, Oct 01, 2024

SUBJECT: NOA of a DEIR for the Dogwood Geothermal Energy Project combined with Heber 2 Solar and Heber Field Drilling Wells

Dear Mr. Valenzuela:

On September 26, 2024, the Imperial Irrigation District received from the Imperial County Planning & Development Services Department, the Notice of Availability of a Draft Environmental Impact Report for the Dogwood Geothermal Energy Project. The project is comprised of three components under separate Conditional Use Permits: The Dogwood Geothermal Energy Project (CUP 23-0020) includes a geothermal plant and associated ancillary and auxiliary facilities, a substation that will connect to the IID grid, a 7 megawatt "behind the meter" PV solar facility for supplemental/auxiliary energy, and a distribution cable from the proposed solar facility to the geothermal plant. The Heber 2 Solar Energy Project (CUP 23-0021) proposes a 15 MW "behind-the-meter" PV solar facility to provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant. The energy generated by the solar facility would be transmitted via a distribution cable like the DGEP. The Heber Field Company Geothermal Wells and Pipeline Project (CUP 23-0022) proposes the development of three geothermal production wells, one new geothermal injection well and 4,500 linear ft. of brine pipelines. The projects will be sited on 125 acres of land one mile south of Heber, CA and 0.5 miles west of Calexico, CA. The sites are within portions of three parcels: APNs 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex located at 855 Dogwood Road, Heber, CA, and APNs 059-020-001 and 054-250-017 are immediately southeast and east, respectively, of the H2GEC.

B-1

The IID has reviewed the DEIR and found that the comments provided in the July 3, 2024 and February 22, 2024 district letters (see attached) continue to apply.

B-2

Should you have any questions, please do not hesitate to contact me at 760-482-3009 or at [dvargas@iid.com](mailto:dvargas@iid.com). Thank you for the opportunity to comment on this matter.

B-3

Respectfully,

Donald Vargas  
Compliance Administrator II

Jamie Asbury – General Manager  
Mike Pacheco – Manager, Water Dept.  
Matthew H Smeiser – Manager, Power Dept.  
Paul Rodriguez – Deputy Manager, Power Dept.  
Geoffrey Holbrook – General Counsel  
Michael P. Kemp – Superintendent General, Fleet & Compliance Services  
Laura Cervantes – Supervisor, Real Estate  
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

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Since 1911

July 3, 2024

Mr. Luis Valenzuela  
Planner II  
Planning & Development Services Department  
County of Imperial  
801 Main Street  
El Centro, CA 92243

SUBJECT: 1<sup>st</sup> Admin. DEIR for the Dogwood Geothermal Energy Project

Dear Mr. Valenzuela:

On June 17, 2024, the Imperial Irrigation District received from the Imperial County Planning & Development Services Department, a request for agency comments on the 1<sup>st</sup> Administrative Draft Environmental Impact Report for the Dogwood Geothermal Energy Project. The project is comprised of the following components that constitute the project under three separate Conditional Use Permit applications: The Dogwood Geothermal Energy Project (CUP No. 23-0020) includes a geothermal plant, associated ancillary and auxiliary facilities, a new substation to connect to the IID grid, a 7 megawatt "behind the meter" PV solar facility for supplemental/auxiliary energy, and a distribution line from the proposed solar facility to the geothermal plant. The Heber 2 Solar Energy Project (CUP No. 23-0021) proposes a 15 MW "behind-the-meter" PV solar facility to provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant. The energy generated by the solar facility would be transmitted via a distribution cable like the DGEF. The Heber Field Company Geothermal Wells and Pipeline Project (CUP No. 23-0022) proposes the development of three geothermal production wells, one new geothermal injection well and 4,500 linear ft. of brine pipelines. The projects will be sited on approximately 125 acres of land approximately one mile south of Heber, California and approximately 0.5 miles west of Calexico, CA. The sites are within portions of three parcels: APNs 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex located at 855 Dogwood Road, Heber, CA, and APNs 059-020-001 and 054-250-017 are immediately southeast and east, respectively, of the H2GEC

B-4

The IID has reviewed the 1<sup>st</sup> Admin. DEIR and in addition to the comments provide in the in the February 22, 2024 district letter (see attached), has the following observations:

1. Per the May 18<sup>th</sup> 2023 ICPDS Department pre-application meeting, the project will not be seeking a water supply from IID. However, it appears the project will convert some agricultural fields into solar facilities, thereby, eliminating and/or substantially

B-5

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Luis Valenzuela  
July 3, 2024  
Page 2

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| <p>reducing irrigation to lands, thus altering the flow of discharge to the drains and to the Salton Sea which may result in impacts to protected species and to air quality. Thus, DEIR should address these issues.</p>                                                                                                                                                                                                                                                                                                                                                                               | <p>B-5<br/>cont.</p> |
| <p>2. IID water facilities that may be impacted by the project include the Date Drain No. 3, Beech Drain, Dogwood Lateral 2, Dogwood Canal, Central Main Canal, and the Beech Canal.</p>                                                                                                                                                                                                                                                                                                                                                                                                                | <p>B-6</p>           |
| <p>3. To determine magnitude of impacts and reduce impacts to IID Water Department facilities the project's plans (County of Imperial required grading &amp; drainage and fencing plans, etc.) are to be submitted to IID Water Department Engineering Services Section prior to final project design. If the project has a gen-tie transmission line component, early review of alignments is required by IID WDES Section to assess impacts to canals and drains before alignments are finalized. IID WDES Section should be contacted at (760) 339-9265 for additional information.</p>              | <p>B-7</p>           |
| <p>4. IID canal or drain banks cannot be used to access the project site. Any abandonment of easements or facilities will be approved by the IID based on systems (irrigation, drainage, Power, etc.) needs.</p>                                                                                                                                                                                                                                                                                                                                                                                        | <p>B-8</p>           |
| <p>5. For information regarding construction water, the applicant should contact IID's Water Department South End Division at (760) 482-9800.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>B-9</p>           |
| <p>6. For long-term water supply request and information regarding IID water supply policies, the applicant should contact Justina Gamboa-Arce, Planner Water Resources Senior, at (760) 339-9085 or <a href="mailto:jgamboaarce@IID.com">jgamboaarce@IID.com</a>.</p>                                                                                                                                                                                                                                                                                                                                  | <p>B-10</p>          |
| <p>7. In order to obtain a water supply from IID for a non-agricultural project, the applicant 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 stipulate, 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.</p>                                           | <p>B-11</p>          |
| <p>8. An IID encroachment permit is required to utilize existing surface-water drainpipe connections to drains and receive drainage service from IID. Surface-water drainpipe connections are to be modified in accordance with IID Water Department Standards. Before commencing construction and subsequent operation of the project, storm-water permits for construction and operation issued from California Regional Water Quality Control Board will also be required by IID. The project's CRWQCB Storm Water Pollution Prevention Plan and storm-water permits are to be submitted to IID.</p> | <p>B-12</p>          |

Luis Valenzuela  
July 3, 2024  
Page 3

9. Encroachment permit(s) are required for long-term facilities; site access driveways crossing canals and drains, industrial canal water service to the facility, surface drainage outlets to IID drains, overhead and underground electric and utilities crossing canals and drains. Site access driveways may require pipelining, which would be performed by IID Water Dept. per the IID Developer Project Guide: <https://www.iid.com/home/showpublisheddocument/2328/637838050015000000>. A water supply agreement is required for industrial canal water service. Project fencing is to be set back from IID canal and drain banks.

B-13

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at [dvargas@iid.com](mailto:dvargas@iid.com). Thank you for the opportunity to comment on this matter.

B-14

Respectfully,



Donald Vargas  
Compliance Administrator II

Enclosure

Jamie Asbury – General Manager  
Mike Pacheco – Manager, Water Dept.  
Matthew H. Snelser – Manager, Energy Dept.  
Paul Rodriguez – Deputy Mgr., Energy Dept.  
Geoffrey Holbrook – General Counsel  
Michael P. Kamp – Superintendent General, Fleet Services and Reg. & Environ. Compliance  
Luis Cervantes – Supervisor, Real Estate  
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.



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February 22, 2024

Mr. Luis Valenzuela  
Planner II  
Planning & Development Services Department  
County of Imperial  
801 Main Street  
El Centro, CA 92243

SUBJECT: NOP of a DEIR for the Dogwood Geothermal Energy Project, CUP 23-0020;  
Heber 2 Solar Energy Project, CUP 23-0021 and Heber Field Company  
Geothermal Wells & Pipeline Project, CUP 23-0022

Dear Mr. Valenzuela:

On January 19, 2024, the Imperial Irrigation District received from the Imperial County Planning & Development Services Department, the Notice of Preparation of a Draft Environmental Impact Report for the Dogwood Geothermal Energy Project, Heber 2 Solar Project and Heber Field Company Geothermal Wells & Pipeline Project, Conditional Use Permits 23-0020, 23-0021 and 23-0022, respectively. The Dogwood Geothermal Energy Project consists of a geothermal plant and associated ancillary and auxiliary facilities, a new substation that proposes to connect to the IID grid, a 7 megawatt "behind the meter" PV solar facility for supplemental energy, and a distribution line from the proposed solar facility to the geothermal plant (that will cross the Beech Drain and Central Main Canal at the existing above-ground pipeline span). The Heber 2 Solar Energy Project proposes a 15 MW "behind-the-meter" PV solar facility to provide supplemental energy to the existing Heber 2 geothermal plant. The energy generated by the solar facility would be transmitted via a distribution line like the Dogwood Geothermal Energy Project. The Heber Field Company Geothermal Wells and Pipeline Project intends to develop three geothermal production wells. The projects will be sites on approximately 125 acres of land in the southern portion of Imperial County, approximately one mile south of Heber, California and approximately 0.5 miles west of Calexico, CA. The sites are within portions of three parcels: APNs 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex located at 855 Dogwood Road, Heber, CA, and APNs 059-020-001 and 054-250-017 are immediately southeast and east, respectively, of the H2GEC.

B-15

The IID has reviewed the NOP of the DEIR and has the following comments:

1. To properly assess for potential impacts as covered in the environmental factor titled "UTILITIES AND SERVICE SYSTEMS" of the projects' Environmental Impact

B-16

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Report's Environmental Checklist, and determine if the projects will require or result in the relocation or construction of new or expanded electric power facilities, the construction or relocation of which could cause significant environmental effects, a facility study, system impact study and/or circuit study/distribution impact study, will have to be performed. Any system improvements or mitigation identified in such studies to accommodate a project shall be the responsibility of the projects' proponent and should be included as part of the project for environmental assessment purposes.

B-16  
cont.

2. For projects that will require distribution-rated electrical service for construction and/or operation, proponent should be advised to contact Joel Lopez, Project Development Planner Senior, at (760) 482-3444 or e-mail Mr. Lopez at [JLopez@IID.com](mailto:JLopez@IID.com) to initiate the customer service application process. In addition to submitting a formal application (available for download at <http://www.iid.com/home/showdocument?id=12923>), proponent will be required submit, electrical plans, electrical panel size and location, operating voltage, electrical loads, an AutoCAD file of the site plan, construction schedule, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The projects' proponent shall be responsible for all costs and mitigation measures related to providing electrical service to the projects.

B-17

3. The impacts to the Salton Sea, due to loss or reduction of agricultural runoff caused by agricultural land conversion to urban and/or solar use must be assessed in the DEIR. Due to the potential loss or reduction of inflow to the Salton Sea and to IID drains with its concurrent environmental impacts, the projects' proponent should address this issue as well as provide analysis that the projects do not impact the IID Water Conservation and Transfer Draft Habitat Conservation Plan (HCP), the existing Section 7 Biological Opinion and the California Endangered Species Act (CESA) Permit 2081.

Discussion of cumulative impacts considering other non-agricultural facilities whose water use changes (or potential water use changes) would reduce the inflow conveyed to IID drains and the Salton Sea, it is advisable that the projects' proponent present a cumulative impact analysis on inflow to IID drains and the Salton Sea.

B-18

The following are access links to the documents mentioned:

- The HCP is part of the IID Water Conservation and Transfer Project, Final EIR/EIS and can be found at the website [Water/Library/QSA-Water-Transfer/Environmental-Assessment/Permits/Final EIR/EIS; 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

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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 Endangered Species Act permit) is available 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/qa-water-transfer/environmental-assessments-permits/cesa-compliance>.
- The MMRP (Mitigation Monitoring and Report Program) is accessible at <https://www.iid.com/Water/Library/QSA-Water-Transfer/Mitigation>.

B-18  
cont.

4. To insure there are no impacts to IID water facilities, construction plans for the projects, including grading & drainage and fencing plans, should be submitted to IID Water Department Engineering Services Section for review prior to final project design. For additional information IID WDES Section should be contacted at (760) 339-9265.

B-19

5. Projects may impact IID drains with project site runoff flows draining into IID drains. To mitigate impacts, a comprehensive IID hydraulic drainage system analysis may be required. IID's hydraulic drainage system analysis includes an associated drain impact fee.

B-20

6. For construction water, the projects' proponent will need to submit a Temporary Water Account Application to the IID. Furthermore, the use of IID water during a project's construction phase will require an encroachment permit. Once a project moves forward an onsite reservoir will need to be designed and constructed by the proponent to ensure that the project has at least a six-day supply of water available in case of maintenance or construction projects on the supply canal. For additional information regarding construction water, the applicant should contact IID's Water Department North End Division at (760) 482-9900.

B-21

7. The projects' proponent will be required to provide rights of way and easements for any proposed power line extensions and/or any other infrastructure needed to serve the projects as well as the necessary access to allow for continued operation and maintenance of any IID facilities located on adjoining properties. Proponent shall provide a surveyed legal description and associated exhibit certified by a licensed surveyor for all rights of way deemed necessary by IID to accommodate a projects' electrical infrastructure. ROWs and easements shall be in a form acceptable to and at no cost to IID for installation, operation, and maintenance of all electrical facilities.

B-22



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- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <p>8. Public utility easements over all private public roads and additional ten (10) feet in width on both side of the private and public roads shall be dedicated to IID for the construction, operation, and maintenance of its electrical infrastructure.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>B-23</p> |
| <p>9. 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 the website <a href="https://www.iid.com/about-iid/departments-directory/real-estate">https://www.iid.com/about-iid/departments-directory/real-estate</a>. The district Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements. No foundations or buildings will be allowed within IID's right of way.</p> | <p>B-24</p> |
| <p>10. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.</p>                                                                                                                                                                                                                                                | <p>B-25</p> |
| <p>11. IID encroachment permit(s) are required for temporary construction water, construction drainage, and construction access crossing canals and drains. IID canal and drain banks are not to be used or obstructed during construction of the projects.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>B-26</p> |
| <p>12. Any new, relocated, modified or reconstructed IID facilities required for and by a 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 projects proponent.</p>                                                                                                                                         | <p>B-27</p> |
| <p>13. Dividing a project into two or more pieces and evaluating each piece in a separate environmental document (Piecemealing or Segmenting), rather than evaluating the whole of the project in one environmental document, is explicitly forbidden by</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>B-28</p> |

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CEQA, because dividing a project into a number of pieces would allow a Lead Agency to minimize the apparent environmental impacts of a project by evaluating individual pieces separately, each of which may have a less-than-significant impact on the environment, but which together may result in a significant impact. Segmenting a project may also hinder developing comprehensive mitigation strategies. In general, if an activity or facility is necessary for the operation of a project, or necessary to achieve the project objectives, or a reasonably foreseeable consequence of approving the project, then it should be considered an integral project component that should be analyzed within the environmental analysis. The project description should include all project components, including those that will have to be approved by responsible agencies. The State CEQA Guidelines define a project under CEQA as "the whole of the action" that may result either directly or indirectly in physical changes to the environment. This broad definition is intended to provide the maximum protection of the environment. CEQA case law has established general principles on project segmentation for different project types. For a project requiring construction of offsite infrastructure, the offsite infrastructure must be included in the project description. *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App. 4th 713.

B-28  
cont.

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at [dvargas@cid.com](mailto:dvargas@cid.com). Thank you for the opportunity to comment on this matter.

B-29

Respectfully,

  
Donald Vargas  
Compliance Administrator II

Jamie Aubrey – General Manager  
Mia Pacheco – Manager, Water Dept.  
Matthew H. Smeiser – Manager, Energy Dept.  
Geoffrey Holbrook – General Counsel  
Michael P. Kemp – Superintendent General, Fleet Services and Reg. & Environ. Compliance  
Laura Cervantes – Supervisor, Real Estate  
Jasika Humes – Environmental Project Mgr. Sr., Water Dept.

## Imperial Irrigation District

October 1, 2024

- B-1** This comment is an introductory comment and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- B-2** Comment acknowledged.
- B-3** The contact information for the Imperial Irrigation District (IID) is received and acknowledged.
- B-4** This comment provides a general summary of the project and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- B-5** The Draft EIR addresses the potential direct and cumulative impacts of agricultural conversion to IID drains and the Salton Sea HCP in multiple sections of the Draft EIR, including in Section 3.5 (Biological Resources), Section 3.11 (Hydrology), Section 3.17 (Utilities and Service Systems), and Chapter 5.0 (Cumulative Impacts) and concludes that impacts related to protected species and air quality would be less than significant. As discussed below, the Draft EIR found that 1) the reduction in irrigation water reaching IID canals from temporarily converting the site from agricultural to non-agricultural is cumulatively less than significant; 2) the Project would not significantly alter the drainage pattern of the site; and 3) the Interim Water Supply Policy (IWSP) and the Temporary Land Conversion Following Policy (TLCFP) provide a framework to address potential cumulative impacts from non-agricultural uses, such as this Project, on IID's ability to meet its obligations under the Salton Sea HCP. Because of these reasons as discussed in more detail below, the potential impacts to protected species and air quality would be less than significant.

### The Reduction in Irrigation Water Reaching IID Canals is Both Directly and Cumulatively Less Than Significant

As provided in Section 5.3.16 (Cumulative Effects – Utilities and Service Systems) of the Draft EIR, implementation of the Project would result in conversion of approximately 106.9 acres of land currently under or available for agricultural production to non-agricultural uses. To provide a quantitative assessment of the reduction of irrigation water entering IID canals, information provided in Section 5.3.16, as follows, has been expanded upon to provide clarification in the Final EIR.

“Additionally, as reported for IID's 2020 Temporary Land Conversion Following Program, solar developments at the end of 2020 converted 12,404 acres of farmland, approximately half the acreage set aside by the County for conversion. These projects had a yield at-river of 65,964 AF of water in 2020 and 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, representing a significant cumulative net benefit to IID's water supply.”

Applying the 5.1 AFY rate for agricultural conversion to this Project (approximately 106.9 acres of possible temporarily converted lands – 22.94 acres of Prime farmland and 83.94 of Farmland of Statewide Importance) would result in a reduction of estimate of the amount of irrigated waters reaching IID canals, which assumes that 100% of the irrigated waters sheet

flows into the canals (i.e., does not account for any soil infiltration or evaporation in the canals along 25 miles to the Salton Sea). Based on IID's 2023 Water & QSA Implementation Report, there are 445,000+ annual irrigated acres within their service area. The conversion of approximately 106.9 acres from agriculture to solar facilities, and resulting 545.2 AFY decrease in potential agricultural water reaching IID canals, represents a 0.024% reduction in annual irrigated acres within IID's service area. In 2023, the total water inflow to the Salton Sea was 988,000 acre-feet (TAFY; CNRA 2024); therefore, the conversion of the agricultural land for the Project would result in a maximum reduction of 0.05% (545 AFY/988,000 AFY) of inflow to the Salton Sea. Therefore, the amount of irrigated water draining into IID canals, and the subsequent New and Alamo Rivers and eventually the Salton Sea (25 miles away), would be nominally reduced with no significant impact. The project's reduction of 0.024% in annual irrigated acres would not impact protected species or air quality in the basin, as the reduction in water that ultimately drains to the Salton Sea is not of a magnitude that would result in any potentially significant impacts to species or air quality.

The cumulative impact to biological resources as a result of fallowing agricultural fields would be less than significant.

Assuming that every project provided in Table 5-1 in the Draft EIR would temporarily convert the full amount of project space to non-agricultural use, approximately 40,666 acres are under consideration for renewable energy or battery storage. The proposed Project would temporarily convert 106.9 acres, which represents 0.3% of the total proposed acreage in the cumulative analysis area (Figure 5-1 in Draft EIR). In terms of AFY, the Project would have the potential to generate a reduction of 545.2 AFY from its conversion of 106.9 acres (at 5.1 AFY); this 545.2 AFY represents 0.3% of the overall potential cumulative impact of approximately 207,397 AFY from all projects included in Table 5-1. Because the project represents less than 1% of the potential cumulative impacts, the Project would not significantly contribute to cumulative impacts to IID canals or the Salton Sea HCP, including as it relates to air quality and biological resources.

Furthermore, as discussed in Section 5.3.10 (Cumulative Impacts - Hydrology), land use conversion to non-agricultural uses is not the only reason for potential drawdown of the inflows to the Salton Sea. For example, the Draft EIR sites that "Due to increased demand for water supplies in the region and IID water transfer agreements, increasing amounts of water are being consumed in Imperial Valley. In addition, water is also being transferred out of the Valley to population centers such as San Diego County, thus reducing inflows to the Salton Sea." However, following the end of mitigation water flows at the end of 2017, CNRA reported that total estimated inflows to the Salton Sea remained stable through 2022, and dropped in 2023 by approximately 7 percent from the average of the prior five years of data (1,064 TAFY from 2018 to 2022) (CNRA 2024). Accordingly, the rates of runoff reductions attributable to the temporary conversion of agricultural land discussed above are likely conservative estimates and the impacts would probably be even lower than estimated.

#### The Project Site Would Not Significantly Alter The Existing Drainage Pattern

The Draft EIR discusses how the Project would not alter the existing drainage pattern of the Project site in several places, including in both direct and cumulative impacts. As discussed in the Draft EIR, the Project would not create a large amount of impervious surfaces and stormwater would continue to directly infiltrate into exposed soils. Therefore, the Project would not significantly alter the drainage pattern of the Project site or surrounding area. The following

excerpts from the Draft EIR discuss and substantiate that stormwater drainage would continue to directly infiltrate after Project construction and during operations.

Section 3.11.3 (Hydrology – Impacts and Mitigation Measures) discusses the potential direct impacts of developing the Project on stormwater facilities and management, as follows:

“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 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 less than significant impacts associated with the alteration of drainage patterns resulting in on- or off-site flooding. Upon implementation of Mitigation Measure HYD-2, impacts would be less than significant.

The Draft EIR also discusses potential cumulative impacts in Section 5.3.10, as follows:

“...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 reduction of runoff to the Salton Sea during project construction and operation is not expected to combine with similar impacts of large scale proposed, approved and reasonably foreseeable renewable energy projects identified in Table 5-1. As such, the projects would not result in a significant cumulatively considerable impact on floodplains by constructing new facilities within an identified flood hazard zone. Likewise, cumulative impacts associated with runoff reduction would be less than cumulatively considerable.”

#### The IWSP and the TLCFP Provide Adequate Framework for Non-Agricultural Projects

IID has programs and policies in place that plan for and manage water demands from non-agricultural projects or agricultural conversion/fallowing projects in the Interim Water Supply (IWSP) for Non-Agricultural Projects and the Temporary Land Conversion Fallowing Policy (TLCFP). The Draft EIR discusses the Project’s applicability to these programs and sites the ample water budget of 23,800 AFY (of 25,000 AFY total) available for non-agricultural projects.

Collectively, these programs/policies allow IID to provide water to non-agricultural projects but also serve as a planning/management framework for IID to account for non-agricultural projects in the overall water budget, including allocating flows to the Salton Sea.

The Draft EIR discusses these policies and programs in Section 3.17.2 (Utilities and Service Systems) for the IWSP and TLCFP, as follows:

*“Imperial Irrigation District Interim Water Supply Policy (IWSP) 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, while the Integrated Regional Water Management Plan was pending approval. 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 water 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 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 Following Policy (TLCFP)*

The Imperial Irrigation District Temporary Land Conversion Following Policy was adopted by the IID Board of Directors on May 8, 2012. This policy developed a framework for a temporary, long-term following program to work in concert with the IWSP, and in line with the coordinated land use/water supply strategy.

The TLCFP works to coordinate land use/ water supply policy that would assign water supplies to categories of use consistent with land use zoning designations and adapt to land use changes as non-agriculture projects are sited in agricultural zones through the County CUP system (i.e., Renewable Energy Overlay). Renewable energy 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 water treatment to meet potable water standards. This following program satisfies multiple district objectives and serves to reduce the conservation and water use demands on other IID water users and thus provides district-wide benefits.”

As concluded in Section 3.17.3 (Utilities and Service Systems) of the Draft EIR, “As of February 2023, a balance of 23,800 AFY remains available under the IWSP for new non-agricultural projects. The project’s estimated water demand would not affect IID’s ability to provide water to other users in IID’s water service area.” Therefore, with such a large balance of available water under the IWSP for non-agricultural projects, the Draft EIR concludes that potential impacts to IID’s ability to allocate flows to the Salton Sea would be less than significant.



Additionally, Section 5.3.4 (Cumulative Impacts – Biological Resources) found that IID’s IWSP and TLCFP adequately manage potential indirect and cumulative impacts from fallowing or converting lands to non-agricultural uses, as follows:

“Further, the proposed project would result in a net decrease in water demand, which would provide a benefit to IID’s water budget and available supply for the Salton Sea. Implementation of the project would result in fallowing of currently irrigated agricultural fields. The IID’s “Imperial Valley Natural Community Conservation Plan and Habitat Conservation Plan Planning Agreement No. 2810-2004-001-06” (February 2006) covers water conservation and irrigation and drainage of land to which IID delivers water to which the environmental impacts and various approaches to mitigate potential impacts to the Salton Sea include fallowing agricultural lands as identified in the HCP Final EIR/EIS. EIR Section 3.17.2 discusses the IID’s Interim Water Supply Policy (IWSP) for Non-Agricultural Projects and Temporary Land Conversion Fallowing Policy (TLCFP) adopted by the IID and according to the TLCFP “This fallowing program satisfies multiple district objectives and service to reduce the conservation and water use demands on other IID water uses and thus provide district-wide benefits.”

**B-6** The Draft EIR acknowledges the presence of these IID water facilities and discusses potential impacts to the drains/canals in several sections, including:

- Section 3.5.1 (Aquatic Resources)
- Table 3.5-2 (Jurisdictional Waters within Disturbance Area)
- Section 3.5.3 (Impacts 3.5-2; 3.5-3)
- Section 3.6.1 (Cultural Resources – Existing Conditions)
- Section 3.6.3 (Impact 3.6-1)
- Section 3.6.1.2 (History of Imperial Irrigation District Canal System)
- Section 3.11.1 (Hydrology/Water Quality – Existing Conditions)
- Section 3.11.3 (Impacts 3.11-1; 3.11-3; 3.11-4; 3.11-5; 3.11-6)

As noted in these sections, no significant impacts to IID canals or facilities would occur under the Project.

**B-7** As provided in Section 2.3, the Project does not propose to alter or disturb any existing IID facilities in the Project area. The Project will create an on-site substation so a gen-tie line is not proposed, and the parasitic solar load will be delivered via a medium voltage cable that will be hooked onto an existing pipeline alignment and IID canal crossing. The Project Applicants will submit the required plans to IID for review to concur with this finding prior to construction.

**B-8** As provided in Section 2.3, the Project does not propose to utilize or disturb any IID canals to access the Project site. (See, e.g., Draft EIR pages 2-8, 2-13 [explaining that addition of medium voltage distribution line would use existing pipeline infrastructure to cross Beech Drain and Main Canal, resulting in no new impact to the IID canals].) The Project also does not propose to abandon or retire any IID facilities present on/near the Project site.

**B-9** As provided in Section 2.4.5 (Water Use), the Project Applicants proposes to utilize its existing contract with IID to perform “construction activities, including grading and dust control... Water



necessary for these activities would be obtained from local irrigation canals in conformance with IID requirements.”

**B-10** As provided in Section 2.4.5 (Water Use), the Applicants will utilize its existing contract with IID to perform operations, “Once operating, up to approximately 325 gpd (0.36 acre-feet per year) of non-potable water will be required and provided by the Project Applicants’ existing IID contract/allocation.”

**B-11** Please refer to response to comment B-10.

**B-12** The Beech Drain, where the medium voltage cable would hook onto an existing pipeline crossing, has an existing IID encroachment permit. The permit holder may seek to modify the terms of the permit to accommodate this minor addition, if necessary, as determined by IID.

As discussed in Section 1.2, the Project will adhere to the required stormwater permitting process with the Regional Water Quality Control Board and IID.

**B-13** Please refer to responses to comments B-10 and B-12.

**B-14** The contact information for the IID is received and acknowledged.

**B-15** This comment provides a courtesy copy of IID’s comments on the Notice of Preparation of the Draft EIR. These comments were considered by the County in preparing the Draft EIR as part of the scope of the Draft EIR’s analysis.

This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

**B-16** Please refer to response to comment B-7.

**B-17** A new subsection has been included in Section 1.1 (Other Agencies Reviews and/or Consultations) of the Final EIR to include IID’s plan review process, as follows:

*Imperial Irrigation District*

- Prior to construction, the Applicant will submit project plans to IID Water Department Engineering Services to concur that the Project would not disturb any IID drains, canals, or facilities in the Project area. If IID determines otherwise, a comprehensive IID hydraulic drainage system analysis may be required.
- Prior to construction, the Applicant will submit electrical plans, electrical panel size and location, operating voltage, electrical loads, an AutoCAD file of the site plan, construction schedule, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project.
- Prior to construction, the Applicant will submit the required documents to obtain an encroachment permit from IID to utilize the existing canals to provide water for construction activities.

**B-18** Please refer to response to comment B-5. As discussed, because the project represents less than 1% of the potential cumulative impacts, the Project would not significantly contribute to cumulative impacts to IID canals or the Salton Sea HCP, including as it relates to air quality and biological resources, and related regulatory permits.

**B-19** Please refer to response to comment B-7.

**B-20** Please refer to response to comments B-12 and B-17.

- B-21** Please refer to response to comments B-12 and B-17.
- B-22** The Project would develop an on-site substation and not include any offsite transmission infrastructure; therefore, no ROWs or easements are expected to be required for grid interconnection, and such improvements are not reasonably foreseeable. Further, the Project does not propose to alter site access and IID would continue to have direct access to its facilities. There is no foreseeable need for interconnection to IID infrastructure. The Project proposes to develop a dedicated substation to step-up the power and send it to the grid.
- B-23** The Project does not propose a public utility easement. The Project proposes to develop a dedicated substation to step-up the power and send it to the grid, whereas no off-site transmission improvements are foreseeably needed. This will be confirmed in IID's Executed System Impact Study Agreement process that was initiated in March 2024 and is still in process.
- B-24** Please refer to responses to comments B-12 and B-17.
- B-25** Please refer to responses to comments B-12 and B-17.
- B-26** Please refer to responses to comments B-12 and B-17.
- B-27** Please refer to response to comment B-8.
- B-28** As provided in Chapter 2.0 (Project Description), the Draft EIR addresses potential impacts from three separate CUP actions under one document. This was done to assess the "whole of the action" and avoid any potential segmenting of analysis.
- B-29** The contact information is received and acknowledged.

198 SOUTH NINTH STREET  
EL CENTRO, CA 92243-2850



TELEPHONE: (642) 265-1800  
FAX: (642) 265-1799

October 2, 2024

Jim Minnick  
Planning & Development Services Director  
801 Main Street  
El Centro, CA 92243

SUBJECT: Review of Draft Environmental Impact Report for Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and Heber Field Company Geothermal Wells and Pipeline Project

Dear Mr. Minnick:

The Imperial County Air Pollution Control District (Air District) appreciates the opportunity to review and comment on Administrative Review (ADM) of Draft Environmental Impact Report (DEIR) for Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and Heber Field Company Geothermal Wells and Pipeline Project (Project). The project proposes the development of an Integrated Two Level Unit (ITLU) Air Cooled Ormat Energy Converter (OEC), two 20,000-gallon isopentane tanks, a 7 MW parasitic solar facility, underground distribution line, and substation under CUP 23-0020. The development of a 15 MW solar energy facility that will provide a parasitic load to the existing Heber 2 plant under CUP 23-0021. Finally, the development of up to six geothermal production wells, one geothermal injection well, and approximately 4,500 linear feet of new pipeline under CUP 23-0022. The project spans across portions of three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC.

C-1

The DEIR determined the project's impacts on air quality would be less than significant and identified six mitigation measures identified as AQ-1, AQ-2, AQ-3, AQ-4, AQ-5, and AQ-6 to be implemented for the project. The DEIR identified an Air Quality Analysis (AQA) for the project in the Table of Contents identified as Appendix D – Air Quality and Greenhouse Gas Technical Report. Air District staff reviews all Air Quality Analyses to ensure enforceability and consistency of air analysis methodology to the Imperial County Air Pollution Control District CEQA Air Quality Handbook (Handbook), Air District Rules & Regulations, and Air District guidelines; however, the AQA was not provided for review and the Air District is unable to comment on the AQA or

C-2

C-3

supporting modelling. While the Air District cannot comment on the AQA, given the permitting requirements of the project in conjunction with the implementation of mitigation measures AQ-1 – AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation with one update for AQ-4.

C-3  
cont.

The DEIR in table 3.4-10 Mitigated Project Construction – Generated Emissions (lbs/day) finds the construction PM10 emissions exceed emission thresholds, however, the DEIR correctly states the guidance in the Handbook is to address construction emissions qualitatively. Given the CalEEMod information the Construction Dust Control Plan as discussed in AQ-4 must be an **Enhanced Dust Control Plan**, which exceeds the standard measures of the Dust Control Plan. The forms for the Construction Dust Control Plan can be found at <https://apcd.imperialcounty.org/planning/#construction>, the Air District also requests the applicant submit a Construction Notification Form 10 days prior to earthmoving beginning for the project.

C-4

The Air District considered the project in portions consisting of the construction and operation of each of the geothermal expansion/wells and the solar field project. Review of office records shows the existing facility identified as Heber 2, as currently constructed and operating, operates under Air District Permit to Operate #2217. Given the proposed developments of the project, the applicant will need to submit an amended application for engineering review of the facility and must be issued an Authority to Construct/Permit to Operate (ATC/PTO) prior to construction of the project beginning. The applicant must submit a permit application for engineering review of the project, pay the applicable review fees, and coordinate with the Air District Engineering and Permitting Division directly to determine the permitting requirements of the project. The solar portion of the project will not fall under engineering permitting.

C-5

AQ-1 – AQ-6 mitigation measures are identified in the EIR as:

#### **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 (PM10) Control**

- All disturbed areas, including bulk material storage, which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material, such as vegetative ground cover.
- All on-site and offsite unpaved roads will be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.

C-6



- 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 the 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.**

All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 4 Final California Emission Standards for Off-road Compression-Ignition Engines as specified in CCR, Title 13, Section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 4 Final Engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide NOx and particulate matter emissions that are equivalent to Tier 4 engine. Drill Rig engines shall meet a minimum of Tier 4 Interim California Emission Standards. A list of the Construction equipment, including all off-road equipment utilized at the project site 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 NOx Analysis. ICAPCD shall utilize his list to calculate air emissions to verify that equipment use does not exceed the significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.

C-6  
cont.

**AQ-3 Dust Suppression.**

The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. All unpaved roads associated with construction shall be effectively stabilized of dust emissions using stabilizers/suppressant before the commencement

of all construction phases. This will be conducted monthly at a rate of 0.1 gallon/ square yard of chemical dust suppressant. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department).

**AQ-4 Dust Suppression Management Plan.**

Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

**AQ-5 Operational Dust Control Plan.**

Prior to issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval. ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.

**AQ-6 Speed Limit.**

During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on unpaved roads to 15 miles per hour or less.

C-6  
cont.

The construction emissions of both the geothermal expansion/wells and the solar field will be controlled via mitigation measures AQ-1 – AQ-4, AQ-5, and AQ-6, the geothermal expansion/wells construction emissions will also be controlled via the ATC/PTO. Operational emissions of the geothermal expansion will be controlled via the ATC/PTO, which must be maintained active during operation, and relevant Rules and Regulations. Finally, operational emissions of the solar field will be controlled via the approved Operational Dust Control Plan, which is periodically reviewed for consistent implementation.

The Air District requests AQ-1 – AQ-6 be included as conditions of the CUP, with the following changes in language to AQ-4:

**AQ-4 Dust Suppression Management Plan.**

Prior to any earthmoving activity, the applicant shall submit an **enhanced** construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

The Air District also requests a copy of each draft CUP prior to recording for review of relevant conditions of the CUP.

C-7

The Air District would like to remind the applicant that the equipment lists as described in AQ-2 will be used to calculate NOx emissions during construction to ensure emission threshold limits are not exceeded. If the Air District determines NOx thresholds were exceeded the project may be subject to Policy 5 fee requirements. Finally, the Air District would inform the applicant that as

C-8

part of AQ-5, finalization of the Operational Dust Control Plan will require a site visit by Air District staff. C-8  
cont.

All Air District rules and regulations can be found for review on our website at <https://apcd.imperialcounty.org/rules-and-regulations/>. Please contact our office at (442) 265-1800 if you have any further questions or concerns. C-9

Respectfully,

  
Ismael Garcia  
Environmental Coordinator

  
Monica N. Soucier  
APC Division Manager



## Imperial County Air Pollution Control District

October 2, 2024

- C-1** This comment is an introductory comment and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- C-2** This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- C-3** Please refer to responses to comments I-2 and I-3. Since submitting this comment, Imperial County Air Pollution Control District (ICAPCD) has reviewed the emissions model and found it to be accurate and consistent with Air District guidelines. As provided in their comment letter, ICAPCD concurs with the findings and mitigation framework in the Draft EIR.
- C-4** Mitigation Measure AQ-4 in the Final EIR will be updated per ICAPCD's updated language for Dust Control Plan to Enhanced Dust Control Plan. This revision will not change any findings or conclusions in the Final EIR. Of note, finalization of the Operational Dust Control Plan per Mitigation Measure AQ-5 will require a site visit by Air District staff, which is standard practice.
- C-5** It is understood that ICAPCD will require an amendment to the existing air permit for Heber 2 site, which will add in the new Dogwood OEC unit and ancillary equipment to consolidate all air permitting into one permit for all facilities within the Heber 2 complex. This will require an application for amendment PTO #2217 and will make the entire Heber 2 facility subject to ICAPCD engineering review. However, for purposes of the Final EIR, Section 3.4.2 (Air Quality – Regulatory Setting) provides a comprehensive breakdown of these regulatory permitting requirements. Air quality impacts from both facilities are considered in the Cumulative Impacts analysis in Section 5.3.3 of the Draft EIR.
- C-6** This comment summarizes the Project's air quality mitigation measures from the Draft EIR and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- C-7** Comment acknowledged. The Project Applicant will provide ICAPCD a copy of each draft CUP for the Project.
- C-8** Comment acknowledged.
- C-9** The ICAPCD rules and regulations and contact information is received and acknowledged.

**ADAMS BROADWELL JOSEPH & CARDOZO**  
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TARA C. RENOIFO

August 15, 2024

OF COUNSEL  
MARC D. JOSEPH  
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**Via Email and U.S. Mail**

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Luis Valenzuela, Planner  
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**Re: Public Records Act Request – Dogwood Geothermal Energy  
Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-  
0022)**

Dear Mr. Minnick, Ms. Acosta, Ms. Alvarado, and Mr. Valenzuela:

We are writing on behalf of California Unions for Reliable Energy ("CURE") to request a copy of any and all public records related to the Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022), proposed by Ormat Technologies, Inc. (d.b.a. OrHeber 3, LLC, Heber Field Company, LLC, and Second Imperial Geothermal Company) (collectively, the "Applicants"). This request includes, but is not limited to, any and all file materials, applications, correspondence, resolutions, memos, notes, analysis, email messages, files, maps, charts, and any other documents related to the Project.

D-1

The Project includes three Conditional Use Permit (CUP) applications for the construction and operation of the following projects proposed in Imperial County, California: 1) Dogwood Geothermal Energy Project (CUP No. 23-0020), proposed by OrHeber 3, LLC; 2) Heber 2 Solar Energy Project (CUP No. 23-0021), proposed by

D-2

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August 15, 2024  
Page 2

Second Imperial Geothermal Company; and 3) Heber Field Company Geothermal Wells and Pipeline Project (CUP No. 23-0022), proposed by Heber Field Company, LLC.

The Dogwood Geothermal Energy Project would include a 25-megawatt (MW) geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 MW parasitic solar photovoltaic (PV) facility, and medium voltage distribution line from the proposed solar facility to the proposed geothermal plant. This project would be located at 855 Dogwood Road, Heber, CA. The Assessor Parcel Number (APN) is 054-250-31.

D-2  
cont.

The Heber 2 Solar Energy Project proposes to construct a 15 MW parasitic solar energy facility that would provide supplemental/auxiliary energy to existing the Heber 2 Geothermal Energy Complex (HGEC). This project would be located southeast of the HGEC in the northern portion of APN 059-020-001.

The Heber Field Company Geothermal Wells and Pipeline Project would include three new geothermal productions wells, one new injection well, and interconnecting brine pipelines. The wells will be sited at three of six potential locations (APNs 059-020-001 and 054-250-017). The injection well would be installed within the HGEC, immediately next to the proposed Dogwood geothermal unit.

This request is made pursuant to the **California Public Records Act** (Government Code §§ 7920.000, *et seq.*). This request is also made pursuant to Article I, section 3(b) of the California Constitution, which provides a Constitutional right of access to information concerning the conduct of government. Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to government information and further requires that any statute that limits the right of access to information shall be narrowly construed.

D-3

We request access to the above records in their original form, as maintained by the agency.<sup>1</sup> Pursuant to Government Code Section 7922.570, if the requested documents are in electronic format, please upload them to a file hosting program such as Dropbox, NextRequest or a similar program. Alternatively, if the electronic documents are 10 MB or less (or can be easily broken into sections of 10 MB or less), they may be emailed to me as attachments.

D-4

<sup>1</sup> Gov. Code § 7922.570; *Sierra Club v. Super. Ct.*, (2013) 57 Cal. 4th 157, 161-62.

August 15, 2024  
Page 3

We will pay for any direct costs of duplication associated with filling this request up to \$200.<sup>2</sup> However, please contact me at (650) 589-1660 with a cost estimate before copying/scanning the materials.

Please use the following contact information for all correspondence:

**U.S. Mail**

Jane Abrams  
Adams Broadwell Joseph & Cardozo  
601 Gateway Boulevard, Suite 1000  
South San Francisco, CA 94080-7037

**Email**

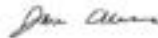
[jabrams@adamsbroadwell.com](mailto:jabrams@adamsbroadwell.com)

D-4  
cont.

If you have any questions, please call me at (650) 589-1660 or email me at [jabrams@adamsbroadwell.com](mailto:jabrams@adamsbroadwell.com). Thank you for your assistance with this matter.

D-5

Sincerely,



Jane S. Abrams  
Legal Assistant

JSA:acp

<sup>2</sup> Gov. Code §§ 7922.530, 7922.575; *North County Parents v. Dept. of Education* (1994) 23 Cal.App.4th 144; *County of Los Angeles v. Super. Ct.* (2000) 82 Cal.App.4th 819, 826.

0939-002acp



**Adams Broadwell Joseph & Cardozo**

**August 15, 2024**

- D-1** On August 20, September 3, and November 21, 2024, Imperial County responded to the records requests by providing the requested technical documents/materials.
- D-2** This comment provides a general summary of the project and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- D-3** Comment acknowledged.
- D-4** Comment acknowledged, please refer to response to comment D-1.
- D-5** The contact information is received and acknowledged.

**ADAMS BROADWELL JOSEPH & CARDOZO**  
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801 GATEWAY BOULEVARD, SUITE 1000  
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TARA C. RENGIFO

September 18, 2024

OF COUNSEL  
MARC D. JOSEPH  
DANIEL L. CARDOZO

**Via Email and U.S. Mail**

Jim Minnick, Director  
Luis Valenzuela, Planner I  
Planning & Development Services  
Imperial County  
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JimMinnick@co.imperial.ca.us  
[luisvalenzuela@co.imperial.ca.us](mailto:luisvalenzuela@co.imperial.ca.us)

**Re: Request for an Extension of the Comment Period for the Draft  
Environmental Impact Report Prepared for the Dogwood  
Geothermal Energy Project (2024010510)**

Dear Mr. Minnick, Mr. Valenzuela, Ms. Acosta:

We are writing on behalf of California Unions for Reliable Energy ("CURE") to respectfully request that the County of Imperial ("County") extend the public review and comment period of the Draft Environmental Impact Report ("DEIR")<sup>1</sup> prepared for the Dogwood Geothermal Energy Project (SCH No. 2024010510) ("Project"), which currently ends October 2, 2024<sup>2</sup> by at least 30 days due to the County's failure to provide timely access to documents referenced and relied upon in the DEIR and public records in the County's possession related to the Project.

E-1

We ask that the County fully and immediately comply with our August 15, 2024 request for immediate access to all documents referenced and incorporated by

E-2

<sup>1</sup> Imperial County Planning & Development Services Department, Draft Environmental Impact Report for the Dogwood Geothermal Energy Project (August 2024)

<sup>2</sup> Imperial County Planning & Development Services Department, Notice of Availability of a Draft Environmental Impact Report for the Dogwood Geothermal Energy Project (August 14, 2024), available at: [https://files.coqanet.opr.ca.gov/294700-2/attachment/81to\\_m63EqLgalecsaFYB\\_GRYgxdEETqIDYwUMPmlAhlIcXnNets7\\_WIvoLdssa7K4F2w6nmxKVFXt0](https://files.coqanet.opr.ca.gov/294700-2/attachment/81to_m63EqLgalecsaFYB_GRYgxdEETqIDYwUMPmlAhlIcXnNets7_WIvoLdssa7K4F2w6nmxKVFXt0).



September 18, 2024

Page 2

reference in the DEIR by providing access to outstanding DEIR reference documents, including, but not limited to the following:

1. Unlocked excel spreadsheets supporting CalEEMod emission calculations.
2. Documents referenced in the Initial Study and Notice of Preparation
  - a. Federal Emergency Management Agency (FEMA). 2008. Flood Insurance Rate Map (Panel 06025C2075C).
3. Documents referenced in DEIR Appendix E – Biological Resources and Burrowing Owl Report
  - a. California Department of Fish and Wildlife (CDFW). 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. 34 pp.
  - b. Gervais, J.A., Rosenberg, D.K, and Comrack, L.A. 2008. Burrowing Owl (*Athene cunicularia*). *Studies of Western Birds* 1:218-226, 2008.
  - c. U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey. Soil Resource Report for Imperial County, California, Imperial Valley Area.
4. Documents referenced in DEIR Appendix F – Preliminary Jurisdictional Report
  - a. U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey. Soil Resource Report for Imperial County, California, Imperial Valley Area.
5. Documents referenced in DEIR Appendix H - Geotechnical Site Assessment
  - a. California Department of Water Resources (DWR). 2004. Bulletin 118, Imperial Valley Groundwater Basin, Hydrologic Region Colorado River, Groundwater Basin Number: 7-30. February 27, 2004.
  - b. Imperial County. 2015. Final EIR - SEPV Dixieland East and West Solar Farm Projects (SCH No. 2015051043). December 2015.
  - c. Imperial County Planning and Development Services (ICPDS). 2015. Baseline Environmental Inventory Report, Imperial County Conservation and Open Space Element Update. June 2015.
  - d. Landmark Consultants, Inc. (Landmark). 2019. Geotechnical Report Update, Heber 2 Repower Project, Heber, California. Prepared for SIGC/ORMAT Nevada. April 2019.
  - e. Landmark. 2007. Geotechnical Investigation, Proposed Heber South Geothermal Plant, Dogwood Road, Heber, California. Prepared for SIGC/ORMAT. May 2007.

E-2  
cont.

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Page 3

- f. Landmark. 2005. Geotechnical Report, New Turbine Generator and Cooling Tower, Heber 2 Geothermal Plant, Heber, California. Prepared for SIGC/ORMAT. January 2005.
- g. Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey, National Cooperative Soil Survey. Report generated on June 5, 2019.

On August 15, 2024, our office submitted a request, pursuant to the California Environmental Quality Act ("CEQA"),<sup>3</sup> for immediate access to any and all documents referenced or relied upon in the Draft Environmental Impact Report.<sup>4</sup>

<sup>5</sup> CEQA's section 21092(b)(1) and CEQA Guidelines section 15087(c)(5) require that "all documents referenced" and "all documents incorporated by reference" in an environmental impact report shall be "readily accessible to the public during the lead agency's normal working hours" during the entire public comment period.<sup>6</sup>

E-2  
cont.

On Tuesday September 17, 2024, our office emailed the County to follow up on CURE's request. To date, the County has failed to provide members of the public with access to all documents referenced and relied upon in the DEIR, as required by CEQA.

CEQA compels a lead agency to make all documents referenced in an environmental impact report "available for review" during the entire public comment period.<sup>7</sup> The courts have held that the failure to provide even a few pages of a CEQA document for a portion of the public review period invalidates the entire CEQA process, and that such a failure must be remedied by permitting additional public comment.<sup>8</sup> It is also well settled that a CEQA document may not rely on hidden studies or documents that are not provided to the public.<sup>9</sup>

<sup>3</sup> Pub. Resources Code §§ 21000 *et seq.*

<sup>4</sup> **Exhibit A** – Letter to Jim Minnick, Blanca Acosta, Laryssa Alvarado, Luis Valenzuela, Imperial County from Jane Abrams, Adams Broadwell Joseph & Cardozo re: Request for Immediate Access to Public Records – Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022) (August 15, 2024).

<sup>5</sup> The same day, our office submitted a separate public records request pursuant to the Public Records Act ("PRA") for access to other public records related to the Project. **Exhibit B** – Letter to Jim Minnick, Blanca Acosta, Laryssa Alvarado, Luis Valenzuela, Imperial County from Jane Abrams, Adams Broadwell Joseph & Cardozo re: Public Records Act Request – Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022) (August 15, 2024).

<sup>6</sup> Pub. Resources Code § 21092(b)(1); 14 C.C.R. § 15087(c)(5).

<sup>7</sup> *Id.*

<sup>8</sup> *Ultramar v. South Coast Air Quality Man. Dist.* (1993) 17 Cal.App.4th 689, 699.

<sup>9</sup> *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3rd 818, 831 ("Whatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.").

0939-014ap



September 18, 2024

Page 4

By failing to make all documents and underlying data referenced in the DEIR readily available during the entirety of the public comment period, the County is depriving members of the public the ability to meaningfully comment on the potentially significant environmental impacts of the Project and is violating the procedural mandates of CEQA.

In sum, we request the County:

- 1) Extend the public review and comment period **for at least 30 days from the date on which the County releases all DEIR reference documents** for public review.
- 2) Immediately provide access to the DEIR reference documents referenced herein.

E-2  
cont

Given the short time before the current comment deadline ends, please contact me as soon as possible with your response to this request, but no later than close of business on **Friday September 20, 2024**.

E-3

Thank you for your prompt attention and response to this matter.

Sincerely,



Kelilah D. Federman

Attachments

KDF:acp

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**Adams Broadwell Joseph & Cardozo**

**September 18, 2024**

- E-1** The initial public comment period was from August 14 to October 2, 2024. This comment period was extended 45-days to be from October 1 to November 11, 2024. Further, in response to the one request for extension, submitted by California Unions for Reliable Energy (CURE's)/Adams Broadwell, the public comment period was extended again from November 23, 2024 to January 13, 2025. In total, the public comment period lasted from August 14, 2024 to January 13, 2025, totaling 152 days. The standard Draft EIR public comment period in situations where the Draft EIR is submitted to the State Clearinghouse (as is the case for the proposed project) is 45 days [pursuant to CEQA §21091(a) and the public comment period for the Dogwood Draft EIR exceeded the standard comment period by approximately 105days ( 3 ½ months). Therefore, the County provided ample opportunity to review and comment on the Draft EIR and its supporting technical materials.
- E-2** Please refer to responses to comments D-1 and E-1. On November 21, 2024, Imperial County provided the requested documents and materials. As stated in response to comment E-1, the public comment period was extended to January 14, 2025 to provide ample time to review and comment on these materials.
- E-3** The contact information is received and acknowledged.

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OF COUNSEL  
MARC D. JOSEPH  
DANIEL L. CARDOZO

November 8, 2024

**Via Email and U.S. Mail**

Jim Minnick, Director  
Luis Valenzuela, Planner I  
Planning & Development Services  
Imperial County  
801 Main Street  
El Centro, CA 92243

**Emails:**

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[luisvalenzuela@co.imperial.ca.us](mailto:luisvalenzuela@co.imperial.ca.us)

**Re: Third Request for Access to Documents Referenced in the  
Draft Environmental Impact Report for Dogwood Geothermal  
Energy Project (SCH No. 2024010510) and Second Request to Extend  
the Public Review and Comment Period**

Dear Mr. Minnick and Mr. Valenzuela:

On behalf of California Unions for Reliable Energy ("CURE") we respectfully submit this letter as a third request for access to outstanding documents referenced and relied upon in the Draft Environmental Impact Report ("DEIR") for the Dogwood Geothermal Energy Project (SCH No. 2024010510), proposed by Ormat Technologies, Inc. (d.b.a. OrHeber 3, LLC, Heber Field Company, LLC, and Second Imperial Geothermal Company) (collectively, the "Applicants"). We also request that Imperial County ("County") further extend the public review and comment period for the DEIR, which currently ends on November 14, 2024, by at least 45 days from the date on which the County releases the outstanding reference documents, due to the County's ongoing failure to provide timely access to the supporting documents for the DEIR.

F-1

This request is made pursuant to the California Environmental Quality Act ("CEQA"), Public Resources Code ("PRC") §§ 21000 et seq. CEQA section 21092(b)(1) and CEQA Guidelines section 15087(c)(5) require that "all documents referenced" and "all documents incorporated by reference" in an environmental impact report

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shall be "readily accessible to the public during the lead agency's normal working hours" during the entire public comment period.<sup>1</sup>

On August 15, 2024, we submitted a letter to the County, requesting "**immediate access to any and all records referenced**" in the DEIR (emphasis added).<sup>2, 3</sup>

On August 20, 2024, the County provided a partial response to our August 15, 2024 letter, which included a set of electronic documents, files, and email correspondence.<sup>4</sup> On September 3, 2024, the County provided a further response to the August 15, 2024 letter, which included more email correspondence.<sup>5</sup> During our subsequent review of the documents and files produced by the County, CURE identified numerous documents and files that are referenced or relied upon in the DEIR, but which were not provided in either the County's August 20, 2024 or September 3, 2024 response.

On September 17, 2024, our office sent a follow-up email to the County, including a list that identified over 12 missing DEIR reference documents, to which the County did not respond.<sup>6</sup>

On September 18, 2024, we submitted a second letter to the County requesting access to the outstanding DEIR reference documents. The September 18, 2024 letter included the list of missing DEIR reference documents, and requested

F-2  
cont.

<sup>1</sup> Pub. Resources Code ("PRC") § 21092(b)(1); 14 Cal. Code Regs. ("CCR") § 15087(c)(5).

<sup>2</sup> **Exhibit A** – Letter to Jim Minnick, Blanca Acosta, Laryssa Alvarado, Luis Valenzuela, Imperial County from Jane Abrams, Adams, Broadwell, Joseph & Cardozo ("ABJC") re: Request for Immediate Access to Public Records – Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022) (August 15, 2024).

<sup>3</sup> The same day, our office submitted a separate public records request pursuant to the Public Records Act ("PRA") for access to other public records related to the Project. **Exhibit B** – Letter to Jim Minnick, Blanca Acosta, Laryssa Alvarado, Luis Valenzuela, Imperial County from Jane Abrams, ABJC re: Public Records Act Request – Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022) (August 15, 2024).

<sup>4</sup> **Exhibit C** – Letter to Jane Abrams, ABJC from Eric Havens, Andrew Briseno, Imperial County re: Public Records Act – PRA-24-069 PDS – August 16, 2024 concerning: "Dogwood Geothermal Energy Project (SCH No. 2024010510); OrHeber 3 LLC CUP23-0020/IS23-0026 APN 054-250-031-001; Second Imperial Geothermal Company LLC RP23-0002/CUP23-0021 APN 059-020-001; & Heber Field Company LLC RP23-0003/CUP23-0022" (August 20, 2024).

<sup>5</sup> **Exhibit D** – Letter to Jane Abrams, ABJC from Eric Havens, Andrew Briseno, Imperial County re: Public Records Act – PRA 24-069 PDS – August 16, 2024 concerning: "Dogwood Geothermal Energy Project (SCH No. 2024010510); OrHeber 3 LLC CUP23-0020/IS23-0026 APN 054-250-031-001; Second Imperial Geothermal Company LLC RP23-0002/CUP23-0021 APN 059-020-001; & Heber Field Company LLC RP23-0003/CUP23-0022" (September 3, 2024).

<sup>6</sup> Email to Imperial County from Jane Abrams, ABJC (September 17, 2024).

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an extension of the DEIR's public review and comment period due to the County's failure to provide access to the documents during the public comment period on the DEIR, as required by CEQA.<sup>7</sup>

On October 10, 2024, the County responded to the extension request and prepared a revised Notice of Availability which extended the DEIR's public comment period to November 14, 2024.<sup>8</sup> The County advised our office that the outstanding DEIR reference documents were being compiled for release. However, the County has not since provided any of the missing reference documents.

F-2  
cont.

On October 22, 2024, we sent a follow-up email reiterating our request for access to outstanding DEIR reference and provided the same list of missing DEIR reference documents identified in September.<sup>9</sup>

The following DEIR reference documents, which were specifically requested by CURE, were not provided in the County's August 20, 2024 or September 3, 2024 document productions, and are still outstanding:

1. Unlocked excel spreadsheets supporting CalEEMod emission calculations.
2. Documents referenced in the Initial Study and Notice of Preparation
  - a. Federal Emergency Management Agency (FEMA). 2008. Flood Insurance Rate Map (Panel 06025C2075C).
3. Documents referenced in DEIR Appendix E – Biological Resources and Burrowing Owl Report
  - a. California Department of Fish and Wildlife (CDFW). 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. 34 pp.
  - b. Gervais, J.A., Rosenberg, D.K. and Comrack, L.A. 2008. Burrowing Owl (*Athene cunicularia*). *Studies of Western Birds* 1:218-226, 2008.
  - c. U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey. Soil Resource Report for Imperial County, California, Imperial Valley Area.
4. Documents referenced in DEIR Appendix F – Preliminary Jurisdictional Report

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<sup>7</sup> **Exhibit E** – Letter to Jim Minnick, Luis Valenzuela, Imperial County from Kelilah Federman, ABJC re: Request for an Extension of the Comment Period for the Draft Environmental Impact Report Prepared for the Dogwood Geothermal Energy Project (2024010510) (September 18, 2024).

<sup>8</sup> **Exhibit F** – Notice of Availability of a Draft Environmental Impact Report for the Dogwood Geothermal Energy Project (October 10, 2024)

<sup>9</sup> Email to Imperial County from Jane Abrams, ABJC (October 22, 2024).

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Page 4

- a. U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey. Soil Resource Report for Imperial County, California, Imperial Valley Area.
5. Documents referenced in DEIR Appendix H - Geotechnical Site Assessment
  - a. California Department of Water Resources (DWR). 2004. Bulletin 118, Imperial Valley Groundwater Basin, Hydrologic Region Colorado River, Groundwater Basin Number: 7-30. February 27, 2004.
  - b. Imperial County. 2015. Final EIR - SEPV Dixieland East and West Solar Farm Projects (SCH No. 2015051043). December 2015.
  - c. Imperial County Planning and Development Services (ICPDS). 2015. Baseline Environmental Inventory Report, Imperial County Conservation and Open Space Element Update. June 2015.
  - d. Landmark Consultants, Inc. (Landmark). 2019. Geotechnical Report Update, Heber 2 Repower Project, Heber, California. Prepared for SIGC/ORMAT Nevada. April 2019.
  - e. Landmark. 2007. Geotechnical Investigation, Proposed Heber South Geothermal Plant, Dogwood Road, Heber, California. Prepared for SIGC/ORMAT. May 2007.
  - f. Landmark. 2005. Geotechnical Report, New Turbine Generator and Cooling Tower, Heber 2 Geothermal Plant, Heber, California. Prepared for SIGC/ORMAT. January 2005.
  - g. Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey, National Cooperative Soil Survey. Report generated on June 5, 2019.

F-3  
cont.

These missing reference documents form the basis of much of the DEIR's environmental and health impact analyses and its proposed mitigation measures. Without access to these fundamental reference documents during the public comment period on the DEIR, CURE and other members of the public are precluded from having the meaningful opportunity to comment on the DEIR that is required by CEQA.

The County's failure to make the underlying DEIR documents available during the public comment period is a violation of CEQA's disclosure requirements and of CURE's due process rights to have access to public records upon request.<sup>10</sup> The County has not provided any of the missing reference documents requested in

<sup>10</sup> PRC § 21092(b)(1); 14 CCR § 15087(c)(5); Gov. Code § 6253(a) (requires public records to be "open to inspection at all times during the office hours of the state or local agency" and provides that "every person has a right to inspect any public record.")

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CURE's September 18, 2024 letter. The County has also failed to advise CURE of the location of the outstanding missing documents, and to state when (or whether) the County would provide access to the remaining missing documents. It is inexcusable for the CEQA lead agency to deny the public access to "all documents referenced in the EIR" during the CEQA public comment period, as the County continues to do here.<sup>11</sup> The courts have held that the failure to provide even a few pages of a CEQA document for even a portion of the CEQA review period invalidates the entire CEQA process, and that such a failure must be remedied by permitting additional public comment.<sup>12</sup> It is also well settled that an EIR may not rely on hidden studies or documents that are not provided to the public.<sup>13</sup>

F-3  
cont.

Accordingly, we request that the County:

- 1) Provide immediate access to the outstanding missing reference documents requested in our August 15 and September 3, 2024 letters.
- 2) Extend the DEIR's public review and comment period for at least 45 days from the date on which the Port releases these documents for public review.<sup>14</sup>

As the comment period ends on November 14, 2024, please contact me as soon as possible with your response to this request, but no later than Monday, November 11, 2024.

If you have any questions, please feel free to email me at [kfederman@adamsbroadwell.com](mailto:kfederman@adamsbroadwell.com). Thank you for your assistance with this matter.

F-4

Sincerely,



Kelilah D. Federman

Attachments  
ARM:acp

<sup>11</sup> PRC § 21092(b)(1); 14 CCR § 15087(c)(5).

<sup>12</sup> *Ultramar v. South Coast Air Quality Man. Dist.* (1993) 17 Cal.App.4th 689, 699.

<sup>13</sup> *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831 ("Whatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.").

<sup>14</sup> This Project has a 45-day public comment period, pursuant to Public Resources Code §§ 21091(a) and (b) (projects where a state agency is a responsible agency).

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## **EXHIBIT A**

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DARION N. JOHNSTON  
RACHAEL E. KOSS  
ADAM P. MARSHALL  
ALAN R. MCGUIRE  
TARA C. RENOIRFO

August 15, 2024

**Via Email and U.S. Mail**

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Planning & Development Services  
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Imperial County Clerk of the Board  
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**Via Email Only**

Laryssa Alvarado, Administrative Secretary  
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Luis Valenzuela, Planner  
Email: [luisvalenzuela@co.imperial.ca.us](mailto:luisvalenzuela@co.imperial.ca.us)

**Re: Request for Immediate Access to Public Records – Dogwood  
Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-  
0020, 23-0021, and 23-0022)**

Dear Mr. Minnick, Ms. Acosta, Ms. Alvarado, and Mr. Valenzuela:

We are writing on behalf of California Unions for Reliable Energy ("CURE") to request **immediate access** to any and all records referenced in the Environmental Impact Report (EIR) for the Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022), proposed by Ormat Technologies, Inc. (d.b.a. OrHeber 3, LLC, Heber Field Company, LLC, and Second Imperial Geothermal Company) (collectively, the "Applicants"). This request includes, but is not limited to, any and all file materials, applications, correspondence, resolutions, memos, notes, analysis, email messages, files, maps, charts, and any other documents related to the Project.

The Project includes three Conditional Use Permit (CUP) applications for the construction and operation of the following projects proposed in Imperial County, California: 1) Dogwood Geothermal Energy Project (CUP No. 23-0020), proposed by

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Page 2

Or Heber 3, LLC; 2) Heber 2 Solar Energy Project (CUP No. 23-0021), proposed by Second Imperial Geothermal Company; and 3) Heber Field Company Geothermal Wells and Pipeline Project (CUP No. 23-0022), proposed by Heber Field Company, LLC.

The Dogwood Geothermal Energy Project would include a 25-megawatt (MW) geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 MW parasitic solar photovoltaic (PV) facility, and medium voltage distribution line from the proposed solar facility to the proposed geothermal plant. This project would be located at 855 Dogwood Road, Heber, CA. The Assessor Parcel Number (APN) is 054-250-31.

The Heber 2 Solar Energy Project proposes to construct a 15 MW parasitic solar energy facility that would provide supplemental/auxiliary energy to existing the Heber 2 Geothermal Energy Complex (HGEC). This project would be located southeast of the HGEC in the northern portion of APN 059-020-001.

The Heber Field Company Geothermal Wells and Pipeline Project would include three new geothermal production wells, one new injection well, and interconnecting brine pipelines. The wells will be sited at three of six potential locations (APNs 059-020-001 and 054-250-017). The injection well would be installed within the HGEC, immediately next to the proposed Dogwood geothermal unit.

This request is made pursuant to the **California Public Records Act** (Government Code §§ 7920.000, *et seq.*). This request is also made pursuant to Article I, section 3(b) of the California Constitution, which provides a Constitutional right of access to information concerning the conduct of government. Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to government information and further requires that any statute that limits the right of access to information shall be narrowly construed.

We request access to the above records in their original form, as maintained by the agency.<sup>1</sup> Pursuant to Government Code Section 7922.570, if the requested documents are in electronic format, please upload them to a file hosting program such as Dropbox, NextRequest or a similar program. Alternatively, if the electronic

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<sup>1</sup> Gov. Code § 7922.570; *Sierra Club v. Super. Ct.*, (2013) 57 Cal. 4th 157, 161-62.

August 15, 2024  
Page 3

documents are 10 MB or less (or can be easily broken into sections of 10 MB or less), they may be emailed to me as attachments.

We will pay for any direct costs of duplication associated with filling this request up to \$200.<sup>2</sup> However, please contact me at (650) 589-1660 with a cost estimate before copying/scanning the materials.

Please use the following contact information for all correspondence:

**U.S. Mail**

Jane Abrams  
Adams Broadwell Joseph & Cardozo  
601 Gateway Boulevard, Suite 1000  
South San Francisco, CA 94080-7037

**Email**

[jabrams@adamsbroadwell.com](mailto:jabrams@adamsbroadwell.com)

If you have any questions, please call me at (650) 589-1660 or email me at [jabrams@adamsbroadwell.com](mailto:jabrams@adamsbroadwell.com). Thank you for your assistance with this matter.

Sincerely,



Jane S. Abrams  
Legal Assistant

JSA:acp

---

<sup>2</sup> Gov. Code §§ 7922.530, 7922.575; *North County Parents v. Dept. of Education* (1994) 23 Cal.App.4th 144; *County of Los Angeles v. Super. Ct.* (2000) 82 Cal.App.4th 819, 826.

0939-003acp



## **EXHIBIT B**



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OF COUNSEL  
MARC D. JOSEPH  
DANIEL L. CARDOZO

August 15, 2024

**Via Email and U.S. Mail**

Jim Minnick, Director  
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Blanca Acosta, Clerk of the Board  
Imperial County Clerk of the Board  
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**Via Email Only**

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Luis Valenzuela, Planner  
Email: [luisvalenzuela@co.imperial.ca.us](mailto:luisvalenzuela@co.imperial.ca.us)

**Re: Public Records Act Request – Dogwood Geothermal Energy  
Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-  
0022)**

Dear Mr. Minnick, Ms. Acosta, Ms. Alvarado, and Mr. Valenzuela:

We are writing on behalf of California Unions for Reliable Energy ("CURE") to request a copy of any and all public records related to the Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022), proposed by Ormat Technologies, Inc. (d.b.a. OrHeber 3, LLC, Heber Field Company, LLC, and Second Imperial Geothermal Company) (collectively, the "Applicants"). This request includes, but is not limited to, any and all file materials, applications, correspondence, resolutions, memos, notes, analysis, email messages, files, maps, charts, and any other documents related to the Project.

The Project includes three Conditional Use Permit (CUP) applications for the construction and operation of the following projects proposed in Imperial County, California: 1) Dogwood Geothermal Energy Project (CUP No. 23-0020), proposed by OrHeber 3, LLC; 2) Heber 2 Solar Energy Project (CUP No. 23-0021), proposed by

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August 15, 2024

Page 2

Second Imperial Geothermal Company; and 3) Heber Field Company Geothermal Wells and Pipeline Project (CUP No. 23-0022), proposed by Heber Field Company, LLC.

The Dogwood Geothermal Energy Project would include a 25-megawatt (MW) geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 MW parasitic solar photovoltaic (PV) facility, and medium voltage distribution line from the proposed solar facility to the proposed geothermal plant. This project would be located at 855 Dogwood Road, Heber, CA. The Assessor Parcel Number (APN) is 054-250-31.

The Heber 2 Solar Energy Project proposes to construct a 15 MW parasitic solar energy facility that would provide supplemental/auxiliary energy to existing the Heber 2 Geothermal Energy Complex (HGEC). This project would be located southeast of the HGEC in the northern portion of APN 059-020-001.

The Heber Field Company Geothermal Wells and Pipeline Project would include three new geothermal productions wells, one new injection well, and interconnecting brine pipelines. The wells will be sited at three of six potential locations (APNs 059-020-001 and 054-250-017). The injection well would be installed within the HGEC, immediately next to the proposed Dogwood geothermal unit.

This request is made pursuant to the **California Public Records Act** (Government Code §§ 7920.000, *et seq.*). This request is also made pursuant to Article I, section 3(b) of the California Constitution, which provides a Constitutional right of access to information concerning the conduct of government. Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to government information and further requires that any statute that limits the right of access to information shall be narrowly construed.

We request access to the above records in their original form, as maintained by the agency.<sup>1</sup> Pursuant to Government Code Section 7922.570, if the requested documents are in electronic format, please upload them to a file hosting program such as Dropbox, NextRequest or a similar program. Alternatively, if the electronic documents are 10 MB or less (or can be easily broken into sections of 10 MB or less), they may be emailed to me as attachments.

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<sup>1</sup> Gov. Code § 7922.570; *Sierra Club v. Super. Ct.* (2013) 57 Cal. 4th 157, 161-62.

0909-002aep



August 15, 2024  
Page 3

We will pay for any direct costs of duplication associated with filling this request up to \$200.<sup>2</sup> However, please contact me at (650) 589-1660 with a cost estimate before copying/scanning the materials.

Please use the following contact information for all correspondence:

**U.S. Mail**

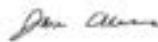
Jane Abrams  
Adams Broadwell Joseph & Cardozo  
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South San Francisco, CA 94080-7037

**Email**

[jabrams@adamsbroadwell.com](mailto:jabrams@adamsbroadwell.com)

If you have any questions, please call me at (650) 589-1660 or email me at [jabrams@adamsbroadwell.com](mailto:jabrams@adamsbroadwell.com). Thank you for your assistance with this matter.

Sincerely,



Jane S. Abrams  
Legal Assistant

JSA:acp

---

<sup>2</sup> Gov. Code §§ 7922.530, 7922.575; *North County Parents v. Dept. of Education* (1994) 23 Cal.App.4th 144; *County of Los Angeles v. Super. Ct.* (2000) 82 Cal.App.4th 819, 826.

0939-002acp



## **EXHIBIT C**

*Eric Havens*  
County Counsel

*Mistelle Abdelmagied*  
Assistant County Counsel



County Counsel  
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940 West Main Street, Suite 205  
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August 20, 2024

Jane S. Abrams, Legal Assistant  
Adams, Broadwell, Joseph & Cardozo  
601 Gateway Boulevard, Suite 1000  
South San Francisco, CA 94080-7037



RE: Public Records Act – PRA-24-099 PDS – August 16, 2024 concerning: "Dogwood Geothermal Energy Project (SCH No.2024010510); OrHeber3 LLC CUP23-0020/IS23-0026 APN 054-250-031-001; Second Imperial Geothermal Company LLC RP23-0002/CUP23-0021 APN 059-020-001; & Heber Field Company LLC RP23-0003/CUP23-0022"

Dear Jane S. Abrams, Legal Assistant,

Pursuant to your request accompanying find this County's first production of material concerning the above referenced projects. Produced records are on a DVD/CD which accompanies this letter.

Your request involves the need to continue the search for, collect and examine a voluminous amount of separate and distinct records. The "I.T." Department and County Counsel's Office which currently are seeking to locate and screen material to be turned over to you pursuant to your request. Accordingly, pursuant to Government Code §§7922.535(b) and (c), the period of time within which Imperial County PDS will again respond to the above-referenced request will be extended to September 3, 2023.

Eric Havens,  
County Counsel,

By   
Andrew Briseno,  
Deputy County Counsel.

enclosure:



## **EXHIBIT D**



*Eric Havens  
County Counsel*

*Mistelle Abdelmagied  
Assistant County Counsel*

*County Counsel  
County Administration Center  
940 West Main Street, Suite 205  
El Centro, CA 92243  
Telephone (442) 265-1120  
Fax No. (760) 353-9347  
countycounsel@co.imperial.ca.us*

September 3, 2024

Jane S. Abrams,  
Legal Assistant  
ADAMS BROADWELL JOSEPH & CARDOZO, A P.C.  
Attorneys At Law  
601 Gateway Boulevard, Suite 1000  
South San Francisco, CA 94080-7037

RE: Public Records Act – PRA-24-099 PDS – August 16, 2024 concerning: "Dogwood Geothermal Energy Project (SCH No.2024010510); OrHeber3 LLC CUP23-0020/IS23-0026 APN 054-250-031-001; Second Imperial Geothermal Company LLC RP23-0002/CUP23-0021 APN 059-020-001; & Heber Field Company LLC RP23-0003/CUP23-0022"

Dear Legal Assistant Jane S. Abrams,

Pursuant to your request accompanying find this County's second production of material concerning the above referenced project. We apologize for the unavoidable delay due to county wide staffing shortages. The County did engage in a comprehensive IT search concerning your request which generated records, an electronic copy of which (in a CD format), accompanies this transmittal letter. This completes the response to these Public Records Act request.

Thank you for your interest and concern.

Eric Havens,  
County Counsel,

By   
Andrew Briseno,  
Deputy County Counsel.

enclosure





COUNTY COUNSEL  
COUNTY OF IMPERIAL  
COUNTY ADMINISTRATION CENTER  
940 MAIN STREET, SUITE 205  
EL CENTRO, CA 92243-2869

PRESORTED  
FIRST CLASS



JANE S. ABRAMS, LEGAL ASSISTANT  
ADAMS BROADWELL JOSEPH & CARDOZO, A.P.C.  
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SOUTH SAN FRANCISCO, CA 94080-7037

94080\$7037 0035



## **EXHIBIT E**

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RICHARD M. FRANCO  
ANDREW J. GRAF  
TANYA A. GULESSERIAN  
DARION N. JOHNSTON  
RACHAEL E. KOSS  
ADAM P. MARSHALL  
ALAN R. MCGUIRE  
TARA C. RENGIFO

September 18, 2024

OF COUNSEL  
MARC D. JOSEPH  
DANIEL L. CARDOZO

**Via Email and U.S. Mail**

Jim Minnick, Director  
Luis Valenzuela, Planner I  
Planning & Development Services  
Imperial County  
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El Centro, CA 92243  
Emails:  
JimMinnick@co.imperial.ca.us  
[luisvalenzuela@co.imperial.ca.us](mailto:luisvalenzuela@co.imperial.ca.us)

**Re: Request for an Extension of the Comment Period for the Draft  
Environmental Impact Report Prepared for the Dogwood  
Geothermal Energy Project (2024010510)**

Dear Mr. Minnick, Mr. Valenzuela, Ms. Acosta:

We are writing on behalf of California Unions for Reliable Energy ("CURE") to respectfully request that the County of Imperial ("County") extend the public review and comment period of the Draft Environmental Impact Report ("DEIR")<sup>1</sup> prepared for the Dogwood Geothermal Energy Project (SCH No. 2024010510) ("Project"), which currently ends October 2, 2024<sup>2</sup> by at least 30 days due to the County's failure to provide timely access to documents referenced and relied upon in the DEIR and public records in the County's possession related to the Project.

We ask that the County fully and immediately comply with our August 15, 2024 request for immediate access to all documents referenced and incorporated by

<sup>1</sup> Imperial County Planning & Development Services Department, Draft Environmental Impact Report for the Dogwood Geothermal Energy Project (August 2024)

<sup>2</sup> Imperial County Planning & Development Services Department, Notice of Availability of a Draft Environmental Impact Report for the Dogwood Geothermal Energy Project (August 14, 2024), available at: [https://files.coqanet.opr.ca.gov/294700-2/attachment/81to\\_m63EqLgalecsaFYB\\_GRYgxdEETqIDYwUMPmlAhlIcXnNets7\\_WIvoLdssa7K4F2w6nnxKVFXt0](https://files.coqanet.opr.ca.gov/294700-2/attachment/81to_m63EqLgalecsaFYB_GRYgxdEETqIDYwUMPmlAhlIcXnNets7_WIvoLdssa7K4F2w6nnxKVFXt0).

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reference in the DEIR by providing access to outstanding DEIR reference documents, including, but not limited to the following:

1. Unlocked excel spreadsheets supporting CalEEMod emission calculations.
2. Documents referenced in the Initial Study and Notice of Preparation
  - a. Federal Emergency Management Agency (FEMA). 2008. Flood Insurance Rate Map (Panel 06025C2075C).
3. Documents referenced in DEIR Appendix E – Biological Resources and Burrowing Owl Report
  - a. California Department of Fish and Wildlife (CDFW). 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. 34 pp.
  - b. Gervais, J.A., Rosenberg, D.K, and Comrack, L.A. 2008. Burrowing Owl (*Athene cunicularia*). *Studies of Western Birds* 1:218-226, 2008.
  - c. U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey. Soil Resource Report for Imperial County, California, Imperial Valley Area.
4. Documents referenced in DEIR Appendix F – Preliminary Jurisdictional Report
  - a. U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey. Soil Resource Report for Imperial County, California, Imperial Valley Area.
5. Documents referenced in DEIR Appendix H - Geotechnical Site Assessment
  - a. California Department of Water Resources (DWR). 2004. Bulletin 118, Imperial Valley Groundwater Basin, Hydrologic Region Colorado River, Groundwater Basin Number: 7-30. February 27, 2004.
  - b. Imperial County. 2015. Final EIR - SEPV Dixieland East and West Solar Farm Projects (SCH No. 2015051043). December 2015.
  - c. Imperial County Planning and Development Services (ICPDS). 2015. Baseline Environmental Inventory Report, Imperial County Conservation and Open Space Element Update. June 2015.
  - d. Landmark Consultants, Inc. (Landmark). 2019. Geotechnical Report Update, Heber 2 Repower Project, Heber, California. Prepared for SIGC/ORMAT Nevada. April 2019.
  - e. Landmark. 2007. Geotechnical Investigation, Proposed Heber South Geothermal Plant, Dogwood Road, Heber, California. Prepared for SIGC/ORMAT. May 2007.

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- f. Landmark. 2005. Geotechnical Report, New Turbine Generator and Cooling Tower, Heber 2 Geothermal Plant, Heber, California. Prepared for SIGC/ORMAT. January 2005.
- g. Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey, National Cooperative Soil Survey. Report generated on June 5, 2019.

On August 15, 2024, our office submitted a request, pursuant to the California Environmental Quality Act ("CEQA"),<sup>3</sup> for immediate access to any and all documents referenced or relied upon in the Draft Environmental Impact Report.<sup>4</sup> <sup>5</sup> CEQA's section 21092(b)(1) and CEQA Guidelines section 15087(c)(5) require that "all documents referenced" and "all documents incorporated by reference" in an environmental impact report shall be "readily accessible to the public during the lead agency's normal working hours" during the entire public comment period.<sup>6</sup>

On Tuesday September 17, 2024, our office emailed the County to follow up on CURE's request. To date, the County has failed to provide members of the public with access to all documents referenced and relied upon in the DEIR, as required by CEQA.

CEQA compels a lead agency to make all documents referenced in an environmental impact report "available for review" during the entire public comment period.<sup>7</sup> The courts have held that the failure to provide even a few pages of a CEQA document for a portion of the public review period invalidates the entire CEQA process, and that such a failure must be remedied by permitting additional public comment.<sup>8</sup> It is also well settled that a CEQA document may not rely on hidden studies or documents that are not provided to the public.<sup>9</sup>

<sup>3</sup> Pub. Resources Code §§ 21000 et seq.

<sup>4</sup> **Exhibit A** – Letter to Jim Minnick, Blanca Acosta, Laryssa Alvarado, Luis Valenzuela, Imperial County from Jane Abrams, Adams Broadwell Joseph & Cardozo re: Request for Immediate Access to Public Records – Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022) (August 15, 2024).

<sup>5</sup> The same day, our office submitted a separate public records request pursuant to the Public Records Act ("PRA") for access to other public records related to the Project. **Exhibit B** – Letter to Jim Minnick, Blanca Acosta, Laryssa Alvarado, Luis Valenzuela, Imperial County from Jane Abrams, Adams Broadwell Joseph & Cardozo re: Public Records Act Request – Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022) (August 15, 2024).

<sup>6</sup> Pub. Resources Code § 21092(b)(1); 14 C.C.R. § 15087(c)(5).

<sup>7</sup> *Id.*

<sup>8</sup> *Ultramar v. South Coast Air Quality Man. Dist.* (1993) 17 Cal.App.4th 689, 699.

<sup>9</sup> *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3rd 818, 831 ("Whatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.").

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By failing to make all documents and underlying data referenced in the DEIR readily available during the entirety of the public comment period, the County is depriving members of the public the ability to meaningfully comment on the potentially significant environmental impacts of the Project and is violating the procedural mandates of CEQA.

In sum, we request the County:

- 1) Extend the public review and comment period **for at least 30 days from the date on which the County releases all DEIR reference documents** for public review.
- 2) Immediately provide access to the DEIR reference documents referenced herein.

Given the short time before the current comment deadline ends, please contact me as soon as possible with your response to this request, but no later than close of business on **Friday September 20, 2024**.

Thank you for your prompt attention and response to this matter.

Sincerely,



Kelilah D. Federman

Attachments

KDF:acp

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## **EXHIBIT F**

NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR  
THE DOGWOOD GEOTHERMAL ENERGY PROJECT

October 10, 2024

NOTICE IS HEREBY GIVEN that the Imperial County Planning & Development Services Department (County), as lead agency, is circulating for public review a Draft Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) for the proposed Dogwood Geothermal Energy Project. The County is hereby providing notice that the public review period end date for the subject project has been extended to November 14, 2024.

**Project Title:** Draft Environmental Impact Report for the Dogwood Geothermal Energy Project (State Clearinghouse [SCH] #2024010510).

**Project Location:** The project site is located on approximately 125 acres of privately-owned land in the southern portion of Imperial County, California, approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calexico jurisdictional limit. The project site is within portions of on three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC. The project site is located within the Geothermal Overlay Zone, which is considered as part of the County's Renewable Energy Overlay Zone.

**Project Description (brief):** The project applicant, OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the "Applicants", and all wholly owned subsidiaries of Ormat Technologies, Inc. [Ormat]) has filed three separate Conditional Use Permits (CUP) applications with the County of Imperial for the construction and operation of various facilities. The three CUP applications are described below. Collectively, these three CUP applications are herein referred to as the "project."

**1. Dogwood Geothermal Energy Project– CUP No. 23-0020**

The Dogwood Geothermal Energy Project includes a geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 megawatt (MW) solar facility, and medium voltage distribution cable from the proposed solar facility to the geothermal plant. These project components are summarized below.

- a. **ORMAT Energy Converter (Geothermal Energy Production Unit):** The proposed ORMAT Energy Converter (OEC) unit would be a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists of a generator, turbines, a vaporizer, Air Cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).
- b. **Isopentane Storage Tanks:** Two double-walled 20,000-gallon above-ground storage tanks would be installed for motive fluid (isopentane) storage. Numerous safety and fire prevention measures would be installed on/near the ABST, including the following:
  - Concrete foundations with blast walls separating the tank from the OEC.
  - An automated water suppression system.
  - Concrete containment areas.
  - Two flame detectors, which will immediately detect any fire and immediately trigger the

automatic fire suppression system.

- A gas detector, which will immediately detect any isopentane leak and notify the control room (manned 24/7).
- c. **Cooling Tower:** A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid. No water is necessary.
- d. **Dogwood Substation:** The proposed Dogwood geothermal plant will require a new substation to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. No upgrades to off-site transmission facilities are necessary and the new Dogwood substation will connect directly to the existing point of interconnection with the Imperial Irrigation District (IID) controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection. A main control building would contain instrumentation and telecommunications equipment located within the greater HGEC.

The substation footprint would measure up to 145 feet by 66 feet and would be surrounded by an eight-foot-tall chain link fence with vehicle and personnel access gates. The surface of the substation would be covered by gravel and the substation equipment would be placed onto concrete foundations.

- e. **Parasitic Solar Energy Facility:** A 7 MW solar facility would provide supplemental/auxiliary energy to the proposed Dogwood geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Dogwood geothermal unit (OEC). This energy would not enter the transmission grid.
- f. **Medium Voltage Distribution Line:** The energy generated by the proposed Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the Heber 2 Project site, adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays.

## **2. Heber 2 Solar Energy Project – CUP No. 23-0021**

- a. **Parasitic Solar Energy Facility:** A 15 MW solar facility would provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Heber 2 geothermal unit (OEC). This energy would not enter the transmission grid. The energy generated by the solar facility would be collected by an on-site XMD and switch and transmitted via a medium voltage distribution cable (as described above).

## **3. Heber Field Company (HFC) Geothermal Wells and Pipeline Project – CUP No. 23-0022**

- a. **Geothermal Production and Injection Wells:** Production wells flow geothermal fluid to the surface, and injection wells are used to inject geothermal fluid from the energy plant back into the geothermal reservoir. Injection ensures the longevity and renewability of the geothermal resource. The Applicant proposes to develop three geothermal production wells, all within the Imperial County Geothermal Overlay Zone. The wells will be sited at three locations within APNs 059-020-001 and 054-250-017. The injection well would be installed within the HGEC, immediately next to the proposed Dogwood OEC.

- b. Geothermal Fluid Pipeline:** Approximately 4,500 feet (0.85 miles) of geothermal fluid production pipeline are proposed for installation on APN 059-020-001. This new segment of pipeline will connect to an existing pipeline collection point that will deliver the geothermal brine to the proposed Dogwood OEC. The well on APN 054-250-017 would connect to the existing pipeline segment adjacent to the proposed well pad site. The pipeline would be used to transport geothermal fluid from the production wells to the power plants.

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. As shown in Figure 1, the project site is located within the Geothermal Overlay Zone, which is considered as part of the County's Renewable Energy Overlay Zone.

Implementation of the project would require the approval of CUPs by the County to allow for the construction and operation of the proposed facilities.

**Probable Environmental Effects:** Agricultural Resources; Air Quality; Biological Resources; Cultural Resources; Cumulative Impacts; Geology and Soils; Energy, Hazards and Hazardous Materials; Hydrology/Water Quality; and Tribal Cultural Resources.

**Availability:** The Draft EIR can be reviewed by appointment at the following location: Imperial County Planning and Development Services Department, 801 Main Street, El Centro, CA 92243. To make an appointment please contact Luis Valenzuela at (442) 265-1749. The document can be reviewed on-line at: [www.icpds.com](http://www.icpds.com).

**Comments:** Written comments regarding the Draft EIR should be directed to Luis Valenzuela, Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 and must be received no later than November 14, 2024 (public review period is from August 14, 2024, to November 14, 2024). A Final EIR incorporating public input will be prepared for consideration by the Imperial County Planning Commission and Board of Supervisors at a future public meeting. For environmental review information for this project, please contact Luis Valenzuela at (442) 265-1749.

This notice was published in the Imperial Valley Press on October 10, 2024.

**Adams Broadwell Joseph & Cardozo**

**November 8, 2024**

- F-1** On August 20, September 3, and November 21, 2024, Imperial County responded to the records requests by providing the requested technical documents/materials. Please also refer to responses to comments E-1 and E-2.
- F-2** Please refer to response to comment F-1.
- F-3** Please refer to response to comment F-1.
- F-4** The contact information is received and acknowledged.

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NOV 18 2024  
IMPERIAL COUNTY  
PLANNING & DEVELOPMENT SERVICES

November 14, 2024

OF Counsel  
MARC D. JOSEPH  
DANIEL L. CARDOZO

**Via Email and Overnight Mail**

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**Re: Comments on Draft Environmental Impact Report for Dogwood  
Geothermal Project SCH No. 2024010510**

Dear Mr. Valenzuela and Mr. Minnick:

On behalf of Citizens for Responsible Industry ("Citizens" or "Commenters"), we submit these comments on the Draft Environmental Impact Report ("DEIR") prepared by Imperial County ("County") for the Dogwood Geothermal Energy Project (SCH No. 2024010510; CUP Nos. 23-0020, 23-0021, and 23-0022) ("Project") proposed by Ormat Technologies, Inc. (d.b.a. OrHeber 3, LLC, Heber Field Company, LLC, and Second Imperial Geothermal Company) (collectively, the "Applicants"). The Project site is located on approximately 125 acres of privately-owned land in the southern portion of Imperial County, California. The project site is within portions of on three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex ("HGEC") located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC. The project site is located within the Geothermal Overlay Zone, which is considered as part of the County's Renewable Energy Overlay Zone.

G-1

The proposed Project includes three Conditional Use Permit ("CUP") applications for the construction and operation of the following: 1) Dogwood Geothermal Energy Project (CUP No. 23-0020), proposed by OrHeber 3, LLC; 2) Heber 2 Solar Energy Project (CUP No. 23-0021), proposed by Second Imperial

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Geothermal Company; and 3) Heber Field Company Geothermal Wells and Pipeline Project (CUP No. 23-0022), proposed by Heber Field Company, LLC. The three projects are analyzed as a single project in the DEIR and are collectively referred to as "Project" herein.

The Dogwood Geothermal Energy Project would include a 25-megawatt (MW) geothermal plant (ORMAT Energy Converter ("OEC") Geothermal Energy Production Unit with a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. Isopentane would be stored onsite in two double-walled 20,000-gallon above-ground storage tanks. The Project would also include a new substation and ancillary and auxiliary facilities. A 7 MW parasitic solar photovoltaic ("PV") facility would provide supplemental auxiliary energy to the Project. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Dogwood geothermal unit OEC, this energy would not enter the transmission grid. The Project includes a cooling tower to perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid. No water is required. The Project also requires a medium voltage distribution line from the proposed solar facility to the proposed geothermal plant. This project would be located at 855 Dogwood Road, Heber, CA. The Assessor Parcel Number (APN) is 054-250-31.

G-1  
cont.

The Heber 2 Solar Energy Project proposes to construct a 15 MW parasitic solar energy facility that would provide supplemental/auxiliary energy to existing the Heber 2 Geothermal Plant. The solar facility is classified as behind-the-meter and would not enter the transmission grid. This project would be located southeast of the HGEC in the northern portion of APN 059-020-001.

The Heber Field Company Geothermal Wells and Pipeline Project would include three new geothermal production wells, one new injection well, and 4,500 feet (0.85 miles) of geothermal production pipeline to connect an existing pipeline collection point that will deliver the geothermal brine to the proposed Dogwood OEC.

We have reviewed the DEIR, its technical appendices, and reference documents with assistance of Commenters' expert consultants, whose comments and qualifications are attached. Based on our review of the DEIR, it is clear that the DEIR fails as an informational document under CEQA and lacks substantial evidence to support its conclusions that the Project's significant impacts would be mitigated to the greatest extent feasible. There is also substantial evidence demonstrating that the Project's potentially significant environmental impacts are

G-2

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Page 3

far more extensive than disclosed in the DEIR. Commenters and their expert consultants have identified numerous potentially significant impacts that the DEIR either mischaracterizes, underestimates, or fails to identify. Moreover, many of the mitigation measures described in the DEIR will not, in fact, mitigate impacts to the extent claimed.

G-2  
cont.

For example, Citizens' air quality expert Komal Shukla, Ph.D. finds that the DEIR fails to adequately quantify Project components, resulting in significant underestimation of Project emissions. Dr. Shukla's comments provide substantial evidence that Project emissions will exceed applicable significance thresholds, operational emissions associated with isopentane will be significant, the risk of Valley Fever is significant and unmitigated, and that Best Available Control Technology ("BACT") is required to reduce operational emissions to less than significant levels.<sup>1</sup>

G-3

Further, Citizens' agricultural consultant Gregory House finds that Project construction will have significant permanent impacts to Important Agricultural areas that are not adequately analyzed or mitigated in the DEIR. As discussed further herein, the mitigation measures proposed to offset the permanent loss of agricultural lands are inadequate because they do not create new Important Farmland and fail to include performance standards to ensure efficacy.<sup>2</sup>

G-4

Citizens' expert biological Shawn Smallwood, Ph.D. concludes that the Project will have potentially significant and unmitigated impacts to special status wildlife and sensitive natural communities including Arrow weed, Burrowing owls, American kestrel, Verdin, Silver-haired bat, Spotted bat, Mexican free-tailed bat, long-billed curlew, Northern Harrier, and other special status species.<sup>3</sup>

G-5

We have prepared our comments on noise and vibration with the assistance of Jack Meighan, acoustics, noise, and vibration expert of Wilson Ihrig.<sup>4</sup> Mr. Meighan's Comments identify significant and unmitigated noise impacts from construction and operation of the Project. Moreover, the DEIR fails to adequately analyze the existing environmental setting against which to analyze the Project's noise and vibration impacts. The attached expert reports are incorporated by

G-6

<sup>1</sup> See **Exhibit A**, Komal Shukla, Ph.D., P.E., Comments on the Draft Environmental Impact Report for the Dogwood Geothermal Energy Project (September 27, 2024) ("Shukla Comments").

<sup>2</sup> See **Exhibit B**, Gregory House, Review of Mitigation Measures Proposed for Agriculture and Forestry Resources, Dogwood Geothermal Project DEIR (September 19, 2024) ("House Comments").

<sup>3</sup> See **Exhibit C**, Shawn Smallwood, M.S., Comments on Dogwood Geothermal Energy Project (September 19, 2024) ("Smallwood Comments").

<sup>4</sup> Mr. Meighan's Comments ("Meighan Comments") and Mr. Meighan's CV are attached hereto as **Exhibit D**.

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Page 4

reference into this comment letter as if fully set forth herein and must be considered part of the record for this Project. Citizens reserves the right to submit supplemental comments at any later hearings and proceedings related to the Project.<sup>5</sup>

G-6  
cont.

## I. STATEMENT OF INTEREST

Citizens is a coalition of labor organizations with members who may be adversely affected by the potential public and worker health and safety hazards and environmental and public service impacts of the Project. The coalition includes Heber resident David Almodovar and other members and organizations, including California Unions for Reliable Energy ("CURE") and its local affiliates, and the affiliates' members who live, recreate, work, and raise families in Imperial County and in communities near the Project site. Citizens, its participating organizations, and their members stand to be directly affected by the Project's impacts.

Since its founding in 1997, CURE has been committed to building a strong economy and healthier environment and it works to construct, operate, and maintain conventional and renewable energy power plants and other industrial facilities throughout California. CURE supports the development of clean, renewable energy technology, including geothermal power generation, where properly analyzed and carefully planned to minimize impacts on public health and the environment. Geothermal projects should avoid adverse impacts to natural resources and public health, and should take all feasible steps to ensure that unavoidable impacts are mitigated to the maximum extent feasible. Only by maintaining the highest standards can energy development truly be sustainable.

G-7

The individual members of Citizens, and the members of its affiliated labor organizations, would be directly affected by the Project and may also work constructing the Project itself. They would therefore be first in line to be exposed to any health and safety hazards that may be present on the Project site. They each have a personal stake in protecting the Project area from unnecessary, adverse environmental and public health and safety impacts.

Citizens supports and encourages the sustainable development of California's energy and natural resources and has an interest in enforcing environmental laws that encourage sustainable development and a safe working environment. Environmentally detrimental projects can jeopardize future jobs by making it more

<sup>5</sup> Gov. Code § 65009(b); PRC § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield ("Bakersfield")* (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121.  
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difficult and more expensive for business and industry to expand in the region, and by making it less desirable for businesses to locate and people to live and recreate in the County. Continued degradation can, and has, caused construction moratoriums and other restrictions on growth that, in turn, reduces future employment opportunities.

G-7  
cont'd

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

# **I. THE DEIR FAILS TO PROVIDE A COMPLETE AND ACCURATE PROJECT DESCRIPTION**

The DEIR does not meet CEQA's requirements because it fails to include an accurate, complete and stable Project description, rendering the entire analysis inadequate. CEQA requires that an EIR "set forth a project description that is sufficient to allow an adequate evaluation and review of the environmental impact."<sup>6</sup> An accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity.<sup>7</sup> "An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."<sup>8</sup> Accordingly, a lead agency may not hide behind its failure to obtain a complete and accurate project description.<sup>9</sup>

G-8

"Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal ... and weigh other alternatives in the balance."<sup>10</sup> As articulated by the court in *County of Inyo v. City of Los Angeles*, "a curtailed, enigmatic or unstable project description draws a red herring across the path of public input."<sup>11</sup> Without a complete project description, the environmental analysis under CEQA is impermissibly limited, thus minimizing the project's impacts and undermining meaningful public review.<sup>12</sup>

<sup>6</sup> *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 654 (citing 14 C.C.R. § 15124).

<sup>7</sup> *McQueen v. Board of Directors* (1988) 202 Cal. App. 3d 1136, 1143.

<sup>8</sup> *Santiago County Water Dist. v. County of Orange* 118 Cal. App. 3d 818, 829-830.

<sup>9</sup> *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311 ("*Sundstrom*").

<sup>10</sup> *Santiago County Water Dist. v. County of Orange* 118 Cal. App. 3d 818, 829-830.

<sup>11</sup> *Id.* at 197-198.

<sup>12</sup> See, e.g., *Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1988) 47 Cal.3d 376, 6929-016acp.

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The purpose of an EIR is to reveal to the public “the basis on which its responsible officials either approve or reject environmentally significant action,” so that the public, “being duly informed, can respond accordingly to action with which it disagrees.”<sup>13</sup> Further, “[t]o be adequate, the EIR must include sufficient detail to enable those who did not participate in its preparation to understand and ‘meaningfully’ consider the issues raised by the proposed project.”<sup>14</sup>

G-8  
cont’d

**A. The DEIR’s Project Description is Inadequate Because it Fails to Provide an Adequate Description of the Project’s Contaminant Emitting Equipment**

The DEIR fails to disclose the number of seals, flanges, pumps, and valves and all air contaminant-emitting equipment, resulting in artificially reduced air pollutant emissions calculations.<sup>15</sup> Further, the DEIR fails to include an adequate description of key Project components, including turbines, air-cooled condensers, preheaters, recuperators, as well as existing pipelines, storage tanks, and wells.<sup>16</sup> The DEIR’s failure to include these components is critical, because the DEIR relies on the reduced number of seals, flanges, pumps, valves, etc. associated with the Project equipment as compared to existing units from 2019 and 2020 to estimate specific isopentane maintenance, purging, and fugitive emissions from the Project.<sup>17</sup>

G-9

Dr. Shukla provides substantial evidence that, where the actual number of equipment units is unreported, emissions during both construction and operation phases will be underestimated, leading to potential non-compliance with air quality regulations and significant environmental impacts.<sup>18</sup> Load factors, operational hours, and fuel consumption are based on equipment quantity.<sup>19</sup> Failure to quantify these units results in a potentially significant underestimation of emissions of pollutants like nitrogen oxides (“NOx”), carbon monoxide (“CO”), particulate matter 10 (“PM<sub>10</sub>”) and particulate matter 2.5 (“PM<sub>2.5</sub>”).<sup>20</sup>

<sup>13</sup> *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 392

<sup>14</sup> *California Oak Foundation v. City of Santa Clarita* 133 Cal.App.4th 1219, 1237 quoting *Santa Clarita Organization for Planning the Environment* 106 Cal.App.4th 715, 721; see also *Concerned Citizens of Costa Mesa Inc. v. 32nd Dist. Agricultural Assn.* (1986) 42 Cal.3d 929, 935 [“To facilitate CEQA’s informational role, the EIR must contain facts and analysis, not just the agency’s bare conclusions or opinions”].

<sup>15</sup> Shukla Comments at p. 6.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

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Dr. Shukla's comments demonstrate that the DEIR's air quality, GHG, and health risk analysis is therefore inadequate for failure to quantify the accurate emissions associated with Project components, which are likely to be underestimated. The DEIR's failure to provide an accurate calculation of the air contaminant-emitting equipment results in a failure to proceed in the manner required by law. The DEIR fails to provide an accurate, finite, and stable Project Description. The DEIR must be revised and recirculated to include an adequate description of the Project's contaminant emitting equipment.

G-9  
cont'd

**B. The Project Description is Inadequate for Failure to Include Project Development Pending Imperial Irrigation District Review**

The DEIR's Project Description provides that significant changes to the Project may occur pending Imperial Irrigation District ("IID") review.<sup>21</sup> The DEIR provides that:

[A] new substation will be required to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. Pending Imperial Irrigation District (IID) review, no upgrades to off-site transmission facilities are necessary. If upgrades to off-site facilities are later deemed necessary through an IID transmission study, recommendations could include protection upgrades and metering replacements at existing IID substations and/or upgrades to telecommunications, distribution lines, and transmission lines. Such upgrades would use existing infrastructure, easements, right-of-way, and corridors to the extent practicable. The new Dogwood substation will connect directly to the existing point of interconnection with the IID controlled grid.

G-10

The DEIR's Project Description analysis must include the determination of whether the Project will necessitate additional infrastructure. The DEIR must include analysis of impacts associated with the IID transmission study. Failure to include the foreseeable "upgrades [of] existing infrastructure, easements, right-of way, and corridors" associated with the Project results in the impermissible piecemealing of the Project with reasonably foreseeable Project components. The failure to address this "likely" element of the Project is impermissible piecemealing under CEQA.<sup>22</sup>

<sup>21</sup> DEIR at p. 2-13.

<sup>22</sup> 14 14 Cal. Code Regs. ("CCR") § 15165.  
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CEQA forbids piecemeal review of the significant environmental impacts of a project.<sup>23</sup> Agencies cannot allow “environmental considerations [to] become submerged by chopping a large project into many little ones—each with a minimal potential impact on the environment—which cumulatively may have disastrous consequences.”<sup>24</sup> The CEQA Guidelines provide “[w]here an individual project is a necessary precedent for action on a larger project, or commits the Lead Agency to a larger project, with significant environmental effect, an EIR must address itself to the scope of the larger project.”<sup>25</sup> Here, construction of the Project and related upgrades, metering replacements at existing IID substations and/or upgrades to telecommunications, distribution lines, and transmission lines would result in significant environmental effects, which must be analyzed in this DEIR to avoid violating CEQA for impermissibly piecemealing the Project from foreseeable future Project components.

G-10  
cont.

The DEIR must be revised and recirculated to adequately analyze the whole of the Project, including foreseeable improvements to IID infrastructure associated with the Project.

## II. THE DEIR'S DESCRIPTION OF THE ENVIRONMENTAL SETTING IS INADEQUATE

The DEIR fails to adequately describe the environmental setting against which the Project's environmental impacts are to be measured for several critical aspects of the Project. This contravenes the fundamental purpose of the environmental review process, which is to determine whether there is a potentially substantial, adverse change compared to the existing setting. CEQA requires that a lead agency include a description of the physical environmental conditions, or “baseline,” in the vicinity of the project as they exist at the time environmental review commences.<sup>26</sup> As the courts have repeatedly held, the impacts of a project must be measured against the “real conditions on the ground.”<sup>27</sup> The description of

G-11

<sup>23</sup> 14 CCR § 15165; *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1222; *Berkeley Jets*, 91 Cal.App.4th at 1358.

<sup>24</sup> *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 283-284.

<sup>25</sup> 14 CCR § 15165.

<sup>26</sup> 14 CCR § 15125(a); *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal. 4th 310, 321 (“*CBE v. SCAQMD*”).

<sup>27</sup> *CBE v. SCAQMD*, 48 Cal. 4th at 321; *Save Our Peninsula Com. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 121-22; *City of Carmel-by-the-Sea v. Bd. of Supervisors of Monterey County* (1986) 183 Cal.App.3d 229, 246.

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the environmental setting constitutes the “baseline” physical conditions against which the lead agency assesses the significance of a project’s impacts.<sup>28</sup>

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cont.

**A. The DEIR Fails to Accurately Describe the Existing  
Environmental Setting Related to Biological Resources**

The DEIR fails to provide a complete and accurate description of the Project’s environmental setting related to special-status species of wildlife, and thus, the DEIR’s impact assessment and proposed mitigation for impacts to biological resources are not supported by substantial evidence.

Dr. Smallwood’s comments provide substantial evidence that 121 special-status species of wildlife are known to occur near enough to the site to warrant analysis of occurrence potential.<sup>29</sup> Of these species, 13 were recorded on the project site, and another 10 species have been documented within 1.5 miles of the site (‘Very close’), another 20 within 1.5 and 4 miles (‘Nearby’), and another 71 within 4 to 30 miles (‘In region’).

G-12

Dr. Smallwood’s comments provide substantial evidence, based on visits to the Project site as well as empirical research, that the Project site supports multiple special-status species of wildlife which the DEIR omits and carries the potential for supporting many more special-status species of wildlife based on proximity of recorded occurrences.<sup>30</sup> The site is far richer in biodiversity of special-status species than is characterized in the Biological Resources and Burrowing Owl Survey Report and the DEIR’s Environmental Setting analysis.

**a. The DEIR Fails to Provide an Accurate Baseline  
Environmental Setting for Bats**

The DEIR incorrectly states that bats have no potential for occurrence in the project area due to a lack of suitable habitat despite bat reports in the CNDDB database cited in the DEIR, and direct bat observations by Dr. Smallwood.<sup>31</sup>

G-13

Dr. Smallwood identified three species of bats acoustically, and one species of bat visually during his field survey of the Project site.<sup>32</sup> Dr. Smallwood identified the Silver-haired bat which is rated as Moderate level of conservation concern by the Western Bat Working Group.<sup>33</sup> Dr. Smallwood identified a spotted bat, which is

<sup>28</sup> 14 CCR § 15125(a); *CBE v. SCAQMD*, 48 Cal. 4th at 321.

<sup>29</sup> Smallwood Comments at p. 14.

<sup>30</sup> *Id.*

<sup>31</sup> DEIR at p. 3.5-7.

<sup>32</sup> Smallwood Comments at 4.

<sup>33</sup> *Id.* at 21.

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a California Species of Special Concern and rated as High level of conservation concern by the Western Bat Working Group.<sup>34</sup> Spotted bats are exceedingly rare.<sup>35</sup> As of September 16, 2024, iNaturalist includes only five records of spotted bats in California.<sup>36</sup> Dr. Smallwood also detected 33 bat passes within 30 feet of our detector and within 90 minutes of survey, or one pass every 2 minutes and 43 seconds on average.<sup>37</sup> By contrast, the DEIR is not supported by evidence based on any surveys of bats, even though the geographic ranges of many bat species overlap the project site.<sup>38</sup> Dr. Smallwood concludes that the DEIR lacks substantial evidence to conclude that bats have no potential for occurrence on the Project site. The environmental setting analysis with respect to bats is therefore unsupported by substantial evidence.

G-13  
cont.

**b. The DEIR Fails to Provide an Accurate Baseline  
Environmental Setting for Burrowing Owls**

The DEIR states that burrowing owl only have a moderate potential for occurring on the Project site.<sup>39</sup> This is incorrect. Dr. Smallwood conducted a site visit and determined that burrowing owls were in fact present on the Project site.<sup>40</sup> Dr. Smallwood identified three burrowing owls on the Project site.<sup>41</sup> Dr. Smallwood also identified suitable habitat for burrowing owls in burrows on the Project site.<sup>42</sup> The DEIR's environmental impact analysis and mitigation for burrowing owls is unsupported by an environmental baseline analysis supported by substantial evidence with respect to burrowing owls.

G-14

**c. The DEIR Fails to Analyze the Existing Environmental  
Setting With Respect to Desert Pupfish**

The Project site is within the Imperial Valley Natural Community Conservation Plan and Habitat Conservation Plan ("HCP").<sup>43</sup> The HCP includes

G-15

<sup>34</sup> *Id.*

<sup>35</sup> *Id.* at 14.

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> Smallwood Comments at 12.

<sup>39</sup> DEIR at p. 3.5-6.

<sup>40</sup> Smallwood Comments at 11.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> Imperial Irrigation District, the California Department of Fish and Game, and the United States Fish and Wildlife Service Imperial Valley Natural Community Conservation Plan and Habitat Conservation Plan (Feb. 2006) p. 6 available at: <https://www.iid.com/home/showpublisheddocument/2260/635648001335730000.6339-016acp>

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Desert pupfish as a Covered Species.<sup>44</sup> Desert pupfish are known to occur in this area of the "Salton Sea year-round and breed in this habitat in the HCP area."<sup>45</sup> Desert pupfish are known to be "residents in drains" within the IID canals and drains system.<sup>46</sup> Desert pupfish have a potential to occur at the Project site's canals and drains, but the DEIR and Appendix E – the Biological Resources and Burrowing Owl Survey Report fail to make any mention of desert pupfish. The DEIR fails as an informational document for failing to analyze the existing environmental setting with respect to desert pupfish.

G-15  
cont'd

Desert pupfish are known to be present "In region" of the Project area.<sup>47</sup> Desert pupfish are endangered under both state and federal designation.<sup>48</sup> "Habitat destruction and alteration, combined with the introduction of non-native species are the primary reasons for the decline of desert pupfish populations. Currently, natural populations of desert pupfish occur in the Salton Sea and nearby shoreline pools, freshwater ponds and irrigation drains, as well as in portions of creeks/washes that are tributary to the Salton Sea."<sup>49</sup> Impacts to desert pupfish should have been analyzed in the DEIR but were not, and the presence of desert pupfish should have been conclusively described in the Environmental Setting analysis of the DEIR.

#### **d. The DEIR Fails to Accurately Analyze the Existing Environmental Setting Related to Arrow Weed**

The DEIR provides that:

As shown in Figure 3.5-1, arrow weed thicket occurs within the BSA. Arrow weed thickets are recognized by CDFW as a sensitive natural community. Arrow weed thickets were found along canals and drains below the ordinary high-water mark. The canals fall within the BSA, however, none of the arrow weed thickets that occur within the BSA would be removed or disturbed by project activities. Therefore, the proposed project would not have substantial

G-16

<sup>44</sup> *Id.*

<sup>45</sup> *Id.*

<sup>46</sup> *Id.* at C2-57.

<sup>47</sup> Smallwood Comments at p. 18.

<sup>48</sup> California Department of Fish and Wildlife, Desert Pupfish (*Cyprinodon macularis*), <https://wildlife.ca.gov/Regions/6/Desert-Fishes/Desert-Pupfish#:~:text=Habitat%20destruction%20and%20alteration%2C%20combined,mouths%20of%20other%20washes/tributaries.>

<sup>49</sup> *Id.*

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adverse effects on sensitive natural communities, and this is considered a less than significant impact.<sup>50</sup>

Dr. Smallwood's comments, supported by direct evidence from his site visit, demonstrate that the DEIR's analysis of the amount of arrow weed thickets is not supported by substantial evidence.<sup>51</sup> The DEIR (Figure 3.5-1) depicts arrow weed thickets in smaller patches than Dr. Smallwood observed.<sup>52</sup> The DEIR fails to calculate or accurately report the acreage of arrow weed, but Dr. Smallwood documented about 1.16 acres of arrow weed.<sup>53</sup> The DEIR's environmental setting analysis with respect to arrow weed is therefore not supported by substantial evidence. Moreover, the DEIR's Appendix F Preliminary Jurisdictional Report ("PJD") determination that the ditches do not support riparian vegetation/habitat<sup>54</sup> is not supported by substantial evidence.<sup>55</sup>

G-16  
cont.

The DEIR must be revised and recirculated to accurately reflect the existing environmental setting related to arrow weed before the Project can lawfully be approved.

#### **B. The DEIR Fails to Accurately Describe the Existing Environmental Setting Related to Wetlands**

According to the PJD Report<sup>56</sup>, approximately 0.11 acres of the disturbance area also meet the definition of State jurisdictional waters as outlined in Sections 1600-1616 of the CDFW Code, and approximately 0.11 acres of the disturbance area meet the federal definition of "waters of the United States" as outlined in 33 CFR Part 328.

G-17

Dr. Smallwood concludes that impacts to wetlands may be significant as a result of Project construction and operation. Dr. Smallwood found a significant potential impact to wetlands from modifications to wetland features, as well as from the project's two double-walled 20,000-gallon above-ground isopentane storage tanks.<sup>57</sup> Isopentane is a volatile flammable liquid that on contact can irritate and burn skin, eyes and lungs.<sup>58</sup> Dr. Smallwood explains that storing up to 40,000

<sup>50</sup> DEIR at p. 3.5-18.

<sup>51</sup> Smallwood Comments at p. 25.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> DEIR at p. 4-14.

<sup>55</sup> Smallwood Comments at p. 24.

<sup>56</sup> EIR Appendix F at p. 4-14.

<sup>57</sup> Smallwood Comments at p. 24.

<sup>58</sup> *Id.*

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gallons of isopentane near wetlands would potentially jeopardize wetlands.<sup>59</sup> A release of isopentane could result in significantly decreased water quality and contamination of surface waters.<sup>60</sup> Isopentane is acutely toxic to fish, invertebrates, with long term toxicity to fish, and aquatic vertebrates.<sup>61</sup> Isopentane could infiltrate soils, resulting in toxicity impairing root systems and vegetative health.<sup>62</sup> Contamination from a release of isopentane could have lasting effects and result in long-term degradation of the wetland habitat. The DEIR should be revised to analyze this potentially significant impact.

G-17  
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### C. The DEIR Fails to Adequately Describe the Environmental Setting for Air Quality Due to Inaccurate Monitoring Station Data

Dr. Shukla demonstrates that the DEIR fails to adequately analyze the existing environmental setting for air quality due to its reliance on distant meteorological data for emissions analysis.<sup>63</sup> The DEIR relies on data from a weather station that is not representative of local conditions, and fails to include data from nearby, more relevant sources.<sup>64</sup> By not utilizing data from stations closer to the project site, the DEIR fails to account for localized meteorological conditions that could influence the dispersion of pollutants.<sup>65</sup> Thus, the DEIR relies on inaccurate meteorological data and the subsequent emissions modeling is unsupported.<sup>66</sup>

G-18

The Project relies on unrepresentative data from the Imperial City station located at Frank Wright Middle School, despite the proximity of closer stations in El Centro and Calexico. The Imperial City station is approximately 11.8 miles from the Project site, whereas El Centro and Calexico are located only 5.5 miles and 5.1 miles away, respectively. Dr. Shukla's comments demonstrate that in order to ensure accurate representation, the modeling should incorporate localized micrometeorological data, which can be obtained from the El Centro meteorological station, closer to the Project site.<sup>67</sup>

<sup>59</sup> *Id.*

<sup>60</sup> *Id.*

<sup>61</sup> [https://balchem.com/performance-gases/wp-content/uploads/sites/5/2021/02/10289gb\\_CLP\\_II\\_134\\_ATP4\\_0000\\_isopentane\\_balchem.pdf](https://balchem.com/performance-gases/wp-content/uploads/sites/5/2021/02/10289gb_CLP_II_134_ATP4_0000_isopentane_balchem.pdf)

<sup>62</sup> Smallwood Comments at p. 24.

<sup>63</sup> Shukla Comments at p. 10.

<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> Shukla Comments at p. 10.

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Utilizing data from a more distant station introduces several uncertainties and variations that can compromise the accuracy and reliability of air quality assessments.<sup>68</sup> Localized conditions such as meteorology, topography, traffic, and industrial activities can cause significant variations in pollutant concentrations across relatively short distances.<sup>69</sup> The data from a station 11.8 miles away may not accurately represent the air quality conditions at the Project site, potentially leading to underestimations or overestimations of pollutant levels.<sup>70</sup> This misrepresentation can affect the accuracy of emissions modeling, the assessment of potential impacts on human health, and the evaluation of whether the Project meets air quality standards.<sup>71</sup> Absent a representative and site-specific air quality analysis, the Project's environmental setting analysis is unsupported by substantial evidence.

G-18  
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### **III. THE DEIR FAILS TO ACCURATELY ANALYZE, QUANTIFY, AND MITIGATE POTENTIALLY SIGNIFICANT IMPACTS TO AIR QUALITY**

#### **A. The DEIR Fails to Analyze the Project's Significant Impacts from Isopentane Fugitive Emissions**

Substantial evidence in Dr. Shukla's comments demonstrates that the Project results in significant impacts from fugitive emissions of isopentane.<sup>72</sup> Isopentane is a reactive organic gas ("ROG"). Dr. Shukla determined that the DEIR fails to accurately quantify fugitive isopentane emissions.<sup>73</sup> Dr. Shukla found that the DEIR underestimates isopentane emissions by a factor of three.<sup>74</sup> Accounting for this discrepancy, Dr. Shukla calculated that fugitive isopentane emissions will be approximately 203.31 pounds per day ("lbs/day"), significantly exceeding the ROG significance threshold of 137 lbs/day.<sup>75</sup>

G-19

Further, Dr. Shukla calculated that, when accounting for all emissions sources, including from purging emissions, isopentane emissions are even higher than estimated in the DEIR.<sup>76</sup> Dr. Shukla calculated that purging emissions will

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<sup>68</sup> *Id.*  
<sup>69</sup> *Id.*  
<sup>70</sup> *Id.*  
<sup>71</sup> *Id.*  
<sup>72</sup> *Id.* at 36.  
<sup>73</sup> *Id.*  
<sup>74</sup> *Id.*  
<sup>75</sup> *Id.*  
<sup>76</sup> *Id.* at 35.  
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result in approximately 17 gallons per day of isopentane emissions.<sup>77</sup> This is equivalent to 112 lbs/day, resulting in 315.31 lbs/day of total isopentane emissions.<sup>78</sup> Isopentane emissions result in a significant environmental impact requiring analysis and mitigation in a revised and recirculated DEIR.

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Dr. Shukla's comments also provide substantial evidence that the DEIR fails to account for isopentane emissions that may result from deliveries and transportation of isopentane.<sup>79</sup> The DEIR does not provide an isopentane loss rate, "which is critical for accurately estimating the frequency of isopentane replenishment required to maintain the total site volume of 122,140 gallons."<sup>80</sup> The DEIR fails to analyze isopentane emissions associated with delivery and transportation of isopentane, which may result in "potentially significant environmental impacts associated with ongoing isopentane replenishment."<sup>81</sup> The DEIR's isopentane emissions analysis is therefore unsupported by substantial evidence.

#### **B. The DEIR Fails to Incorporate Best Available Control Technology for ROG Emissions of Isopentane**

Imperial County Air Pollution Control District ("ICAPCD") Rule 207(C)(1)(c) requires that BACT shall be applied for each pollutant(s) for which a threshold is exceeded. Isopentane is a ROG pollutant.<sup>82</sup> The ROG significance threshold of 75 pounds per day is exceeded because isopentane emissions may exceed 315 lbs/day.<sup>83</sup> BACT is therefore required for Project operation in order for the Project to comply with ICAPCD Rule 207. The DEIR must be revised and recirculated to incorporate BACT.

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#### **C. The DEIR Fails to Analyze the Project's Significant Impacts from Ammonia**

The DEIR fails to adequately analyze the Project's potentially significant impacts associated with ammonia. Dr. Shukla's comments provide substantial evidence that ammonia may be emitted during well drilling, steam separation, and venting processes due to its presence in geothermal fluids.<sup>84</sup> Ammonia is a

G-21

<sup>77</sup> *Id.*

<sup>78</sup> *Id.*

<sup>79</sup> Shukla Comments at p. 37.

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

<sup>83</sup> DEIR at 3.4-12; Shukla Comments at p. 43.

<sup>84</sup> *Id.* at 39.

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precursor to secondary particulate matter formation.<sup>85</sup> Ammonia emissions from geothermal operations can interact with other pollutants, contributing to air quality degradation and potential health impacts.<sup>86</sup>

Failure to include ammonia emissions in the DEIR's analysis overlooks a significant source of air pollution, resulting in underestimated environmental and health impacts.<sup>87</sup> Proper evaluation for ammonia emissions is critical to prevent harmful effects.<sup>88</sup> The lack of consideration for ammonia within the emissions inventory and modeling undermines the reliability of the DEIR's conclusions on air quality and public health protections. The omission of any analysis of ammonia in the DEIR results in an air quality analysis unsupported by substantial evidence.

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#### **D. The DEIR Fails to Adequately Analyze the Project's Significant Ozone Emissions**

Dr. Shukla's comments provide substantial evidence that the DEIR fails to adequately analyze impacts from ozone ("ozone" or "O3"). The DEIR concludes, absent substantial evidence, that ozone emissions are less than significant. The DEIR provides that:

[T]he proposed project's impact could be cumulatively considerable because the Imperial County portion of the SSAB is nonattainment already for O3 and PM10 under state standards and for O3 and PM2.5 federal standards. Thus, existing O3 and PM10 levels in the SSAB are at unhealthy levels during certain periods. Additionally, the cumulative construction effects could again be experienced in the future during decommissioning and site restoration activities.<sup>89</sup>

G-22

The DEIR goes on to conclude, "the project would not contribute to long-term cumulatively considerable air quality impacts and the projects would not result in cumulatively significant air quality impacts, and cumulative impacts would be less than significant."<sup>90</sup> This conclusion is not supported by substantial evidence in the record.

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<sup>85</sup> *Id.*

<sup>86</sup> *Id.* at 40.

<sup>87</sup> Shukla Comments at p. 10.

<sup>88</sup> *Id.*

<sup>89</sup> DEIR at 5-10.

<sup>90</sup> *Id.* at 5-11.

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Dr. Shukla's comments demonstrate that, absent detailed analysis or modeling, the DEIR fails to adequately assess the Project's contributions to ozone levels, which is especially egregious in an area that with ozone levels in nonattainment and "at unhealthy levels during certain periods."<sup>91</sup> Dr. Shukla finds that due to the "lack of [ozone] modeling, [] the Project does not account for the combined effects of reactive organic gases (ROGs) and nitrogen oxides (NOx), which are critical in forming ground-level ozone, a major air pollutant that poses significant health risks."<sup>92</sup>

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Dr. Shukla's comments demonstrate that ozone emissions from the Project result in a cumulatively considerable increase in ozone pollution, for which the Project region is in nonattainment under state air quality standards.<sup>93</sup> Dr. Shukla's comments provide substantial evidence that the Project will result in emissions of ozone precursors like oxides of NOx and "ROGs, as well as emissions of volatile organic compounds ("VOCs") which will result in cumulatively significant "negative implications for community health"<sup>94</sup> The DEIR fails to adequately analyze or quantify this impact.

#### **E. The DEIR Fails to Adequately Analyze the Project's Significant NOx Emissions Impacts**

Substantial evidence in Dr. Shukla's comments demonstrate that the Project may result in even more significant NOx emissions than the DEIR analyzed.<sup>95</sup> Dr. Shukla found that key NOx emissions sources were omitted from the DEIR's analysis, including emissions associated with well drilling and flow testing.<sup>96</sup> NOx emissions may therefore be more significant than analyzed and must be accurately quantified in a revised and recirculated DEIR before the Project can be approved.

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#### **F. The DEIR Fails to Incorporate Best Available Control Technology for Significant Emissions of PM2.5**

ICAPCD Rule 207(C)(1)(a) requires an applicant to apply BACT on a pollutant by pollutant basis to any new emissions unit with a potential to emit of 25 pounds per day or more of any nonattainment pollutant or its precursors.<sup>97</sup> For

G-24

<sup>91</sup> DEIR at 5-11.

<sup>92</sup> Shukla Comments at p. 9.

<sup>93</sup> DEIR at p. 3.4-21.

<sup>94</sup> Shukla Comments at p. 29.

<sup>95</sup> *Id.* at 8.

<sup>96</sup> *Id.*

<sup>97</sup> Imperial County Air Pollution Control District Rule 207(C)(1)(a).  
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PM2.5 this provision applies only to emissions units located in the PM2.5 Nonattainment Area of Imperial County.<sup>98</sup> The Project is within a PM2.5 Nonattainment Area of Imperial County.<sup>99</sup>

Dr. Shukla calculated that the sand separators, along with road dust and wind erosion associated with unpaved areas will result in significant PM2.5 emissions that the DEIR failed to adequately analyze or mitigate.<sup>100</sup> The CalEEMOD files include zeros for daily PM2.5 emissions during site preparation, these outputs are not supported by substantial evidence.<sup>101</sup> Comprehensive assessment and accurate modeling of these emissions are essential to ensure effective mitigation and compliance with air quality standards.<sup>102</sup> The omission of critical PM2.5 emissions, particularly from road dust, wind erosion, and on-site diesel truck emissions, renders the DEIR's analysis unsupported by substantial evidence.

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Further, Dr. Shukla calculated that, when considering the Project's overall PM2.5 emissions, including those from site preparation, erosion, and on-site truck operations, the total would likely be more than three times the DEIR's estimated emissions.<sup>103</sup> The total would be approximately 800 lbs/day for both 2025 and 2026.<sup>104</sup> Dr. Shukla's comments provide substantial evidence that the Project results in PM2.5 emissions far exceeding the 550 lbs/day ICAPCD significance threshold and necessitating the implementation of BACT for PM2.5 to mitigate significant adverse impacts on air quality and public health.<sup>105</sup>

#### **G. The DEIR Fails to Adequately Analyze the Project's Significant Odor Impacts from Hydrogen Sulfide**

The DEIR provides, absent substantial evidence that odor impacts from hydrogen sulfide would be less than significant.<sup>106</sup> This conclusion is unsupported by evidence in the DEIR and substantial evidence in Dr. Shukla's comments and cited reports. Dr. Shukla's comments provide substantial evidence that the Project may result in significant impacts from hydrogen sulfide ("H2S") emissions, which "Upon release into the atmosphere, it emits a characteristic "rotten egg" odor and

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<sup>98</sup> *Id.*

<sup>99</sup> DEIR at p. 5-9.

<sup>100</sup> Shukla Comments at p. 38.

<sup>101</sup> *Id.*

<sup>102</sup> *Id.* at 37.

<sup>103</sup> *Id.* at 33.

<sup>104</sup> *Id.*

<sup>105</sup> *Id.*

<sup>106</sup> DEIR at p. 3.4-23.

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poses serious environmental and health hazards.”<sup>107</sup> Prolonged exposure to elevated concentrations of H<sub>2</sub>S can lead to significant respiratory issues, eye irritation, and, in severe cases, neurological and cardiovascular damage.<sup>108</sup> The Project fails to provide quantified H<sub>2</sub>S emissions from construction activities, noting only that odors could persist from several hours to up to 45 days at each well site, this is a significant amount of time and is not a mere “temporary basis during drilling” as the DEIR suggests.<sup>109</sup>

The DEIR states:

H<sub>2</sub>S emissions would be the most important non-condensable gas from a health-risk and odor nuisance standpoint. The potential exists that this gas and other non-condensable gases may be emitted intermittently on a short-term and temporary basis during drilling. During well cleanout and flow testing, geothermal fluids would likely be pumped into large tanks. H<sub>2</sub>S may temporarily be released from the geothermal fluid for several hours to up to 30 days during these activities. The local H<sub>2</sub>S emissions during these activities could exceed the ICAPCD sulfur compound emission standard (Rule 405) of 0.2 percent by volume (calculated as SO<sub>2</sub> and measured at a point of discharge) and could produce an objectionable “rotten egg” odor in the immediate vicinity of each well. However, these concentrations would not be expected to pose a health hazard and would not reach far beyond the vicinity of the wells under normal conditions. In addition, potential H<sub>2</sub>S emissions resulting from these activities would be temporary at each well development site and would occur for a relatively short period of several hours to up to 45 days at each well site.<sup>110</sup>

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Dr. Shukla's comments provide substantial evidence that H<sub>2</sub>S emissions would, in fact, be cumulatively significant.<sup>111</sup> The Project is within an area with 17 existing geothermal plants, all of which contribute to the cumulatively significant H<sub>2</sub>S emissions.<sup>112</sup> The Project's H<sub>2</sub>S emissions exacerbate existing H<sub>2</sub>S emissions conditions, resulting in significant cumulative impacts that the DEIR fails to

<sup>107</sup> *Id.*

<sup>108</sup> “Hydrogen Sulfide.” Centers for Disease Control and Prevention, October 21, 2014.

<https://www.cdc.gov/TSP/MMG/MMG>

<sup>109</sup> Refer to Para. 2 on Pg. 4-14 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024.

<sup>110</sup> DEIR at p. 3.4-23.

<sup>111</sup> Shukla Comments at 17.

<sup>112</sup> *Id.*

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disclose and mitigate.<sup>113</sup>

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The H<sub>2</sub>S emissions from the Project may also be individually significant. The DEIR recognizes that "H<sub>2</sub>S may temporarily be released from the geothermal fluid for several hours to up to 30 days during these activities. The local H<sub>2</sub>S emissions during these activities could exceed the ICAPCD sulfur compound emission standard (Rule 405) of 0.2 percent by volume (calculated as SO<sub>2</sub> and measured at a point of discharge) and could produce an objectionable "rotten egg" odor in the immediate vicinity of each well."<sup>114</sup> The DEIR's conclusion that, "given the temporary nature of construction activities and the lack of sensitive receptors in the immediate vicinity of project components, odor nuisances that would be associated with project construction activities are expected to be negligible and impacts would be less than significant."<sup>115</sup> H<sub>2</sub>S impacts lasting 30 or 45 days would not be a temporary or negligible impact, and may result in significant health and odor nuisance impacts to nearby sensitive receptors.<sup>116</sup>

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Dr. Shukla's comments provide substantial evidence that H<sub>2</sub>S emissions from the Project may result in significant impacts to nearby residents and workers, especially in downwind conditions.<sup>117</sup> Dr. Shukla cites to a study that found exceedances of health impact and odor thresholds from H<sub>2</sub>S within a 30km radius of geothermal power plants.<sup>118</sup>

Dr. Shukla's comments provide substantial evidence that Project emissions of H<sub>2</sub>S may result in significant impacts to nearby sensitive receptors at Heber Elementary School.<sup>119</sup> Dr. Shukla found that the DEIR fails to adequately evaluate the potential health impacts on students and staff at the school.<sup>120</sup> Dr. Shukla's comments demonstrate that "[f]or the elementary school, a primary concern is the potential degradation of air quality due to elevated levels of hydrogen sulfide (H<sub>2</sub>S),

<sup>113</sup> Shukla Comments at 17.

<sup>114</sup> DEIR at p. 3.4-23.

<sup>115</sup> *Id.*

<sup>116</sup> Shukla Comments at 17.

<sup>117</sup> L.C. Aguilar-Dodier a, a, b, c, d, e, 1, et al. "Spatial and Temporal Evaluation of H<sub>2</sub>S, SO<sub>2</sub> and NH<sub>3</sub> Concentrations near Cerro Prieto Geothermal Power Plant in Mexico." *Atmospheric Pollution Research*, September 28, 2019.

<https://www.sciencedirect.com/science/article/abs/pii/S1309104219304659#:~:text=Power%20generati on%20is%20associated%20with,has%20health%20and%20environmental%20effects.>

<sup>118</sup> Shukla Comments at p. 17; S. Olafsdottir, et al. "Spatial distribution of hydrogen sulfide from two geothermal power plants in complex terrain." *Atmospheric Environment*, January 2014. <https://www.sciencedirect.com/science/article/abs/pii/S1352231013007668>.

<sup>119</sup> Shukla Comments at p. 18.

<sup>120</sup> *Id.*

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which could adversely affect students' health."<sup>121</sup> Dr. Shukla demonstrates that, "[a]bsent comprehensive impact assessments and mitigation strategies to safeguard these sensitive receptors, air quality and health risk impacts remain significant and unmitigated."<sup>122</sup>

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The DEIR fails to adequately analyze, quantify, and mitigate impacts from H<sub>2</sub>S which may be cumulatively and individually significant. The DEIR must be revised and recirculated to adequately analyze and mitigate impacts from H<sub>2</sub>S on the community before the Project can be approved.

#### **H. The Project Results in Significant Unmitigated Impacts from Valley Fever**

Valley fever, an infectious disease caused by inhaling *Coccidioides* spores, poses a significant health risk when soil containing these spores is disturbed during Project construction and operation.<sup>123</sup> The disease is endemic (native and common) to semiarid regions of the United States, including Imperial County.<sup>124</sup>

Valley Fever spores are small, have slow settling rates, and can remain airborne for long periods, traveling significant distance.<sup>125</sup> Invisible to the human eye, these spores can persist in seemingly clear air, rendering the DEIR's nonbinding best management practices insufficient to protect site workers or the public.<sup>126</sup> Standard fugitive dust mitigation measures, like those proposed in AQ-1, do nothing to prevent the spread of the fungus and are not effective at controlling Valley Fever because they are largely focused on controlling visible dust or larger dust particles.<sup>127</sup> These measures fall short in protecting against Valley Fever.

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Dr. Shukla demonstrates that mitigation measures AQ-3 and AQ-4 fail to mitigate impacts to PM<sub>10</sub>, which are larger particles than Valley Fever spores, and are also ineffective to mitigate the release of smaller Valley Fever spores which are not controlled by standard dust control mitigation.<sup>128</sup> Dr. Shukla's comments point to data in the DEIR which indicate that PM<sub>10</sub> levels exceed the thresholds established by ICAPCD even after the proposed mitigation measures are

<sup>121</sup> Shukla Comments at p. 18

<sup>122</sup> *Id.*

<sup>123</sup> PSA at p. 5.10-6.

<sup>124</sup> Cal. Lab. Code § 6709(a).

<sup>125</sup> Shukla Comments at p. 25.

<sup>126</sup> *Id.*

<sup>127</sup> *Id.*

<sup>128</sup> *Id.* at 27.

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implemented (as shown in Table 3.4-10).<sup>129</sup> The DEIR does not provide sufficient evidence to demonstrate that these mitigation strategies will effectively prevent significant impacts related to Valley Fever.

**Table 3.4-10. Mitigated Project Construction-Generated Emissions (lbs/day)**

Construction Year	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	9.90	83.42	466.38	1.12	2,238.7	226.62
2026	10.72	87.06	520.46	1.30	2,351.7	238.04
ICAPCD Significance Threshold	75	100	550	--	150	--
Exceed Threshold?	No	No	No	--	[Yes] <sup>1</sup>	--

Source: Appendix D of this EIR

Notes:

<sup>1</sup> Guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided.

Dr. Shukla's comments provide substantial evidence that impacts from Valley Fever remain significant and unmitigated. Construction workers, agricultural workers, and ranchers are among the most vulnerable to Valley Fever infection due to their frequent exposure to dust and disturbed soil in common regions.<sup>130</sup> Construction personnel working directly on the Project are at high risk of inhaling airborne fungal spores, while nearby agricultural and ranching activities could face secondary exposure from airborne dust and soil particles.<sup>131</sup> Additionally, the DEIR does not sufficiently consider the potentially significant Valley Fever impacts on nearby sensitive receptors at adjacent properties, including Heber Elementary School, El Torro Cattle and Land Co., and Holtz Ranch.<sup>132</sup> These sites are at risk due to their proximity to the proposed project and the likelihood of dust generation during extensive ground disturbance resulting in significant Valley Fever exposure.<sup>133</sup>

## I. The DEIR Fails to Adequately Mitigate Impacts from Valley Fever

Dr. Shukla's comments demonstrate that impacts from Valley Fever remain significant and unmitigated.

<sup>129</sup> Shukla Comments at p. 27.

<sup>130</sup> "Valley Fever (Coccidioidomycosis) - Overview," Occupational Safety and Health Administration. Accessed September 19, 2024. <https://www.osha.gov/valley-fever>

<sup>131</sup> Shukla Comments at p. 25.

<sup>132</sup> *Id.*

<sup>133</sup> *Id.*

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The DEIR's requirement that the Applicant prepare a Construction Dust Control Plan after Project approval constitutes impermissibly deferred mitigation under CEQA. CEQA Guidelines § 15126.4(a)(1)(B) provide that formulation of mitigation measures shall not be deferred until some future time.<sup>134</sup> "Impermissible deferral of mitigation measures occur when an EIR puts off analysis or orders a report without either setting standards or demonstrating how the impact can be mitigated in the manner described in the EIR."<sup>135</sup> Here, Mitigation Measure AQ-4 states that a Dust Suppression Management Plan ("DSMP") shall be submitted prior to any earthmoving activity, requiring that the applicant submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department ("ICPDS") approval.<sup>136</sup>

"An EIR is inadequate if '[t]he success or failure of mitigation efforts ... may largely depend upon management plans that have not yet been formulated, and have not been subject to analysis and review within the EIR.'" <sup>137</sup> Here, the DSMP would require additional analysis and provide mitigation measures that should have been included for public review in the DEIR. The DEIR fails as an informational document for impermissibly deferred analysis and mitigation.

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The CEQA Guidelines provide that "[t]he specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review..."<sup>138</sup> The DEIR does not state why specifying these DSMP performance standards was impractical or infeasible at the time the DEIR was drafted. In *Preserve Wild Santee v. City of Santee*, the city impermissibly deferred mitigation where the EIR did not state why specifying performance standards for mitigation measures "was impractical or infeasible at the time the EIR was certified."<sup>139</sup> The court determined that although the City must ultimately approve the mitigation standards, this does not cure these informational defects in the EIR.<sup>140</sup> Further, the court in *Endangered Habitats League, Inc. v. County of Orange*, held that mitigation that does no more than require a report to be prepared and followed, or allow

<sup>134</sup> 14 CCR 15126.4(a)(1)(B).

<sup>135</sup> *City of Long Beach v. Los Angeles Unified School Dist.* (2009) 176 Cal.App.4th 889, 915-916.

<sup>136</sup> DEIR at p. 3.4-20.

<sup>137</sup> *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, quoting *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 92, quoting *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645 670.

<sup>138</sup> 14 CCR § 15126.4(a)(1)(B).

<sup>139</sup> *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 281.

<sup>140</sup> *Id.*

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approval by a county department without setting any standards is inadequate.<sup>141</sup> Here, the fact that the DSMP will be approved later by the APCD does not cure the informational defects in this DEIR.<sup>142</sup>

The Project's impacts associated with Valley Fever are not sufficiently mitigated by ICAPCD Regulation VIII, Fugitive Dust Rules. Moreover, Imperial Valley Code of Ordinances 91702.01(N) does not sufficiently mitigate against impacts of Valley Fever. Imperial Valley Code of Ordinances requires that "Fugitive dust emission shall be controlled by dust control measures (e.g., watering) clean gravel, application of soil stabilizers or oil on well site access roads, limiting public access on unpaved areas, and posting roadways with reduced speeds."

In order to reduce the Project's potentially significant Valley Fever impacts to the greatest extent feasible, Dr. Shukla recommends that the Project include the following measures from the South Coast Air Quality Management District to mitigate fugitive dust:

- 1) Apply water every 4 hours to the area within 100 feet of a structure being demolished, to reduce vehicle trackout.
- 2) Use a gravel apron, 25 feet long by road width, to reduce mud/dirt trackout from unpaved truck exit routes.
- 3) Apply dust suppressants (e.g., polymer emulsion) to disturbed areas upon completion of demolition.
- 4) Apply water to disturbed soils after demolition is completed or at the end of each day of cleanup.
- 5) Prohibit demolition activities when wind speeds exceed 25 mph. This measure is particularly key because the DEIR recognizes that "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."<sup>143</sup>
- 6) Apply water every 3 hours to disturbed areas within a construction site.
- 7) Require minimum soil moisture of 12% for earthmoving by use of a moveable sprinkler system or a water truck. Moisture content can be verified by lab sample or moisture probe.
- 8) Limit on-site vehicle speeds (on unpaved roads) to 15 mph by radar enforcement.
- 9) Replace ground cover in disturbed areas as quickly as possible.

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<sup>141</sup> *Endangered Habitats League, Inc. v. County of Orange*, (2005) 131 Cal.App.4th 777, 794.

<sup>142</sup> See *Cal. Clean Energy Comm. v. City of Woodland* (2014) 225 Cal.App.4th 173, 194.

<sup>143</sup> DEIR at p. 3.4-1.

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- 10) All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.<sup>144</sup>

The DEIR includes Section 2.7 "Applicant Proposed Measures and Best Management Practices" but these measures are not included in the Mitigation Measure section of the DEIR, they are therefore not enforceable and do not constitute adequate mitigation to reduce the Project's potentially significant impacts.

Section 2.7 provides:

- Any equipment breakdown resulting in air emissions shall be reported to ICAPCD and promptly corrected (within 24 hours when possible).
- To minimize unnecessary emissions, Project equipment and worker vehicles shall be turned off when not in use and not left idling.
- Water shall be applied to the development site and during preparation and construction to control fugitive dust.
- Earth moving work shall be completed in phases (as necessary) to minimize the amount of disturbed area at one time.
- Construction vehicles and heavy equipment that use non-surfaced facility roads and areas will be restricted to 5 mph to control fugitive dust.
- During windy conditions, barriers shall be constructed and/or additional watering will occur to minimize fugitive dust.
- Vehicle access shall be restricted to the disturbance area via signage and/or fencing.
- Equipment shall be operated according to best practices and maintained according to design specifications.
- Construction equipment shall be equipped with an engine designation of EPA Tier 3 (Tier 3) if commercially available and feasible. If a Tier 3 engine is not certified for a particular piece of equipment or not commercially available, then the equipment shall be either equipped with a Tier 2 engine or equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels. Prior to the issuance of a grading permit, ORMAT will submit a list of all construction equipment, including off road equipment, by make, model, year, horsepower, expected/actual hours of use, and EPA to the County Planning and Development Services Department and ICAPCD.

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<sup>144</sup> SCAQMD, Fugitive Dust Mitigation Measure Table XI-A, <http://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/fugitive-dust/fugitive-dust-table-xi-a.doc?sfvrsn=2>, 6039-016acp

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- The project shall implement the following measures as part of its construction Best Management Practices (BMPs): providing Valley Fever awareness training for workers; providing respirators to workers when requested, including the provision of necessary training; use of closed-cab earth-moving vehicles equipped with HEPA-filtered air systems; employee testing for Valley Fever as needed; and conducting earth-moving activities downwind of workers when possible.

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The DEIR does not include all of these measures as binding mitigation, but should. Mitigation measures must be fully enforceable through permit conditions, agreements or other legally binding instruments.<sup>145</sup> Failure to include enforceable mitigation measures is considered a failure to proceed in the manner required by CEQA.<sup>146</sup> In order to meet this requirement, mitigation measures must be incorporated directly into the EIR to be enforceable.<sup>147</sup> The Project's impacts from Valley Fever therefore remain significant and unmitigated.

#### IV. THE DEIR FAILS TO ADEQUATELY ANALYZE AND MITIGATE SIGNIFICANT IMPACTS FROM GREENHOUSE GAS EMISSIONS

CEQA requires the lead agency to use scientific data to evaluate GHG impacts directly and indirectly associated with a project.<sup>148</sup> The analysis must "reasonably reflect evolving scientific knowledge and state regulatory schemes."<sup>149</sup> In determining the significance of GHG emission impacts, the agency must consider the extent to which the project may increase GHG emissions compared to the existing environmental setting and the "extent to which the project complies with

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<sup>145</sup> 14 CCR §15126.4(a)(2).

<sup>146</sup> *San Joaquin Raptor Rescue Ctr. v. County of Merced* (2007) 149 Cal.App.4th 645, 672.

<sup>147</sup> *Lotus v. Dept of Transportation* (2014) 223 Cal. App. 4th 645, 651-52.

<sup>148</sup> 14 CCR § 15064.4(a) (lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project); 14 C.C.R. § 15064(d) (evaluating significance of the environmental effect of a project requires consideration of reasonably foreseeable indirect physical changes caused by the project); 14 C.C.R. § 15358(a)(2) (defining "effects" or "impacts" to include indirect or secondary effects caused by the project and are "later in time or farther removed in distance, but are still reasonably foreseeable" including "effects on air"); CEQA Guidelines, Appendix G, § VIII: Greenhouse Gas Emissions (stating agencies should consider whether the project would "generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.").

<sup>149</sup> 14 C.C.R. § 15064.4(b); see also *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 504 (holding that lead agencies have an obligation to track shifting regulations and to prepare EIRs in a fashion that keeps "in step with evolving scientific knowledge and state regulatory schemes").

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regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.”<sup>150</sup>

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**A. The DEIR Fails to Adequately Analyze and Mitigate Impacts from Sulfur Hexafluoride (SF<sub>6</sub>)**

The DEIR provide that Sulfur hexafluoride (“SF<sub>6</sub>”) is an extremely potent GHG.<sup>151</sup> The DEIR provides that SF<sub>6</sub> is very persistent, with an atmospheric lifetime of more than 1,000 years.<sup>152</sup> Thus, a relatively small amount of SF<sub>6</sub> can have a significant long-term impact on global climate change.<sup>153</sup> SF<sub>6</sub> is human-made, and the primary user of SF<sub>6</sub> is the electric power industry.<sup>154</sup> Because of its inertness and dielectric properties, it is the industry’s preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity.<sup>155</sup> SF<sub>6</sub> is used extensively in high voltage circuit breakers and switchgear, and in the magnesium metal casting industry.<sup>156</sup>

The DEIR’s emissions modeling for SF<sub>6</sub> is unsupported by substantial evidence. Dr. Shukla confirmed that the CalEEMod outputs in the DEIR’s Appendix D Air Quality and Greenhouse Gas Technical Report do not substantiate the claim that the Project results in 97 MTCO<sub>2</sub>e of operational GHG emissions.<sup>157</sup> Absent detailed documentation of all assumptions and calculations supporting the DEIR’s conclusions related to operational GHG emissions, the DEIR’s conclusions are unsupported by substantial evidence.<sup>158</sup> Appendix D of the DEIR provides that construction emissions would result in a maximum of 17,592 MTCO<sub>2</sub>e per year.<sup>159</sup> However, the methodology and specific calculations behind this figure are unclear and inadequately documented in the modeling outputs.<sup>160</sup>

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Dr. Shukla’s comments provide substantial evidence demonstrating that, absent leak detection measures in place for sulfur hexafluoride, emissions of sulfur hexafluoride will result in significant greenhouse gas emissions impacts over the

<sup>150</sup> 14 C.C.R. § 15064.4(b)(1); (3).

<sup>151</sup> DEIR at 3.9-2.

<sup>152</sup> *Id.*

<sup>153</sup> *Id.*

<sup>154</sup> *Id.*

<sup>155</sup> *Id.*

<sup>156</sup> *Id.*

<sup>157</sup> Shukla Comments at p. 44.

<sup>158</sup> *Id.*

<sup>159</sup> DEIR Appendix D at p. 4-15.

<sup>160</sup> Shukla Comments at p. 44.

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lifetime of the Project.<sup>161</sup> The DEIR omits the implementation of a leak detection methodology for sulfur hexafluoride.<sup>162</sup> As an extremely potent greenhouse gas, SF6 poses significant environmental risks, particularly due to potential leaks from transmission system infrastructure, including electrical switchgear and circuit breakers.<sup>163</sup> Effective containment of SF6 requires robust insulation of equipment, as inadequate sealing can lead to severe operational failures such as overheating, component melting, or even fires.<sup>164</sup> Given SF6's high global warming potential any emissions, no matter how minimal, can have significant detrimental effects on climate change.<sup>165</sup> The Project's emissions of SF6 are significant and must be mitigated through a robust leak detection system before the Project can lawfully be approved.

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## V. THE DEIR FAILS TO ADEQUATELY ANALYZE AND MITIGATE SIGNIFICANT IMPACTS ON BIOLOGICAL RESOURCES

The failure to provide information required by CEQA is a failure to proceed in the manner required by CEQA.<sup>166</sup> Challenges to an agency's failure to proceed in the manner required by CEQA, such as the failure to address a subject required to be covered in an EIR or to disclose information about a project's environmental effects or alternatives, are subject to a less deferential standard than challenges to an agency's factual conclusions.<sup>167</sup> In reviewing challenges to an agency's approval of an EIR based on a lack of substantial evidence, the court will "determine de novo whether the agency has employed the correct procedures, scrupulously enforcing all legislatively mandated CEQA requirements."<sup>168</sup>

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Even when the substantial evidence standard is applicable to agency decisions to certify an EIR and approve a project, reviewing courts will not "uncritically rely on every study or analysis presented by a project proponent in support of its position. A clearly inadequate or unsupported study is entitled to no judicial deference."<sup>169</sup>

<sup>161</sup> *Id.* at 56.

<sup>162</sup> *Id.*

<sup>163</sup> *Id.*

<sup>164</sup> *Id.*

<sup>165</sup> *Id.*

<sup>166</sup> *Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236.

<sup>167</sup> *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435.

<sup>168</sup> *Id.*, *Madera Oversight Coal., Inc. v. County of Madera* (2011) 199 Cal. App. 4th 48, 102.

<sup>169</sup> *Berkeley Jets*, 91 Cal.App.4th at 1355.

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**A. The DEIR Fails to Adequately Analyze the Project's Significant Impacts Due to Interference with Wildlife Movement**

The DEIR concludes, absent substantial evidence, that "the project site does not contain nor is near any wildlife movement corridors, linkages, or Significant Ecological Areas / FWS Critical Habitat."<sup>170</sup> Dr. Smallwood demonstrates that the Project site represents a significant habitat linkage and movement corridor and that the Project would result in significant impacts with wildlife movement in the region.<sup>171</sup> Dr. Smallwood observed during his site visit that the Project site contained "near constant flight activity of birds crossing the alfalfa stands on their ways to Beech Drain, Dogwood Canal and other destinations [then] flying back across the alfalfa."<sup>172</sup>

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Dr. Smallwood's comments provide substantial evidence that the Project site is an important feature which serves as a connection between habitat patches.<sup>173</sup> Dr. Smallwood's comments state, "[m]ost of the birds recorded at the site are migratory birds, and because such expansive utility-scale solar projects have been developed in the region, the site is located within one of the last remaining patches of open space available to any of these and other birds that need to move through the region. The project site is important to wildlife movement in the region, all the more important due to substantial recent habitat fragmentation."<sup>174</sup> The Project results in significant environmental impacts due to its substantial interference with the movement of native resident or migratory wildlife species or with established native resident or migratory wildlife corridors.<sup>175</sup>

**B. The Project Results in Significant Unmitigated Impacts to Burrowing Owl**

As detailed below and in Dr. Smallwood's comments on the DEIR, construction and operation of the Project will result in significant impacts to burrowing owls due to collision with Project components and habitat degradation.<sup>176</sup> The Project's significant impacts on burrowing owl must be analyzed and mitigated in a revised and recirculated EIR.

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<sup>170</sup> DEIR at p. 3.5-11.

<sup>171</sup> Smallwood Comments at 27.

<sup>172</sup> *Id.*

<sup>173</sup> DEIR at p. 3.5-11.

<sup>174</sup> Smallwood Comments at p. 27.

<sup>175</sup> CEQA Guidelines Appendix G(IV)(d).

<sup>176</sup> Smallwood Comments at p. 27-34.

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The Project's significant impacts to burrowing owls results in nonconformance with the Imperial Valley Natural Community Conservation Plan and HCP which provides that the HCP's goal is to "[p]rovide for the conservation and management of Covered Species."<sup>177</sup> Burrowing owl are a Covered Species within the Plan.<sup>178</sup> The failure of the DEIR to provide for the conservation and management of burrowing owl contravenes the HCP. Further, the HCP provides that it is a goal of the HCP to "[p]reserve aquatic and terrestrial resources through conservation partnerships with IID."<sup>179</sup> The significant impacts of the Project on aquatic and terrestrial resources further contravenes the HCP. These impacts must be analyzed and mitigated in a revised and recirculated EIR before the Project can lawfully be approved.

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### **C. The Project Results in Significant Unmitigated Impacts to Birds from Collision with the Solar PV Panels and Structures**

Dr. Smallwood provides substantial evidence in his comments that the Project may result in significant impacts to birds due to collisions with the photovoltaic PV panels and associated structures on the Project site. The following birds may be harmed or killed due to collisions with the solar PV panels and associated structures on the Project site: Burrowing owls, American kestrel, Verdin, Silver-haired bat, Spotted bat, Mexican free-tailed bat, long-billed curlew, Northern Harrier.<sup>180</sup> Specifically, Dr. Smallwood finds that collision mortality with solar panels is highest for mourning doves, horned larks, western meadowlarks, American coots, soras, burrowing owls, American kestrels, and many small bird species including yellow warblers.<sup>181</sup> At the project site, Dr. Smallwood observed mourning doves, western meadowlarks, burrowing owls and American kestrel.<sup>182</sup> Dr. Smallwood concludes that impacts to birds and bats will be significant due to collision with PV panels.

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Dr. Smallwood demonstrates that birds and bats are known to collide with PV panels in utility scale solar projects.<sup>183</sup> A leading hypothesis for these collisions is known as the Lake Effect, which consists of birds misperceiving arrays of solar

<sup>177</sup> Imperial Irrigation District, the California Department of Fish and Game, and the United States Fish and Wildlife Service Imperial Valley Natural Community Conservation Plan and Habitat Conservation Plan (Feb. 2006) p. 6 available at: <https://www.iid.com/home/showpublisheddocument/2260/635648001335730000>.

<sup>178</sup> *Id.*

<sup>179</sup> *Id.*

<sup>180</sup> Smallwood Comments at p. 28.

<sup>181</sup> *Id.*

<sup>182</sup> *Id.*

<sup>183</sup> *Id.*

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panels as bodies of water.<sup>184</sup> However, other causal factors must also account for many of the collisions, because many of the birds that collide with PV panels are songbirds and raptors and other species in addition to water birds.<sup>185</sup>

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Dr. Smallwood's comments provide substantial evidence demonstrating that Project PV panels will result in significant impacts to birds and bats.<sup>186</sup> Dr. Smallwood calculated that the Project will result in approximately 255 bird collision fatalities per year.<sup>187</sup> This constitutes a significant impact under CEQA. The DEIR fails to adequately analyze or mitigate this significant impact.

#### **D. The Project Results in Significant Impacts to Birds from Collision with the Distribution Lines**

Dr. Smallwood's comments provide substantial evidence that the Project will result in significant impacts to special status birds due to collision mortality with the Project's overhead distribution and transmission lines.<sup>188</sup> The following species may be significantly impacted due to strikes with distribution lines: Burrowing owls, American kestrel, Verdin, Silver-haired bat, Spotted bat, Mexican free-tailed bat, long-billed curlew, Northern Harrier.<sup>189</sup> Dr. Smallwood calculated that, over the Project's operation, collision with the overhead distribution and transmission lines will result in 222 fatalities per year.<sup>190</sup> This constitutes a significant impact and must be analyzed and mitigated in a revised and recirculated EIR. The DEIR must include feasible mitigation to reduce impacts to birds from collisions with Project components, including bird markers on distribution lines, with enforceable monitoring and maintenance.

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Project construction may also result in significant impacts to birds because night lighting could also attract birds and bats to areas which could result in collisions on Project components.<sup>191</sup> Additionally, certain lighting may attract insects which in turn may attract birds and bats to forage.<sup>192</sup>

<sup>184</sup> *Id.*

<sup>185</sup> *Id.*

<sup>186</sup> *Id.*

<sup>187</sup> *Id.*

<sup>188</sup> *Id.* at 29.

<sup>189</sup> Smallwood Comments at p. 30.

<sup>190</sup> *Id.*

<sup>191</sup> *Id.*

<sup>192</sup> *Id.*

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#### **E. The Project Results in Significant Impacts to Birds from Collision with the Security Fences**

Dr. Smallwood's comments provide substantial evidence that the security fencing required for the Project will result in significant impacts to birds and bats. Dr. Smallwood found collision mortality with fencing at solar projects to be highest for road runners, canyon bats, western meadowlarks, northern flickers, burrowing owls, yellow-headed blackbirds and northern harriers.<sup>193</sup> At the project site, Dr. Smallwood detected greater roadrunner, western meadowlarks, and burrowing owls.<sup>194</sup> Dr. Smallwood calculated that over the course of the Project's construction and operation, the entire length of fencing would kill 56 birds and 10 bats per year.<sup>195</sup> This constitutes a significant and unmitigated impact to birds and bats.

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#### **F. The Project Results in Significant Impacts to Birds from Collision with Traffic**

The DEIR includes nonbinding measures to purportedly reduce impacts to biological resource from traffic on the Project site. The DEIR, on page 2-25 provides that as part of the Applicant Proposed Measures and Best Management Practices, "[s]peed limits of 5 mph will be observed on the site in order to minimize dust, avoid collision, and incidental mortality of local wildlife."<sup>196</sup> This measure is not incorporated into the DEIR's Mitigation Monitoring and Reporting Program, and is not identified as mitigation. Therefore, it is not binding and does not adequately reduce impacts associated with impacts from traffic collisions to less than significant levels. Mitigation measures must be fully enforceable through permit conditions, agreements or other legally binding instruments.<sup>197</sup> Failure to include enforceable mitigation measures is considered a failure to proceed in the manner required by CEQA.<sup>198</sup> In order to meet this requirement, mitigation measures must be incorporated directly into the EIR to be enforceable.<sup>199</sup>

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Dr. Shawn Smallwood demonstrates that given the substantial vehicle traffic associated with construction and operation of the Project, significant vehicle collision impacts to avian species onsite will result.<sup>200</sup> Dr. Smallwood provides substantial evidence that "[p]roject-generated traffic would endanger wildlife that must, for various reasons, cross roads used by the project's traffic to get to and from

<sup>193</sup> Smallwood Comments at p 31.

<sup>194</sup> *Id.*

<sup>195</sup> *Id.*

<sup>196</sup> DEIR at p. 2-25.

<sup>197</sup> 14 CCR §15126.4(a)(2).

<sup>198</sup> *San Joaquin Raptor Rescue Ctr. v. County of Merced* (2007) 149 Cal.App.4th 645, 672.

<sup>199</sup> *Lotus v. Dept of Transportation* (2014) 223 Cal. App. 4th 645, 651-52.

<sup>200</sup> Smallwood Comments at p. 32.

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the project site, including along roads far from the project footprint.”<sup>201</sup> Vehicle collisions have accounted for the deaths of thousands of amphibian, reptile, mammal, bird, and arthropod fauna, and the impacts have often been found to be cumulatively significant at the population level.<sup>202</sup> Across North America traffic impacts have taken devastating tolls on wildlife.<sup>203</sup> In Canada, 3,562 birds were estimated killed per 100 km of road per year, and the US estimate of avian mortality on roads is 2,200 to 8,405 deaths per 100 km per year, or 89 million to 340 million total per year.<sup>204</sup>

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Based on the construction vehicle miles traveled (“VMT”) and operational VMT, Dr. Smallwood calculated that given the 9,509 construction trips and 85 daily operational trips, the Project will result in significant wildlife collisions during and operation.<sup>205</sup> Given that the Applicant Proposed Measures and Best Management Practices are not binding mitigation, this impact remains significant and unmitigated. The DEIR must be revised and recirculated to adequately analyze and mitigate the Project’s significant impacts from vehicle collisions to species on during construction and operation of the Project.

#### **G. The DEIR Must be Revised and Recirculated to Include Additional Feasible Mitigation to Reduce Significant Impacts to Biological Resources**

Dr. Smallwood proposed substantial feasible mitigation to reduce impacts to biological resources.

First, in order to mitigate the Project’s significant impacts from bird collisions with medium-voltage distribution lines, Dr. Smallwood provides numerous feasible mitigation measures. The most effective method to avoid or minimize collision mortality with power lines would be to underground the lines, thereby avoiding the potential impact altogether.<sup>206</sup> The second method is to mark the lines.<sup>207</sup> Dr. Smallwood provides substantial evidence that line markers reduce mortality due to bird strikes.<sup>208</sup> However, these markers often break, entangle and their colors fade within only a few years of installation.<sup>209</sup> Markers are less likely to

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<sup>201</sup> *Id.*

<sup>202</sup> *Id.*

<sup>203</sup> *Id.*

<sup>204</sup> *Id.*

<sup>205</sup> *Id.*

<sup>206</sup> Smallwood Comments at p. 39.

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*

<sup>209</sup> *Id.*

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tangle or break when they include dampers and swinging plates, both of which have been documented to reduce mortality.<sup>210</sup> The DEIR should include a measure to require line markers and include a binding commitments to their long-term maintenance and monitoring to measure their efficacy.<sup>211</sup> If measured efficacy is below a pre-defined threshold, Dr. Smallwood recommends additional feasible mitigation measures should be required.<sup>212</sup> Absent additional mitigation measures to reduce bird strikes with power lines, the Project's impacts to biological resources remains significant and unmitigated.<sup>213</sup> The DEIR must be revised and recirculated to adequately mitigate impacts due to bird strikes with distribution lines before the Project can lawfully be approved.

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Second, the DEIR should be revised to include compensatory mitigation to mitigate impacts associated with mortality to species due to project-generated road traffic.<sup>214</sup> Feasible compensatory mitigation includes directing funding toward research to identify fatality patterns and effective impact reduction measures such as reduced speed limits and wildlife under-crossings or overcrossings of particularly dangerous road segments.<sup>215</sup> Due to the Project's potentially significant impacts to animals associated with collisions with automobiles and Project infrastructure, Dr. Smallwood recommends "funding contributions to wildlife rehabilitation facilities to cover the costs of injured animals that will be delivered to these facilities for care."<sup>216</sup>

Third, Dr. Smallwood provides substantial evidence demonstrating that absent wildlife surveys pre- and post- construction, impacts to wildlife and habitat loss remain significant.<sup>217</sup> Dr. Smallwood provides examples of feasible mitigation to adequately avoid and reduce impacts by conducting robust pre-construction and post-construction biological resource surveys to adequately quantify, monitor, and avoid special status species on the Project site.<sup>218</sup> Absent additional mitigation and additional biological resource surveys, the DEIR fails to adequately analyze or mitigate impacts to biological resources, as demonstrated herein and in Dr. Smallwood's comments.

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<sup>210</sup> *Id.*

<sup>211</sup> *Id.*

<sup>212</sup> *Id.* at 40.

<sup>213</sup> *Id.*

<sup>214</sup> Smallwood Comments at p. 41.

<sup>215</sup> *Id.*

<sup>216</sup> *Id.*

<sup>217</sup> *Id.*

<sup>218</sup> Smallwood Comments at 41-42.

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## VI. THE DEIR FAILS TO ADEQUATELY ANALYZE AND MITIGATE SIGNIFICANT IMPACTS ON AGRICULTURAL RESOURCES

The County General Plan's Agricultural Element explains that "all agricultural land in the County is considered [] Important Farmland" and should be reserved for agricultural use, with limited exceptions provided for geothermal purposes.<sup>219</sup> According to the California Department of Conservation's ("DOC") California Important Farmland Finder, portions of the project site contain Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Urban and Build-Up Land.<sup>220</sup> The DEIR states that the Project would temporarily convert approximately 106.88 acres of Important Farmland currently under or available for agricultural production to non-agricultural uses.<sup>221</sup> Specifically, the DEIR states that approximately 5.31 acres of the Dogwood parasitic solar facility footprint are classified as Prime Farmland and 34.67 acres are classified as Farmland of Statewide Importance.<sup>222</sup> Approximately 17.63 acres of the Heber 2 parasitic solar facility footprint are classified as Prime Farmland and 49.27 acres are classified as Farmland of Statewide Importance.<sup>223</sup> The DEIR fails to analyze the impacts from the permanent conversion of this Important Farmland, and fails to address the Project's inconsistencies with the General Plan Agricultural Element due to the conversion to a non-geothermal solar farm. The DEIR's mitigation measures are also inadequate and fail to mitigate the Project's significant impacts from the conversion of Important Farmland.

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CEQA requires the agency to identify whether the Project will cause significant environmental effects.<sup>224</sup> An EIR must then propose and describe mitigation measures to minimize the significant environmental effects identified in the EIR.<sup>225</sup> CEQA Appendix G requires the County to analyze several impacts to agricultural resources from implementation of the Project, including whether the Project would:

- 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

<sup>219</sup> DEIR, p. 3.3-5, citing General Plan.

<sup>220</sup> DEIR, p. 3.3-1 to 3.3-3, Figure 3.3-1, Table 3.3-1.

<sup>221</sup> Draft Environmental Impact Report: Dogwood Geothermal Energy Project, p. 3.3-9 available at: <https://www.icpds.com/assets/DEIR-Dogwood-Geothermal-Energy-Project-1723556647.pdf> ("DEIR").

<sup>222</sup> DEIR at p. 3.3-9.

<sup>223</sup> *Id.*

<sup>224</sup> PRC § 21002.

<sup>225</sup> *Id.*; 14 CCR § 15126.4.

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- 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.<sup>226</sup>

The DEIR concludes that the Project would not conflict with zoning or Williamson Act contracts due to its location in the County's A-2 zone, which allows geothermal and solar energy uses, and because all Williamson Act contracts in Imperial County were terminated in 2018.<sup>227</sup> However, the DEIR acknowledges that the loss of agricultural land designated as Prime Farmland and Farmland of Statewide Importance would result in a significant impact requiring mitigation.<sup>228</sup> The DEIR's impact assessment relies on an assumption that the loss would be temporary, rather than permanent, and overlooks the Project's inconsistencies with the Agricultural Element.

The Imperial County General Plan Agricultural Element provides that:

Since the County's economy has historically been dependent upon agricultural production, and this dependency will exist in the foreseeable future, *the permanent conversion of significant amounts of important farmland to non-agricultural uses will negatively impact the local economy and the County's ability to provide important agricultural products to the nation and elsewhere.*<sup>229</sup>

The Project's conversion of Important Farmland to Industrial use constitutes a significant unmitigated impact under CEQA, contravenes the General Plan's Agricultural Element, and lacks adequate mitigation in the DEIR, as detailed herein.

#### 1. The DEIR Fails to Adequately Analyze Impacts to Farmland

The DEIR concludes that the Project's conversion of agricultural land is a temporary impact and that the Project would not involve other changes in the existing environment which could result in the conversion of agricultural land for

<sup>226</sup> CEQA Appendix G, Section II, Agricultural and Forestry Resources; DEIR, p. 3.3-8.

<sup>227</sup> DEIR at p. 3.3-12.

<sup>228</sup> DEIR at pp. 3.3-9 to 3.3-10.

<sup>229</sup> Imperial County General Plan, Agricultural Element (2015), p. 18 available at: <https://www.icpda.com/assets/planning/agricultural-element-2015.pdf>.  
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non-agricultural use.<sup>230</sup> The DEIR lacks substantial evidence to support these conclusions and fails to properly analyze the Project's potentially significant impacts to farmland.

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a. *Permanent Impacts*

The DEIR characterizes the Project's conversion of Important Farmland as a temporary impact because the Project applicant proposes to restore the Project site to preexisting conditions following Project operations.<sup>231</sup> The DEIR fails to adequately support this claim that the conversion would only be temporary and thus, fails to analyze the Project's conversion of farmland as a permanent impact.

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To assess the impact of a proposed project on the environment, CEQA requires the lead agency to examine the changes to existing environmental conditions that would occur in the affected area if the proposed project were implemented.<sup>232</sup> All phases of the project must be considered, including planning, acquisition, development, and operation.<sup>233</sup>

Here, the DEIR repeatedly claims, without support, that the Project's conversion of Important Farmland is temporary.<sup>234</sup> For instance, the DEIR fails to provide an end date or decommissioning date for the Project. The DEIR acknowledges that Project activities could affect the future health and productivity of the soil,<sup>235</sup> but fails to analyze the severity of these impacts during the life of the Project and lacks adequate mitigation to ensure that adverse impacts to soil would be fully remediated following decommissioning so that they do not interfere with the ability to farm certain crops in the future.<sup>236</sup> Instead, the DEIR merely states that preparation of a site reclamation plan would ensure that the Project site is returned to its current agricultural conditions.<sup>237</sup>

Citizens' agricultural expert Mr. House concludes that the DEIR fails to consider that the Project is a permanent land use.<sup>238</sup> Substantial evidence in Mr. House's comments demonstrate that it is reasonably foreseeable that the Project

<sup>230</sup> DEIR at pp. 3.3-9 and 3.3-13.

<sup>231</sup> DEIR at pp. 3.3-9-3.3-10 and 5-7-5-8.

<sup>232</sup> CEQA Guidelines § 15126.2(a); *San Joaquin Raptor Rescue Ctr. V. County of Merced* (2007) 149 CA4th 645.

<sup>233</sup> CEQA Guidelines § 15126.

<sup>234</sup> DEIR at p. 3.3-9.

<sup>235</sup> DEIR, p. 3.3-13.

<sup>236</sup> *Id.* at p. 3.3-10.

<sup>237</sup> *Id.*

<sup>238</sup> House Comments at p. 12.  
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will result in the permanent conversion of Important Farmland, because “the likelihood of decommissioning of the project such that its site will return to agricultural uses is extremely remote, given the quantity and cost of infrastructure that will go into the development and operations of the project.”<sup>239</sup>

Mr. House's comments provide substantial evidence demonstrating that the Project is unlikely to be returned to agricultural use. Mr. House's past research on this subject found that no solar farms and no battery storage sites have been returned to agricultural use following their useful life.<sup>240</sup> Rather, he has found the opposite. Mr. House points to a case study from Davis, California, where one of the oldest photovoltaic-generation facilities in the United States is located.<sup>241</sup> This 86-acre project was originally installed in 1986 by Pacific Gas & Electric Company as a research facility, and subsequently commercially operated from 2003 to generate 650 kilo-watts of electricity by the companies Clean Energy Assets and CleanPath Ventures.<sup>242</sup> CleanPath received permission from the Davis City Council in 2010 to expand power production to as much as 15 megawatts.<sup>243</sup> Thus, the Davis project, upon reaching the end of its originally planned useful life – approximately twenty-five years in 2012 – was not being decommissioned in 2012 but was instead being refurbished and expanded for continued use into the indefinite future.<sup>244</sup> Mr. House's comments provide substantial evidence that the Project would likely not be decommissioned and returned to agricultural use. The DEIR must be revised and recirculated to analyze the significant impacts from the Project's permanent conversion of Important Farmland for non-agricultural uses.

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*b. Leapfrogging Development Pattern*

The General Plan's Agricultural Element details the significant environmental impacts associated with “leapfrogging patterns of nonagricultural developments in agricultural areas.”<sup>245</sup> The Agricultural Element provides: “Agricultural fields typically become bounded by new residential or urban land uses, and often become isolated as they are cut off from existing farmland. This isolation or stranding of fields leads to several major problems relating to agricultural operations including irrigation, the application of pesticides and other chemicals by aerial spraying and other means, and access by tractors, trucks and

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<sup>239</sup> *Id.*

<sup>240</sup> House Comments at p. 12.

<sup>241</sup> *Id.*

<sup>242</sup> *Id.*

<sup>243</sup> *Id.* at pp. 12–13.

<sup>244</sup> *Id.* at p. 13.

<sup>245</sup> *Id.*

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other farm equipment. Eventually, these fields become too small or circumscribed by other land uses to be economically or conveniently farmed.”<sup>246</sup>

The DEIR concludes that the development of the Project would not contribute to a “leapfrogging” pattern of development, because the proposed facilities are located in proximity to existing industrial uses such as the Heber 2 Geothermal Energy Complex.<sup>247</sup> As Mr. House explains, the DEIR fails to adequately analyze the impacts related to leapfrogging or checkerboard pattern of development that the Project might have on other surrounding parcels that are all in active agriculture.<sup>248</sup>

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Mr. House explains that the proposed locations for agricultural conversion on the Project site would result in precisely the type of leapfrogging development pattern than the General Plan seeks to avoid. He explains that the presence of active agriculture to the east (APNs 054-25-047 and 054-250-048, both zoned A-2) is located between the project and the city of Calexico. Similarly, APNs 054-25-010 and 054-250-011, which adjoin the project on its north, are in active agriculture and are sandwiched between the Project and the urban community of Heber. Other adjacent parcels, all in active agriculture, are APNs 054-160-023, 054-250-037, 054-250-037, 054-250-038, 054-250-039, and 054-25-042.<sup>249</sup> Mr. House concludes that the Project will further separate agricultural uses from each other, placing new conversion pressure these parcels which is not addressed in the DEIR.

#### **1. The Loss of Agricultural Land Caused by the Project is Inconsistent with the Imperial County General Plan Agricultural Element**

The Project’s impacts to agricultural land conflict with the Imperial County General Plan Agriculture Element (“Agriculture Element”). The Agriculture Element provides that:

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Since the County’s economy has historically been dependent upon agricultural production, and this dependency will exist in the foreseeable future, *the permanent conversion of significant amounts of important farmland to non-agricultural uses will negatively impact the local economy and the County’s ability to provide important agricultural products to the nation and elsewhere.*<sup>250</sup>

<sup>246</sup> *Id.*

<sup>247</sup> DEIR at p. 3.3-13.

<sup>248</sup> House Comments at p. 12.

<sup>249</sup> House Comments at p. 12.

<sup>250</sup> Imperial County General Plan, Agricultural Element (2015), p. 18 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>. 6939-016acp

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CEQA requires the agency to determine whether the Project would “[c]ause 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.”<sup>251</sup>

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Here, the DEIR fails to adequately disclose and analyze how the Project's conversion of agriculture land for non-agriculture purposes contravenes the goals and objectives listed in the Agriculture Element, including:

<b>Goal 1</b>	All Important Farmland, including the categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance...should be reserved for agricultural. <sup>252</sup>
<b>Objective 1.1</b>	Maintain existing agricultural land uses outside of urbanizing areas and allow only those land uses in agricultural areas that are compatible with agricultural activities. <sup>253</sup>
<b>Objective 1.3</b>	Conserve Important Farmland for continued farm related (non-urban) use and development while ensuring its proper management and use. <sup>254</sup>
<b>Objective 1.4</b>	Discourage the location of development adjacent to productive agricultural lands. <sup>255</sup>
<b>Objective 1.5</b>	Direct development to less valuable farmland (i.e., Unique Farmland and Farmland of Local Importance rather than Prime Farmland or Farmland of Statewide Importance) when conversion of agricultural land is justified. <sup>256</sup>
<b>Objective 1.6</b>	Recognize and preserve unincorporated areas of the County, outside of city sphere of influence areas, for irrigation agriculture, livestock production, aquaculture, and other special uses. <sup>257</sup>

<sup>251</sup> 14 CCR § 15000 Appendix G.

<sup>252</sup> Imperial County General Plan, Agricultural Element (2015), p. 29 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>253</sup> Imperial County General Plan, Agricultural Element (2015), p. 29 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>254</sup> Imperial County General Plan, Agricultural Element (2015), p. 29 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>255</sup> Imperial County General Plan, Agricultural Element (2015), p. 29 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>256</sup> Imperial County General Plan, Agricultural Element (2015), p. 29 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>257</sup> Imperial County General Plan, Agricultural Element (2015), p. 29 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

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<b>Objective 1.8</b>	Allow conversion of agricultural land to non-agricultural uses including renewable energy only where a clear and immediate need can be demonstrated, based on economic benefits, population projections and lack of other available land (including land with incorporated cities) for such non-agricultural uses. Such conversion shall also be allowed only where such uses have been identified for non-agricultural use in a city general plan or the County General Plan, and are supported by a study to show a lack of alternative sites. <sup>258</sup>
<b>Objective 1.12</b>	Support conversion of State and Federal lands suitable for irrigation agriculture to private ownership and into agricultural production. <sup>259</sup>
<b>Goal 2</b>	Adopt policies that prohibit “leapfrogging” or “checkerboard” patterns of nonagricultural development in agricultural areas and confine future urbanization to adopted Sphere of Influence area. <sup>260</sup>

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The Project conflicts with these goals and policies for several reasons. First, as discussed above, the Project's conversion of agriculture land is likely permanent.<sup>261</sup> Because it is highly unlikely that the Project site will be returned to agriculture use at the end of its life<sup>262</sup>, the Project directly conflicts with the County's goals and objectives aimed at preserving Important Farmland for agricultural use (e.g., Goal 1, Objectives 1.1, 1.3, 1.4, 1.5, 1.8, and 1.12).<sup>263</sup> Second, Objective 1.8 requires a study to be conducted, demonstrating that there are no alternative sites available to support a Project's non-agricultural use.<sup>264</sup> An alternative site study was not conducted for the Dogwood Geothermal Power Plant site. Finally, as explained in Mr. House's comments, the proposed locations for agricultural conversion at the Project site would result in precisely the type of “leapfrogging” development pattern that the General Plan seeks to avoid.<sup>265</sup> This directly conflicts with the County's goal to prohibit “leapfrogging” (e.g., Goal 2). The DEIR's failure to adequately disclose and analyze these inconsistencies constitutes a significant impact under CEQA.

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<sup>258</sup> Imperial County General Plan, Agricultural Element (2015), p. 30 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>259</sup> Imperial County General Plan, Agricultural Element (2015), p. 30 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>260</sup> Imperial County General Plan, Agricultural Element (2015), p. 30 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>261</sup> House Comments at p. 12.

<sup>262</sup> House Comments at p. 12.

<sup>263</sup> Imperial County General Plan, Agricultural Element (2015), p. 30 available at: <https://www.icpds.com/assets/planning/agricultural-element-2015.pdf>.

<sup>264</sup> House Comments at p. 12.

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The DEIR must be revised and recirculated to include an informed analysis of the Project's inconsistencies with the General Plan, before the Project can lawfully be approved.

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**2. The DEIR's Proposed Mitigation Measures Are Inadequate And Fail To Mitigate The Project's Significant Impacts to Agricultural Resources**

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The DEIR concludes that impacts from the temporary conversion of agricultural land would be minimized to a level less than significant through the implementation of Mitigation Measures AG-1a and AG-1b.<sup>265</sup> This conclusion is not supported by substantial evidence.

The DEIR offers three alternative mitigation options for mitigating impacts to Non-Prime Farmland.<sup>266</sup> Mitigation Measure AG-1a proposes mitigating impacts to Non-Prime Farmland by requiring implementation of one of the following:

- (1) Provide agricultural conservation easements,
- (2) Pay agricultural in-lieu mitigation fee, or
- (3) Entering into a public benefit agreement or development agreement.<sup>267</sup>

The DEIR provides four alternative mitigation options for mitigating impacts to Prime Farmland.<sup>268</sup> Mitigation Measure AG-1a proposes mitigating impacts to Prime Farmland by requiring implementation of one of the following:

- (1) Provide agricultural conservation easements,
- (2) Pay agricultural in-lieu mitigation fee, or
- (3) Entering into a public benefit agreement or development agreement
- (4) Avoid Prime Farmland where the Permittee must revise their Conditional Use Permit Application/Site Plan to avoid Prime Farmland.<sup>269</sup>

Mitigation Measure AG-1b proposes submission of a reclamation plan to Imperial County prior to issuance of a grading permit.<sup>270</sup> However, no draft reclamation plan is included in the DEIR and the measure lacks performance standards. The DEIR lacks substantial evidence to support the conclusion that the

<sup>265</sup> DEIR at p. 3.3-12

<sup>266</sup> *Id.*

<sup>267</sup> *Id.* at 3.3-10.

<sup>268</sup> *Id.* at 3.3-11.

<sup>269</sup> *Id.*

<sup>270</sup> *Id.*

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conversion of agricultural land will actually be mitigated if these measures are implemented.

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*a. Option 1: Provide Agricultural Conservation Easement*

The DEIR in Mitigation Measure AG-1a, Option 1 provides for Compensation for loss of agricultural land through a conservation easement.<sup>271</sup> The proposed conservation easement would not "replace or provide a substitute resource" for the loss of important farmland as required by CEQA.<sup>272</sup>

The Court in *King & Gardiner Farms, LLC v. County of Kern* determined that agricultural conservation easements ("ACEs") are not effective at reducing the project's conversion of agricultural land to a less than significant level for purposes of CEQA.<sup>273</sup> This holding was later clarified in *V Lions Farming, LLC v. County of Kern*, which held that ACEs constitute effective mitigation under CEQA by preserving substitute resources even though ACEs may not ensure that the project causes no net loss of farmland.<sup>274</sup> The court interpreted the phrase "providing substitute resources" in CEQA Guidelines Section 15370(e) to include preserving or permanently protecting existing agricultural land.<sup>275</sup> Consequently, the Court held that ACEs are a type of compensatory mitigation for the conversion of agricultural land even though, they do not replace the converted land or otherwise result in no net loss of agricultural land.<sup>276</sup>

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Here, the DEIR states that a conservation easement would be procured on a 1 on 1 basis (for non-prime farmland) or a 2 on 1 basis (for prime farmland) on land of equal size, of equal quality farmland, outside the path of development.<sup>277</sup> It also states that the conservation easement shall meet DOC regulations.<sup>278</sup>

In accordance with the holding in *King & Gardiner Farms*, this mitigation measure, alone, does not mitigate the impacts of the Project to a less than significant level because it does not create any new Important Farmland.<sup>279</sup> It also

<sup>271</sup> *Id.* at p. 3.3-10.

<sup>272</sup> CEQA Guidelines § 15370(e); *Friends of Kings River v. County of Fresno* (2014) 232 Cal.App.4th 106,123.

<sup>273</sup> *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814.

<sup>274</sup> *V Lions Farming, LLC v. County of Kern* (2024) 318 Cal.Rptr.3d 879, 884.

<sup>275</sup> *Id.*

<sup>276</sup> *Id.*

<sup>277</sup> DEIR at pp. 3.3-10 and 3.3-11.

<sup>278</sup> *Id.*

<sup>279</sup> *Id.*

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lacks sufficient detail to demonstrate that its implementation would actually mitigate for the Project's conversion of agricultural land, as required by *V Lions*.

Mr. House explains that the DEIR's proposed conservation easement requirement is deficient, commenting that the DEIR needs to unequivocally state whether the conservation will be permanent.<sup>280</sup> Mr. House further states that the DEIR also needs to define land of "equal quality", land "outside the path of development", and what would meet "DOC regulations."<sup>281</sup>

The DEIR lacks substantial evidence that Mitigation Measure AG-1a, Option 1 will adequately reduce significant impacts to agricultural resources to less than significant levels. In order to ensure that the mitigation is effective, and the conservation easement is placed on farmland of "equal quality," Mr. House explains that a Land Assessment and Site Evaluation ("LESA") model should be used.<sup>282</sup> The California Department of Conservation ("DOC") has created its own version of the LESA, which "evaluates measures of soil resource quality, a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, the factors are rated, weighted, and combined, resulting in a single numeric score."<sup>283</sup> Mr. House concludes that the DOC's California Agricultural LESA Model applied to the subject Project acres would provide the necessary information to adequately define "equal quality" farmland.<sup>284</sup>

To define what criteria would meet "DOC regulations," Mr. House suggests using the conservation easement model from the DOC's website or looking to the standards for the various funding programs for agricultural-conservation easements that the DOC administers.<sup>285</sup> Mr. House concludes that the DEIR must be revised to clarify which DOC regulations govern the implementation of agricultural-conservation easements to ensure their efficacy for mitigating impacts associated with the Project.

The DEIR must be revised to include adequate evidence that the proposed conservation easement will actually mitigate significant environmental impacts associated with the Project's conversion of agricultural land.

<sup>280</sup> House Comments at p. 5.

<sup>281</sup> *Id.* at p. 5-6.

<sup>282</sup> *Id.* at p. 6.

<sup>283</sup> Department of Conservation, Land Evaluation & Site Assessment Model, available at: [https://www.conservation.ca.gov/dlrp/Pages/ql\\_lesas.aspx](https://www.conservation.ca.gov/dlrp/Pages/ql_lesas.aspx).

<sup>284</sup> House Comments at p. 6.

<sup>285</sup> Department of Conservation, Agricultural Conservation Easements, available at: [https://www.conservation.ca.gov/dlrp/grant-programs/Pages/ACE\\_Overview.aspx](https://www.conservation.ca.gov/dlrp/grant-programs/Pages/ACE_Overview.aspx). 6939-016aep

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*b. Option 2: Agricultural In-Lieu Mitigation Fee*

The DEIR in Mitigation Measure AG-1a, Option 2 proposes an agricultural in-lieu mitigation fee in the amount of 20 percent (for non-prime farmland) or 30 percent (for prime farmland) 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.<sup>286</sup> The DEIR states that 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.<sup>287</sup> This option fails to adequately mitigate for the Project's conversion of Important Farmland.<sup>288</sup>

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A commitment to pay fees is not adequate mitigation if there is no evidence that mitigation will actually result.<sup>289</sup> Here, the County lacks substantial evidence to demonstrate that an in-lieu fee would result in adequate mitigation for the conversion of Important Farmland. Mr. House explains that the proposed in-lieu mitigation fee will not mitigate the Project's impacts for the following reasons.

First, the DEIR attempts to define "fair market value" of the project's land by specifying a valuation "based on five comparable sales."<sup>290</sup> This is not a definition of value and seriously conflicts with professional appraisal standards as well as existing, established definitions of fair market value.<sup>291</sup> The DEIR does not even attempt to describe any parameters required for identifying the comparable sales.<sup>292</sup> Furthermore, fair market value can only be established by a professional appraiser with the experience and expertise based on generally accepted valuation standards as promulgated by the Uniform Standards of Professional Appraisal Practice.<sup>293</sup> The DEIR lacks these basic performance standards. The DEIR should be revised to include an in-lieu mitigation fee based on a real appraisal that follows the current guidelines of the California Department of General Services, and be performed by a qualified, licensed professional.<sup>294</sup>

<sup>286</sup> DEIR at 3.3-10 and 3.3-11.

<sup>287</sup> *Id.*

<sup>288</sup> House Comments at p. 6.

<sup>289</sup> *Preservation Action Council of San Jose v. City of San Jose* (2023) 91 CA5th 517, 539-4140; *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 CA5th 814, 877.

<sup>290</sup> House Comments at p. 7.

<sup>291</sup> *Id.*

<sup>292</sup> *Id.*

<sup>293</sup> *Id.*

<sup>294</sup> *Id.*

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Second, in-lieu mitigation fees cannot guarantee adequate mitigation for the Project's conversion of agricultural land.<sup>295</sup> Mr. House explains that valuation by percentage is improper because "any proposed partial percentage of fee value as in-lieu fees will not assure adequate funding to obtain comparable land."<sup>296</sup> Moreover, valuation by percentage fails to follow basic industry standards – it is not allowed by the Uniform Standards of Professional Appraisal Practice, nor is it approved by the California Department of Conservation.<sup>297</sup> Additionally, an in-lieu fee of any type, whether a predetermined set amount or established by formula or ration, cannot guarantee equal acres conserved for equal acres converted because of the bureaucratic nature of the procedure.<sup>298</sup> Further, the in-lieu fee administrative costs, like land values, can be predicted to increase every year (though not necessarily at a predictable rate).<sup>299</sup> Therefore, Mr. House concludes that any delays more than one year in acquisition of the easement will inevitably reduce the utility of the sum of funding held for mitigation, defeating the acre-for-acre intent of the mitigation plan.<sup>300</sup> Mr. House suggests that a conservation easement rather than an in-lieu mitigation fee be used to mitigate the Project's impacts because it is the only proven method to efficiently and equivalently mitigate the conversion of Important Farmland.<sup>301</sup>

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The DEIR should be revised to include effective and enforceable mitigation measures that will actually mitigate the conversion of agricultural land.

*c. Option 3: Public Benefit Agreement*

The DEIR in Mitigation Measure AG-1a, Option 3 proposes a public benefit agreement.<sup>302</sup> This option would involve the County of Imperial voluntarily entering into an enforceable public-benefit-agreement or development agreement that includes a payment of an agricultural-benefit fee.<sup>303</sup> The public benefit agreement does not adequately mitigate the significant impact of converting agricultural land into non-agricultural land.<sup>304</sup> As demonstrated in Mr. House's comments, a commitment to pay fees is not adequate mitigation if there is no

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<sup>295</sup> *Id.*

<sup>296</sup> *Id.* at p. 8.

<sup>297</sup> *Id.*

<sup>298</sup> *Id.*

<sup>299</sup> House Comments at p. 8.

<sup>300</sup> *Id.*

<sup>301</sup> *Id.*

<sup>302</sup> DEIR at p. 3.3-11.

<sup>303</sup> *Id.*

<sup>304</sup> House Comments at p. 6.

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evidence that the mitigation measure will actually reduce the Project's significant impacts.<sup>305</sup>

Here, the proposed public benefit agreement includes an "Agricultural Benefit Fee payment" that 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.<sup>306</sup>

This fails to mitigate the conversion of agricultural land for non-agricultural purposes because it does not create new agricultural land or preserve existing agricultural land.<sup>307</sup> While one of the authorized uses for the funds includes preservation of agricultural lands, this does not guarantee that the funds will actually be used for that purpose. The other authorized uses (i.e., stewardship and enhancement of agricultural lands) do not compensate for the conversion of agricultural land. Mr. House agrees, stating that it "does not actually preserve agriculture land through the establishment of a permanent agricultural-conservation easement – and therefore completely fails in the purpose of mitigating agricultural-land conversion...."<sup>308</sup>

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The DEIR should be revised and recirculated to propose mitigation measures that will actually mitigate the impact of converting agricultural land to non-agricultural use.

*d. Option 4: Avoid Prime Farmland*

The DEIR in Mitigation Measure AG-1(a)(B) Option 4 provides that in order to mitigate impacts to Prime Farmland, the Permittee may choose as an alternative to Options 1, 2, and 3, to revise their Conditional Use Permit Application/Site Plan to avoid Prime Farmland. While avoidance would prevent the loss of Prime Farmland, it would not avoid impacts on other Important Farmland and is not sufficient mitigation under CEQA. This mitigation measure is identical to Alternative 2: Reduced Project Site whose purpose is to "avoid the Prime Farmland

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<sup>305</sup> *Preservation Action Council of San Jose v City of San Jose* (2023) 91 CA5th 517, 539-4140; *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 CA5th 814, 877.

<sup>306</sup> DEIR at p. 3.3-11.

<sup>307</sup> House Comments at p. 9.

<sup>308</sup> House Comments at p. 9.

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located within the project site.”<sup>309</sup> Mitigation measures must be distinct and not already included in the proposed action or alternatives.<sup>310</sup>

As described under CEQA Guidelines Section 15370, “Mitigation” includes:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

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*Lotus v. Department of Transportation*<sup>311</sup> clarified the requirements of CEQA Guideline 15370. In *Lotus*, the court held that “avoidance, minimization and/or mitigation measures,” are not “part of the project.”<sup>312</sup> Rather, they are mitigation measures designed to reduce or eliminate environmental impacts of the Project, and must be treated as such. Mitigation measures cannot be incorporated in an EIR’s initial calculation of the Project’s unmitigated impacts because the analysis of unmitigated impacts, by definition, must accurately assess such impacts before any mitigation measures to reduce those impacts are applied.<sup>313</sup> An EIR that compresses the analysis of impacts and mitigation measures into a single issue disregards the requirements of CEQA. Because mitigation measure AG-1(a)(B) duplicates an existing Project alternative and CEQA and *Lotus* prohibit the compressing of a mitigation measure with a Project, the measure AG-1(a)(B) Option 4 is not sufficient mitigation under CEQA. The DEIR should be revised to adequately analyze and mitigate the Project’s significant impacts to agricultural resources.

*e. Mitigate Measure AG-1b: Site Reclamation Plan*

The DEIR provides that pursuant to Mitigation Measure AG-1b, the applicant will submit a Reclamation Plan to Imperial County prior to issuance of a

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<sup>309</sup> DEIR at p. 7-6.

<sup>310</sup> *Lotus v. Dept. of Transportation* (2013) 223 Cal.App.4<sup>th</sup> 650.

<sup>311</sup> *Lotus v. Dept. of Transportation* (2013) 223 Cal.App.4<sup>th</sup> 650.

<sup>312</sup> *Id.* at 656.

<sup>313</sup> *Id.* at 651 - 52.

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grading permit.<sup>314</sup> However, the DEIR fails to include a draft plan, and fails to discuss its proposed terms, including when and how the reclamation plan will be implemented, to support the conclusion that it will actually mitigate the impacts from the conversion of agricultural land.<sup>315</sup>

CEQA identifies restoration of land for productive agricultural use as a measure that compensates for a project's impact.<sup>316</sup> However, mitigation measures must not be remote and speculative<sup>317</sup> or so vague that it is impossible to gauge their effectiveness.<sup>318</sup>

Here, the reclamation plan proposed in the DEIR merely states that "it shall document the procedures by which the project site will be returned to its current agricultural condition."<sup>319</sup> It fails to specify when reclamation will occur and the specific standards that will be applied to ensure restoration is effective. This constitutes impermissibly deferred mitigation under CEQA Guidelines § 15126.4(a)(1)(B) which provide that formulation of mitigation measures shall not be deferred until some future time.<sup>320</sup> Impermissible deferral of mitigation measures occurs when an EIR puts off analysis or orders a report without either setting standards or demonstrating how the impact can be mitigated in the manner described in the EIR.<sup>321</sup> The CEQA Guidelines provide that "[t]he specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review..."<sup>322</sup> The DEIR does not state why specifying the reclamation plan performance standards was impractical or infeasible at the time the DEIR was drafted.

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In *Preserve Wild Santee v. City of Santee*, the city impermissibly deferred mitigation where the EIR did not state why specifying performance standards for mitigation measures "was impractical or infeasible at the time the EIR was certified."<sup>323</sup> The court determined that although the City must ultimately approve the mitigation standards, this does not cure these informational defects in the

<sup>314</sup> DEIR at p. 3.3-11.

<sup>315</sup> House Comments at p. 9.

<sup>316</sup> CEQA Guidelines § 15370(e).

<sup>317</sup> *Federation of Hillside & Canyon Ass'ns v. City of Los Angeles* (2000) 83 CA4th 1252, 1260.

<sup>318</sup> *Sierra Watch v. County of Placer* (2021) 69 CA5th 86, 110.

<sup>319</sup> DEIR at pp. 3.3-11 and 3.3-12.

<sup>320</sup> 14 CCR 15126.4(a)(1)(B).

<sup>321</sup> *City of Long Beach v. Los Angeles Unified School Dist.* (2009) 176 Cal.App.4th 889, 915-916.

<sup>322</sup> 14 CCR § 15126.4(a)(1)(B).

<sup>323</sup> *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 281.

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EIR.<sup>324</sup> Further, the court in *Endangered Habitats League, Inc. v. County of Orange* held that mitigation that does no more than require a report to be prepared and followed, or allow approval by a county department without setting any standards is inadequate.<sup>325</sup>

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The DEIR also recognizes that Project activities may negatively affect the health and productivity of the soil, which could "significantly limit the types of crops...that may be grown within the project site in the future."<sup>326</sup> However, it fails to provide a solution and instead concludes, without evidence, that implementation of Mitigation Measures AG-1b and AG-2 would reduce this impact to a level less than significant.<sup>327</sup> Mr. House states that "without definition of a detailed site reclamation plan, this statement is mere bravado".<sup>328</sup>

Mr. House also calls the reclamation plan "grossly inadequate as presented".<sup>329</sup> He comments that the DEIR must provide a detailed explanation of how the site-reclamation plan will achieve its requirement of returning the agricultural land to its current condition.<sup>330</sup> The explanation should include a detailed documentation of the current condition and productivity of the land before the issuance of a grading permit for initiation of the project.<sup>331</sup>

More specifically, Mr. House says that, in order to restore the Project site to its current agricultural condition, the DEIR should include the following things:<sup>332</sup> First, an agronomic-baseline report prepared by a professional agronomist that establishes a baseline agronomic condition.<sup>333</sup> Second, a detailed schedule of agriculture that clearly states the operations to be undertaken and the time required for their completion.<sup>334</sup> The schedules should include at a minimum: (1) a land releveled survey with topsoil yardage needs; (2) a schedule of planned machinery operations, such as removal of rubble and buried pipes and cables, grading, ripping, and other operations to re-establish soil tilth; (3) a schedule of soil

<sup>324</sup> *Id.*

<sup>325</sup> *Endangered Habitats League, Inc. v. County of Orange*, (2005) 131 Cal.App.4th 777, 794.

<sup>326</sup> DEIR at pp. 3.3-13 and 3.3-16.

<sup>327</sup> *Id.*

<sup>328</sup> House Comments at p. 9.

<sup>329</sup> *Id.*

<sup>330</sup> *Id.*

<sup>331</sup> *Id.*

<sup>332</sup> *Id.* at p. 10.

<sup>333</sup> *Id.*

<sup>334</sup> *Id.*

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amendments provided; and (4) a schedule of revegetation and re-establishment of soil microbiology.<sup>335</sup>

Lastly, the DEIR requires that a bond be posted to cover the cost of the site-reclamation plan.<sup>336</sup> As Mr. House explains, the DEIR fails to adequately assure that a bond will actually cover the costs of the reclamation plan because it does not specify a definite time frame in which to estimate future costs.<sup>337</sup>

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The DEIR should be revised to include a detailed explanation of how the reclamation will achieve its purpose of restoring the farmland to its original state and a definite time period for either the permitted or "useful life" of the project.<sup>338</sup>

#### IV. THE DEIR FAILS TO ADEQUATELY DISCLOSE, ANALYZE, AND MITIGATE THE PROJECT'S SIGNIFICANT NOISE IMPACTS

The DEIR claims that impacts from Project noise are less than significant.<sup>339</sup> This conclusion is not supported by substantial evidence.

CEQA requires an EIR to include a description of the physical environmental conditions in the vicinity of the project.<sup>340</sup> The environmental setting as it exists when the CEQA review process begins should ordinarily be treated as the baseline physical conditions by which a lead agency determines whether an impact is significant.<sup>341</sup> CEQA uses the term "ambient noise" to describe the physical condition that could be changed by a project.<sup>342</sup> When evaluating noise impacts, CEQA requires evaluation of whether a project would cause a "substantial temporary or permanent increase in ambient noise levels."<sup>343</sup> Similarly, the Imperial County Noise Element states that "the [environmental] 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."<sup>344</sup>

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<sup>335</sup> *Id.*

<sup>336</sup> DEIR at p. 3.3-12.

<sup>337</sup> House Comments at p. 10.

<sup>338</sup> *Id.*

<sup>339</sup> DEIR, p. 3.13-9.

<sup>340</sup> CEQA Guidelines §§15125(a).

<sup>341</sup> CEQA Guidelines §§15125(a)(1), 15126.2(a). See *Save Our Peninsula Comm. V. Monterey County Bd. Of Supervisors* (2001) 87 CA4th 99, 125.

<sup>342</sup> CEQA Guidelines § 15360.

<sup>343</sup> CEQA Guidelines Appendix G: Environmental Checklist Form, XII, Noise.

<sup>344</sup> Imperial County Noise Element, p. 22, available at: <https://www.icpds.com/assets/planning/noise-element-2015.pdf>.  
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One of CEQA's basic policies is to provide Californians with "freedom from excessive noise."<sup>345</sup> Based on CEQA Guidelines Appendix G, project impacts related to noise and vibration are considered significant if any of the following occur:

- 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.
- Generate excessive groundborne vibration or groundborne noise levels
- For a project located in 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.<sup>346</sup>

The noise questions in the checklist do not define what maximum level of noise, or increase in the level of noise, constitutes a significant impact. Thus, lead agencies must choose the significance thresholds to be applied, either in general or to a particular project.<sup>347</sup> Lead agencies do not have discretion, however, to consider only maximum noise levels and ignore increases in noise relative to existing conditions. In applying significance thresholds, the lead agency must consider both the "absolute noise level" associated with a project as well as the increase in the level of noise that will result from a project.<sup>348</sup>

As discussed further below, the City's noise analysis fails to adequately analyze the Project's potentially significant noise impacts because it relies on unsupported baseline data and does not analyze potentially significant impacts from construction and operational noise.

#### 1. The DEIR's Noise Analysis Relies on Unsupported Baseline Data

The DEIR fails to establish adequate baseline noise levels against which to measure the Project's environmental impacts with regard to noise.

<sup>345</sup> Public Resources Code § 21001(b).

<sup>346</sup> CEQA Guidelines Appendix G: Environmental Checklist Form, XII, Noise; DEIR at p. 3.13-6.

<sup>347</sup> *King & Gardiner Farms, LLC v County of Kern* (2020) 45 CA5th 814, 884.

<sup>348</sup> *King & Gardiner Farms, LLC v County of Kern* (2020) 45 CA5th 814, 887 and 893; See also *Keep Our Mountains Quiet v County of Santa Clara* (2015) 236 CA4th 714, 733 (negative declaration case holding that increase in noise level must be considered, not just absolute noise level).

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Mr. Meighan explains that “[w]ithout knowing how loud the environment is, it is impossible to determine if the new project will increase noise in the surrounding community.”<sup>349</sup> Baseline noise measurements are the preferred way to determine background noise sources.<sup>350</sup> If baseline noise conditions are not established before any new development occurs, decision-makers cannot effectively determine whether the Project complies with noise regulations nor identify any potential adverse effects on the surrounding environment and communities.<sup>351</sup>

The DEIR obtains the noise threshold by referencing Community Noise Equivalent Level (CNEL) reference levels from Table 3 of the Imperial County's Noise Element.<sup>352</sup> Mr. Meighan comments that the DEIR does not consider any measurements that reflect current conditions near the sensitive receivers.<sup>353</sup> Specifically, the cited levels only consider traffic noise.<sup>354</sup> Mr. Meighan points out that this is not the only ambient noise source near sensitive receivers at the Project site.<sup>355</sup> There is noise from “freight train horns/operations, noise from agricultural use, and noise from nearby power plants and industrial uses.”<sup>356</sup> Because the DEIR fails to account for all of the ambient noise sources at the Project site, the baseline noise levels used for analyzing the Project's noise impacts are “poorly supported.”<sup>357</sup>

To remedy these inadequacies, Mr. Meighan comments that “[n]oise levels should be physically measured to be accurately determined.”<sup>358</sup> Additionally, “[t]he Project should conduct properly documented ambient measurements near sensitive receptors, that capture the worst case (quietest) baseline conditions, to determine impact.”<sup>359</sup> More specifically, Mr. Meighan recommends full 24-hour measurements be used to determine ambient noise for residential receivers of interest because the County of Imperial Codified Ordinances establish a 50 dB daytime and 45 dB nighttime noise limit.<sup>360</sup> Or, at the very least, Mr. Meighan comments that a minimum of three one-hour Equivalent Sound Level (Leq) noise measurements (peak-hour roadway traffic, typical midday conditions, and typical nighttime

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cont'd

<sup>349</sup> Meighan Comments, p. 1-2.

<sup>350</sup> Meighan Comments, p. 2.

<sup>351</sup> *Id.*

<sup>352</sup> Meighan Comments, p. 1; Imperial County Noise Element, available at: <https://www.icpds.com/assets/planning/noise-element-2015.pdf>.

<sup>353</sup> Meighan Comments, p. 1.

<sup>354</sup> Meighan Comments, p. 2.

<sup>355</sup> *Id.*

<sup>356</sup> *Id.*

<sup>357</sup> Meighan Comments, p. 1.

<sup>358</sup> Meighan Comments, p. 2.

<sup>359</sup> *Id.*

<sup>360</sup> County of Imperial Codified Ordinances, Title 9, Division 7.  
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conditions) to estimate the Day-Night Sound Level (Ldn) at site be used to establish baseline noise conditions for the project, including the CNEL.<sup>361</sup>

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## 2. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Significant Noise Impacts

Under CEQA, if there is any substantial evidence in the record that an environmental impact may be significant, the impact must be described and analyzed in the EIR.<sup>362</sup> This includes direct and indirect environmental impacts.<sup>363</sup> The DEIR violates CEQA by omitting potentially significant construction and operational noise impacts.

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### a. The DEIR Omits Potentially Significant Construction Noise Impacts

The DEIR fails to consider potentially significant construction noise impacts for sensitive receivers.<sup>364</sup>

Imperial County Codified Ordinance Section 91702.01(B) states that each "operator shall limit drilling noise to a sound level equivalent to CNEL sixty (60) db(A)" and that "the level shown may be exceeded by ten percent (10%) if the noise is intermittent and during daylight hours."<sup>365</sup>

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As explained in Mr. Meighan's comments, the DEIR fails to comply with this drilling standard. First, the drilling noise from the Project is not intermittent or limited to daylight hours.<sup>366</sup> Table 3 of Appendix K in the DEIR states that a drill rig will be used for 15 daytime hours and 9 nighttime hours for 180 days.<sup>367</sup> Mr. Meighan explains that this represents 24-hour operation, for roughly half a year.<sup>368</sup> Second, the 24-hour CNEL levels are over the Imperial County Codified Ordinance

<sup>361</sup> Meighan Comments, p. 2; Federal Transit Administration's 2018 Transit Noise and Vibration Impact Assessment Manual, Appendix E, [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf).

<sup>362</sup> 14 Cal. Code Regs § 15126.2(a); *League to Save Lake Tahoe v. County of Placer* (2022) 75 Cal.App.5th 63, 96.

<sup>363</sup> 14 Cal. Code Regs § 15126.2(a).

<sup>364</sup> Meighan Comments, p. 2.

<sup>365</sup> Imperial County Codified Ordinance § 91702.01(B).

<sup>366</sup> DEIR, p. 2.

<sup>367</sup> DEIR, Appendix K, p. 4-2.

<sup>368</sup> Meighan Comments, p. 2.

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drilling standard threshold.<sup>369</sup> Mr. Meighan came to this conclusion by re-modelling the construction noise from the Project's predicted drilling activities.<sup>370</sup> In his model, Mr. Meighan interpreted the Imperial County Codified Ordinance as establishing two criteria (1) a daytime criterion of 66dBA and (2) a CNEL of 60 dBA.<sup>371</sup> Next, Mr. Meighan assumed that, for the CNEL, the noise from the drill was constant and applied the established nighttime penalties.<sup>372</sup> Mr. Meighan's new model reveals that the CNEL noise impacts from the Project's drilling activities will exceed the Imperial County Codified Ordinance drilling standard threshold by 3 dBA, resulting in a significant impact that the DEIR did not account for.<sup>373</sup>

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Because the DEIR did not include this potential impact in their analysis, Mr. Meighan comments that mitigation should be considered, such as a temporary sound wall.<sup>374</sup> Therefore, the DEIR must be revised to disclose and mitigate this significant construction noise impact.

**b. The DEIR Omits Potentially Significant Operational Noise Impacts**

The DEIR fails to consider potentially significant operational noise impacts.<sup>375</sup>

The DEIR uses noise data from the ORMAT Tungsten Mountain facility, which is similar in design to the Proposed Project, to model noise associated with geothermal plant operations using SoundPLAN Essential methodology for industrial sites.<sup>376</sup> Based on this, the DEIR assumed that the operation of the power plant would generate an average noise level of 62 dBA at 450 feet with continuous operation and that the proposed Project wells would generate an average noise level of 72 dBA at 25 feet with continuous operation.<sup>377</sup>

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However, the DEIR also mentions that existing geothermal facilities and geothermal wells adjacent to the Project site have a sound power level in the range of 113 dBA and that operational noise levels of an existing geothermal facility in

<sup>369</sup> Meighan Comments, p. 3.

<sup>370</sup> *Id.*

<sup>371</sup> Meighan Comments, p. 2.

<sup>372</sup> Meighan Comments, pp. 2-3; Los Angeles World Airports, *How do we Describe Aircraft Noise?*, available at: [https://www.lawa.org/-/media/lawa-web/noise-management/files/aircraft\\_noise\\_lax.ashx](https://www.lawa.org/-/media/lawa-web/noise-management/files/aircraft_noise_lax.ashx).

<sup>373</sup> Meighan Comments, p. 3.

<sup>374</sup> *Id.*

<sup>375</sup> *Id.*

<sup>376</sup> DEIR, Appendix K, p. 5-1.

<sup>377</sup> *Id.*

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Imperial County were recorded at 70 dBA Leq at approximately 100 feet.<sup>378</sup> Mr. Meighan comments that if the noise measurements from these adjacent facilities are consistent with the new facility, they have a potential to exceed the noise thresholds set by the Imperial County Noise Ordinance.<sup>379</sup> Mr. Meighan explains that whether noise thresholds are exceeded depends on what the ambient noise levels are at the Project site.<sup>380</sup> If ambient levels are elevated, they may be above the noise threshold and thus these levels may not increase noise levels.<sup>381</sup> However, the ambient levels may be below the noise thresholds and the Project's impact could be even greater compared to ambient levels.<sup>382</sup> Because of this, Mr. Meighan says that in addition to establishing proper ambient noise levels for the project site, the DEIR should be updated to include potential mitigation for this potentially significant operational noise impact, such as a sound wall.<sup>383</sup>

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Therefore, the analysis of the Project's noise impact is inadequate and needs to be revised and recirculated in a new DEIR.

## VII. THE DEIR FAILS TO ADEQUATELY ANALYZE CUMULATIVE IMPACTS

CEQA requires an EIR's cumulative impacts analysis evaluate the incremental impact of the project in conjunction with, or collectively with, other closely related past, present, and reasonably foreseeable probable future projects.<sup>384</sup> "Cumulative impacts" are defined as "two or more individual effects, which, when considered together, are considerable or which compound or increase other environmental impacts."<sup>385</sup> The purpose of this requirement is to avoid "piecemeal" approval of projects without consideration of the total environmental effects the project would have when taken together.<sup>386</sup> The adequacy of an EIR's discussion of cumulative impacts is determined by standard of practicality and reasonableness.<sup>387</sup>

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<sup>378</sup> DEIR, Appendix K, p. 4-2.

<sup>379</sup> Meighan Comments, p. 3.

<sup>380</sup> *Id.*

<sup>381</sup> *Id.*

<sup>382</sup> *Id.*

<sup>383</sup> *Id.*

<sup>384</sup> 14 CCR § 15355(b); *City of Long Beach v. Los Angeles Unified School Dist.* (2009) 176 Cal.App.4th 889, 905.

<sup>385</sup> 14 CCR § 15355.

<sup>386</sup> Cecily Talbert Barclay and Matthew S. Gray, *California Land Use and Planning Law* (Solano Press, 37th ed. 2020) p. 180.

<sup>387</sup> *Environmental Protection & Information Center v. California Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 525; 14 CCR § 15130(b).

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#### **A. The DEIR Fails to Adequately Analyze Cumulative Impacts to Biological Resources**

The DEIR fails to adequately analyze the Project's cumulatively significant impacts associated with habitat loss to burrowing owls and other special status birds.

The DEIR provides, absent substantial evidence, that impacts on biological resources would not be cumulatively considerable.<sup>388</sup> In fact, substantial evidence demonstrates that the Project's impacts to habitat degradation and species decline is significant and unmitigated. Dr. Smallwood calculated that habitat loss associated with development of the Project would result in the loss of 945 birds per year.<sup>389</sup> Dr. Smallwood's comments demonstrate that "[p]redicted annual collision mortality averages 255 birds and 1.3 bats with the project's PV solar panels, 222 birds with the medium-voltage distribution lines, 56 birds and 10 bats with the security fence, and 17 vertebrate animals with project-generated traffic for a combined annual mortality of 561 vertebrate animals. The total quantifiable deficit of vertebrate wildlife would be at least 1,506, and that is before attempting to quantify the numbers of small mammals and bats that would be lost."<sup>390</sup>

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Substantial evidence demonstrates that "[t]he project's contribution to cumulative impacts would be substantial and highly significant."<sup>391</sup> Dr. Smallwood's comments demonstrate that the DEIR underestimated the impacts associated with cumulative development in the Project's area. Dr. Smallwood calculated that the cumulative geothermal and battery energy storage projects being developed in the region will result in cumulatively significant impacts to burrowing owl due to habitat lost and mortality.<sup>392</sup>

Dr. Smallwood calculated the cumulative annual mortality estimates at 84,010 birds and 434 bats at solar PV panels, 24,055 birds at gen-ties, and 5,990 birds and 1,062 bats at securing fencing for Projects in the region.<sup>393</sup> Cumulative annual bird collision fatalities are estimated to be 114,056 birds and 1,497 bats at solar projects among the list of projects in Table 5-1 of the DEIR. Dr. Smallwood calculated that cumulative annual burrowing owl collision fatalities based on the list of projects in Table 5-1 of the DEIR is estimated to be 1,317 – "an excessive

<sup>388</sup> DEIR at p. 5-12.

<sup>389</sup> Smallwood Comments at p. 30.

<sup>390</sup> *Id.*

<sup>391</sup> *Id.*

<sup>392</sup> *Id.*

<sup>393</sup> *Id.*; DEIR Table 5-1.

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mortality that is likely helping to extirpate burrowing owls from Imperial County.”<sup>394</sup>

The DEIR fails to adequately mitigate significant cumulative impacts to burrowing owls. The DEIR fails to require survey requirements, because “no breeding-season detection surveys have been completed.”<sup>395</sup> CEQA Guidelines §15064(h)(3) state, “When relying on a plan, regulation or program, the lead agency should explain how implementing the particular requirements in the plan, regulation or program ensure that the project’s incremental contribution to the cumulative effect is not cumulatively considerable.” Dr. Smallwood’s comments provide substantial evidence, that the Project’s reliance on local plans and regulations does not adequately mitigate the Project’s cumulatively significant impacts to biological resources. Cumulative biological resource impacts must be adequately analyzed and mitigated in a revised and recirculated EIR before the Project can be lawfully approved.

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#### VIII. THE DEIR FAILS TO ANALYZE THE PROJECT’S LAND USE INCONSISTENCIES

The CEQA Guidelines require a lead agency conducting environmental review of a project to consider whether the project would “conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over a project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.”<sup>396</sup> Here, the County failed to adequately analyze and mitigate the Project’s conflicts with the Imperial County Code of Ordinances, in violation of CEQA.

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The project parcels are zoned as A-2-G-SPA and A-2-G-U, for agricultural purposes. The Project is within both the “Urban Area” pursuant to the Imperial County General Plan and the Heber Specific Plan Area.<sup>397</sup> Under Division 17 of the Imperial County Land Use Ordinance, renewable energy projects located within the renewable energy overlay zone may be developed and operated with an approved conditional use permit (“CUP”).<sup>398</sup> The Dogwood Geothermal Energy Project is part of the Imperial County Geothermal Overlay Zone and thus must obtain a CUP.<sup>399</sup>

<sup>394</sup> *Id.*

<sup>395</sup> Smallwood Comments at 36.

<sup>396</sup> 14 CCR § 15000 Appendix G.

<sup>397</sup> DEIR at p. 3.12-1.

<sup>398</sup> Imperial County Code of Ordinances § 91701.03

<sup>399</sup> DEIR at Figure 2-1.

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Imperial County Code of Ordinances Section 91702.00 provides the following specific standards to geothermal projects:

- A. All geothermal drilling sites including test facilities and ponds shall be as small as possible and in no case larger than five acres on farmable land. Exceptions may be considered on a well-by-well basis.
- B. All geothermal drilling and production sites shall try to protect the fragile ecological balance of the wetlands and surrounding desert by assuring that natural resources will be considered in their location. Consideration shall be given to intermittent noise levels which may affect wildlife.
- C. Every site shall be designed to retain the maximum amount of usable agricultural land and the site shall not interfere with the irrigation and drainage pattern, and shall comply with requirements and regulations of Imperial irrigation district. Drill sites shall be constructed adjacent to existing roads in so far as possible. Well density shall be justified and in accordance with good reservoir engineering practices.

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G-63

The Project exceeds the Imperial County Code requirement that geothermal drilling sites not exceed five acres of farmable land. The Project results in the conversion of 446.61 acres of farmable land for geothermal and solar use.<sup>400</sup> Therefore, an exception must be made for the Project. The DEIR makes no mention of this nonconformance which constitutes a significant impact under CEQA.

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## XI. CONCLUSION

For the reasons discussed above, the DEIR for the Project remains wholly inadequate under CEQA. It must be thoroughly revised to provide legally adequate analysis of, and mitigation for, all of the Project's potentially significant impacts. These revisions will necessarily require that the DEIR be recirculated for public review. Until the DEIR has been revised and recirculated, as described herein, the County may not lawfully approve the Project.

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<sup>400</sup> DEIR at 3.3-3.  
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Thank you for your attention to these comments. Please include them in the  
record of proceedings for the Project.

G-66

Sincerely,



Kelilah D. Federman  
Alaura R. McGuire

Attachments  
KDF:acp

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## EXHIBIT A

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

November 14, 2024  
Proposal No. EN8462

Attention: Kelilah Federman

**Subject: Comments on Dogwood Geothermal Energy Project Draft Environmental Impact Report (DEIR) Imperial County, California**

Dear Ms. Federman,

Dr. Komal Shukla of Group Delta Consultants, Inc. (Group Delta) is pleased to provide comments to Adams Broadwell Joseph & Cardozo (ABJC) regarding the comprehensive review of the Draft Environmental Impact Report (DEIR) for the Dogwood Geothermal Energy Project (DGEP). This report was prepared by the Applicants, OrHeber 3, LLC, Heber Field Company, LLC, and Second Imperial Geothermal Company.<sup>1</sup>

G A-1

### Introduction

The Dogwood Geothermal Energy Project (Project) is a proposed development located in the unincorporated region of Imperial County, California, approximately one mile south of the City of Heber and 0.5 miles west of the City of Calexico. The Project aims to generate renewable energy by constructing a new 25 megawatt (MW) geothermal power plant, supported by a 7 MW solar energy facility dedicated to providing parasitic power to the geothermal operations.

In addition to the Dogwood facility, the Project includes the development of a 15 MW parasitic solar energy facility to support the existing Heber 2 geothermal plant. This comprehensive energy initiative also involves the drilling of up to six new geothermal production wells, the construction of one new injection well, and the installation of supporting brine pipelines.

G A-2

The Dogwood Project (CUP No. 23-0020), to be developed by OrHeber 3, LLC, will consist of one Integrated Two Level Unit (ITLU) Air-Cooled ORMAT Energy Converter (OEC) generating unit, two 20,000-gallon isopentane tanks for motive fluid storage, a substation, and various ancillary systems including a compressed air system and a fire prevention system. A 7 MW solar photovoltaic field will be dedicated to powering the Dogwood geothermal plant, with interconnecting cable lines linking the solar and geothermal facilities.

<sup>1</sup> Refer to Para. 2 on Pg. 2-1 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024

The Heber 2 Parasitic Solar Energy Facilities (CUP No. 23-0021), developed by Second Imperial Geothermal Company, will consist of a 15 MW solar photovoltaic field dedicated to powering the Heber 2 geothermal plant, with interconnecting cables linking the two facilities.

G A-2  
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The Heber Field Company (CUP No. 23-0022) will be responsible for drilling up to six new geothermal production wells and constructing one new injection well. The proposed infrastructure also includes brine pipelines that will connect the new wells to the Dogwood geothermal facility and existing well systems.

The DGEP is situated within the Imperial County Geothermal Overlay Zone, which allows for Major Geothermal Projects through a Conditional Use Permit (CUP) process as outlined in the Imperial County General Plan and the Renewable Energy and Transmission Element of the County's General Plan (2015). This strategic location, near the existing geothermal energy complex on Dogwood Road, makes it an ideal site for harnessing geothermal energy to contribute to California's renewable energy goals.

As detailed in the DEIR, the primary components of the Project include:

#### **Dogwood Geothermal Energy Project**

- 25 net MW geothermal power plant.
- Installation of one Integrated Two-Level Unit (ITLU) utilizing an air-cooled ORMAT Energy Converter (OEC) as the primary power generation unit.
- OEC system comprises several key components, including a generator, turbines, a vaporizer, air-cooled condensers, preheaters, recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) designed for purging and maintenance activities.
- Two double-walled 20,000-gallon above-ground isopentane storage tanks for motive fluid. These storage tanks will be mounted on concrete foundations and protected by blast walls. Additional safety measures include an automated water suppression system, concrete containment areas, two flame detectors, and one gas detector to monitor for potential isopentane leaks.
- One dry cooling tower array for air-cooling the geothermal fluid. This cooling tower will be equipped with a series of heat-absorbing evaporators and condensers designed to capture and transfer heat from the geothermal fluid.
- One project substation for electricity transmission to the power grid.
- Ancillary and auxiliary infrastructure, including a compressed air system and a fire prevention system.
- A 7 MW solar photovoltaic (PV) array designed to support the Dogwood geothermal facility. It will feature a 13.8 Kilovolt (kV) circuit breaker for generator protection, an 80-megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection.
- A medium voltage distribution line linking the Dogwood solar field with the geothermal plant.



#### Heber 2 Parasitic Solar Project

- A 15 MW solar photovoltaic field designed to provide supplemental energy to the existing Heber 2 geothermal plant.
- An interconnection cable linking the Heber 2 solar facilities with the Heber 2 geothermal plant.

#### Heber Field Company (HFC)

- Drilling of up to six new production wells approximately 5,000 feet deep (three already sited, and three awaiting site determination within APNs 059-020-001 and 054-250-017.)
- Drilling of one new injection well within the existing Heber 2 Geothermal Energy Complex (HGEC).
- Installation of approximately 0.85 miles of brine pipelines for geothermal fluid transportation.

G A-2  
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**Figure 1: Project Location Dogwood Geothermal Energy Project Imperial County, California**

G A-2  
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## 1. Project Description

The Project aims to develop a geothermal power plant with a minimal environmental footprint by siting the facility on an already disturbed industrial site. Its primary objective is to generate clean, renewable geothermal energy within the Heber Geothermal Zone, in alignment with the Imperial County General Plan. The site was chosen for its proximity to existing energy facilities and electrical transmission infrastructure. Additionally, the Project will integrate solar PV technology to support geothermal operations, using proven, low-maintenance systems. The plant will provide renewable baseload energy to help California meet its goals under Senate Bill 100 and the State's Renewables Portfolio Standard program.<sup>2</sup> A key focus is on minimizing and mitigating any potential impacts on sensitive environmental resources in the Project area.

The Project construction process is divided into multiple phases, each with a series of activities and specific timelines.<sup>3</sup>

### Site Preparation (2 months)

- The initial phase involves site preparation activities, which include construction kickoff and staging (1 week), demolition and site clearing (1 week), and rough grading (2 weeks). Following these activities, fine/pad grading and excavation for underground utilities and stormwater management will take place over the course of 1 month.

### Project Construction (16 months)

This phase focuses on key construction activities, starting with well pad construction, which will last 3 months. The parasitic solar energy system will be built over a 6-month period, while medium voltage distribution cable installation will take 4 months. The installation of the ORMAT Energy Converter (OEC) unit will also span 6 months, and landscaping, lighting, and architectural finishes will take place in the final month of this phase.

### Well Drilling & Pipeline Interconnection (12 months)

The drilling of geothermal wells and pipeline interconnection will occur simultaneously, starting with well drilling and completion (4 months), followed by flow testing (4 months) and the installation and interconnection of pipelines (4 months).

<sup>2</sup> Refer to Para. 5 on Pg. 2-6 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024

<sup>3</sup> Refer to Table 2-2 on Pg. 2-21 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024



#### Substation Development & Interconnection (4 months)

- This phase involves the development of the Project substation, which will take 3 months. The interconnection with the grid will be completed in 2 weeks, followed by a 2-week testing period.

G A-2  
cont'd

#### Testing & Operational (1 month)

- The final phase includes a 2-week testing period to ensure all systems are functioning properly. After this, all facilities will become fully operational, marking the conclusion of the construction and development process.

Overall, the total duration of the Project construction, including all phases, is approximately 35 months, or just under 3 years.

The geothermal power plant will operate continuously, 24 hours per day, with regular maintenance as needed. Solar facilities will be remotely monitored, with site visits conducted as necessary. Routine inspections will be scheduled to avoid peak load periods, while unplanned maintenance will be performed as required.<sup>4</sup> Emergency response equipment includes a 400-kilowatt (kW) emergency diesel generator (540-horsepower) and a 300-horsepower emergency diesel fire pump, each with limited operational hours per year.

The Project will aim to avoid using sulfur hexafluoride (SF<sub>6</sub>), a potent greenhouse gas, in new circuit breakers. However, if SF<sub>6</sub>-insulated equipment is used, up to 75 pounds of SF<sub>6</sub> gas may be required at the site.<sup>5</sup> The Project's operational equipment, such as turbines and condensers, are not fully listed, raising concerns about potential environmental impacts from these components.

#### 1.1 Incomplete Listing of Air-Contaminant-Emitting Equipment

The DEIR lacks a detailed inventory of critical operational equipment, particularly those with potential environmental impacts. Key components, such as turbines, air-cooled condensers, preheaters, recuperators, as well as existing pipelines, storage tanks, and wells, are not clearly specified.

G A-3

The DEIR asserts that site-specific isopentane maintenance, purging, and fugitive emissions were estimated using worst-case quarterly emissions data from 2019 and 2020. It also claims that maintenance and fugitive emission estimates were adjusted to reflect the reduced complexity of

<sup>4</sup> Refer to Para. 3 on Pg. 2-24 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024

<sup>5</sup> Refer to Para. 5 on Pg. 3.9-11-12 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024



the new units compared to the existing units from those years.<sup>6</sup> Specifically, the Project's proposed equipment has fewer seals, flanges, pumps, and valves relative to the existing equipment.

G A-3  
cont'd

This lack of detailed equipment enumeration can result in significant inaccuracies in emissions calculations. If the actual number of equipment units is underreported, emissions during both construction and operation phases could be underestimated, leading to potential non-compliance with air quality regulations. Load factors, operational hours, and fuel consumption are typically based on equipment quantity, and deviations in these assumptions will directly affect the projected emissions of pollutants like nitrogen oxides (NOx), carbon monoxide (CO), particulate matter 10 (PM<sub>10</sub>) and particulate matter 2.5 (PM<sub>2.5</sub>).

Furthermore, air quality mitigation measures are generally scaled according to the number and activity level of equipment. Omitting certain equipment may result in underestimating the mitigation needed, potentially resulting in emissions exceeding projected levels. Incomplete equipment data may also cause the cumulative emissions to be underestimated, leading to the omission of a significant contribution to regional air quality deterioration. This lack of comprehensive data hinders the ability to assess whether the Project will remain within regulatory thresholds, thus jeopardizing compliance with environmental standards.

Failure to account for all relevant equipment distorts the emissions inventory, risking regulatory violations and underestimating the Project's overall environmental impact.

### 1.2 Omission of Fugitive Emissions

The DEIR fails to adequately address fugitive emissions originating from various components critical to the geothermal plant's operations, including valves, flanges, control systems, and storage tanks. These components are integral to geothermal fluid handling and are known sources of potential emissions. Fugitive emissions from such equipment, particularly in a geothermal setting, can contribute to the release of volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and other trace gases, which may have significant cumulative effects on local air quality.

G A-4

While the DEIR does account for fugitive dust emissions resulting from vehicular travel on unpaved roads, it overlooks emissions that can escape from the numerous seals, joints, and connectors in equipment like pumps, compressors, and pipelines. Valves and flanges are particularly prone to leaks, and over time, even small emissions from these sources can

<sup>6</sup> Refer to Para. 1 on Pg. 3.4-14 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024



contribute to a significant release of pollutants such as hydrogen sulfide (H<sub>2</sub>S), methane (CH<sub>4</sub>), and other non-condensable gases (NCGs), which are common in geothermal fluid.<sup>7</sup>

G A-4  
cont'd

### 1.3 Significant Oversight in Emission Estimates from Well Drilling and Flow Testing

The DEIR indicates that AQ-2 mitigation measures will be implemented for construction equipment to ensure compliance with significance thresholds and prevent exceedances. However, it fails to properly estimate the impact of the construction of six new wells. The new wells are planned to be drilled to a depth of 5,000 feet, with well drilling and flow testing anticipated to span approximately eight months (four months for each activity).<sup>8</sup> While the DEIR provides emission estimates for well pad construction, it omits the emissions associated with well drilling and flow testing. Furthermore, the analysis does not account for the emissions from the drill rig, which operates on diesel fuel, runs continuously for 24 hours, and is rated at 500 horsepower with a load factor of 0.5.<sup>9</sup> The combustion process in these engines generates NO<sub>x</sub> emissions due to high temperatures and pressures, which cause nitrogen and oxygen in the air to react. Given that the Project's estimated emissions for NO<sub>x</sub> are already approaching the Imperial County Air Pollution Control District (ICAPCD) threshold after mitigation, as seen in Table 1, the failure to consider the drill rig's impact could compromise the Project's compliance with air quality standards.

G A-5

The calculations presented in the DEIR indicate that NO<sub>x</sub> emissions from drilling activities could surpass established threshold levels, marking a significant area of non-compliance that necessitates further investigation and corrective action (Table 1 and Table 2). Drilling operations inherently involve various processes that can substantially elevate NO<sub>x</sub> levels. Heavy machinery and equipment, including drilling rigs, compressors, and generators, are typically powered by fossil fuels, leading to the direct emission of NO<sub>x</sub> during combustion.<sup>10</sup> Additionally, auxiliary activities such as the transportation of equipment and materials, site preparation, and routine maintenance further contribute to NO<sub>x</sub> emissions.

The omission of key NO<sub>x</sub> emission sources from the impact report represents a critical oversight, especially given that the Project's current estimate of 87.08 lbs./day is narrowly below the 100 lbs./day regulatory threshold. Emissions from activities such as well drilling, and flow testing have the potential to push NO<sub>x</sub> levels beyond this limit. A comprehensive reevaluation of emissions

<sup>7</sup> EPA. Accessed September 17, 2024. <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-fifth-edition-volume-i-chapter-8-inorganic-1>

<sup>8</sup> Refer to Table 2-2 on Pg. 2-21 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024.

<sup>9</sup> Refer to Table 3 on Pg. 1-6 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024.

<sup>10</sup> "Why Monitor NO<sub>2</sub> and PM Emissions from Construction Sites?" Why monitor NO<sub>2</sub> and PM emissions from construction sites? Accessed September 27, 2024. <https://www.aeroqual.com/blog/why-monitor-no2-and-pm-at-construction-sites>





calculations is necessary to accurately account for these sources, ensuring compliance with air quality standards and adequately assessing the Project's environmental impacts.

G A-5  
cont'd

Table 11. ICAPCD Daily Construction Emission Thresholds

Pollutant	Threshold (lb/day)
PM <sub>10</sub>	150
ROG	75
NO <sub>x</sub>	100
CO	550

Source: ICAPCD 2017

Table 1: ICAPCD Daily Construction Emission Thresholds

Table 13. Mitigated Project Construction-Generated Emissions

Construction Year	Pollutant (lb/day) <sup>1</sup>					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	9.90	83.42	466.38	1.12	2,238.7	226.62
2026	10.72	87.08	520.46	1.30	2,351.7	238.04
Threshold	75	100	550	—	150	—
Exceed Threshold?	No	No	No	—	[Yes] <sup>2</sup>	—

Source: CalREMmod Results in Attachment A

Notes:

- Emissions are representative of the maximum daily output (i.e., maximum of summer or winter results)
- Guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided below.

Table 2: Mitigated Project Construction-Generated Emissions

#### 1.4 Withheld Emissions of Particulate Matter, Ozone and Ammonia

The Project fails to properly disclose emissions of particulate matter, ozone (O<sub>3</sub>), and ammonia (NH<sub>3</sub>) from all potential sources within the report. The Project acknowledges the potential impact of emissions from sources like construction activities and operational equipment like valves, flanges, and tanks handling geothermal fluid. The Project inaccurately reports PM emissions as zero and dismisses them as negligible, citing mitigation measures as sufficient justification for assuming these emissions are insignificant. This approach is particularly concerning because it involves withholding critical emissions data and applying incorrect assumptions that fail to reflect the true impact on health and the environment. By using misleading or incomplete data, the Project significantly underestimates potential air quality and health risks, violating standard environmental assessment practices and undermining informed decision-making about the Project's potential harm.

G A-6



Ozone emissions are dismissed as insignificant in the DEIR, without conducting any detailed analysis or modeling. This omission is problematic because it fails to quantitatively assess the Project's contributions to ozone levels, especially in an area that may already be struggling with non-attainment status for ozone. The lack of O<sub>3</sub> modeling means that the Project does not account for the combined effects of reactive organic gases (ROGs) and nitrogen oxides (NO<sub>x</sub>), which are critical in forming ground-level ozone, a major air pollutant that poses significant health risks. This oversight severely undermines the accuracy of the emissions calculations, leading to an incomplete evaluation of environmental and health impacts.

G A-6  
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Ammonia emissions are completely unaddressed in the Project, despite acknowledging ammonia's presence in nearby water bodies, which poses a risk of environmental contamination if these waters are utilized.<sup>13</sup> This omission is particularly concerning because ammonia is a common non-condensable gas emitted from geothermal operations. Failure to include ammonia emissions in the analysis overlooks a significant source of air and water pollution, potentially leading to underestimated environmental and health impacts. Proper evaluation for ammonia emissions is critical to prevent these harmful effects.

## 2. Environmental Setting

The DEIR significant flaws in accurately defining the Project's environmental setting. These flaws result in a failure to adhere to the requirements of in CEQA Section 15125(a), which mandates that an Environmental Impact Report (EIR) include a description of the physical environmental conditions in the vicinity of the project as they exist at the time the notice of preparation is published, or if no notice is published, at the commencement of environmental analysis, from both local and regional perspectives.<sup>12</sup> The DEIR overlooks crucial aspects such as the use of appropriate meteorological data and receptor locations. This oversight undermines the integrity of the report and raises concerns about its ability to fully assess the potential environmental and health risks associated with the proposed Project.

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### 2.1 Nonrepresentative Meteorological Station Data

The DEIR does not adhere to the Imperial County Air Pollution Control District (ICAPCD) regulations, particularly Rule 207, which governs new and modified stationary sources.<sup>13</sup> ICAPCD Rule 207 requires a thorough assessment of new and modified stationary sources, including the evaluation of cumulative air quality impacts from existing sources in proximity.<sup>14</sup> A key deficiency is the use of distant meteorological data for emissions analysis. The DEIR relies

<sup>13</sup> Refer to Para. 3 on Pg. 3.11-5 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024.

<sup>12</sup> Cal. Code Regs. Tit. 14, § 15125.

<sup>13</sup> Imperial County Air Pollution Control District Rule 207. Accessed September 27, 2024.  
<https://apcd.imperialcounty.org/wp-content/uploads/2020/01/1RULE207.pdf>

<sup>14</sup> *Ibid.*



on data from a weather station that is not representative of the local conditions, failing to include data from nearby, more relevant sources. This deviation from standard procedure creates significant uncertainty in the analysis of emissions and their dispersion.

G A-7  
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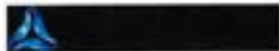
By not utilizing data from stations closer to the project site, the DEIR fails to account for localized meteorological conditions that could greatly influence the dispersion of pollutants. The inaccuracies in meteorological data selection and the subsequent emissions modeling call into question the overall validity of the air quality impact assessment. As a result, the potential for exacerbating pollutant gradients due to the addition of new geothermal plants is likely underestimated, leading to an incomplete evaluation of cumulative impacts.

The DEIR acknowledges the availability of monitoring stations within Imperial County, yet it opts to use data from an inappropriate and more distant station. Specifically, the Project relies on data from the Imperial City station located at Imperial County Airport (KIPL), despite the proximity of closer stations in El Centro and Calexico.<sup>15</sup> The Imperial City station is approximately 11.8 miles from the Project site, whereas El Centro and Calexico are located only 5.5 miles and 5.1 miles away, respectively.

Utilizing data from a more distant station introduces several issues that can compromise the accuracy and reliability of air quality assessments. Localized conditions such as meteorology, topography, traffic, and industrial activities can cause significant variations in pollutant concentrations across relatively short distances. The data from a station 11.8 miles away may not accurately represent the air quality conditions at the Project site, potentially leading to underestimations or overestimations of pollutant levels. This misrepresentation can affect the accuracy of emissions modeling, the assessment of potential impacts on human health, and the evaluation of whether the Project meets air quality standards. In contrast, using data from closer stations in El Centro or Calexico would provide a more representative and site-specific air quality profile, resulting in a more accurate evaluation of the Project's potential environmental impacts.

The decision to use data from a distant monitoring station thus undermines the credibility of the DEIR's air quality analysis and raises concerns about the adequacy of the mitigation measures proposed.

<sup>15</sup>Imperial County Airport (KIPL, WBAN ID: 03144) Weather Underground, May 11, 2020, <https://www.wunderground.com/history/monthly/us/ca/imperial/kipl>, as mentioned in Hazard Assessment report ORMAT, DOGWOOD GEOTHERMAL POWER GENERATION FACILITY HEBER, CALIFORNIA







G A-7  
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Figure 7: Project Location in respect to monitoring stations – Imperial City, El Centro, and Calexico







Figure 2: Distance Between Project Site and Salton Sea

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#### 2.4 Failure to Analyze Air Quality and Health Risk Impacts to Nearby Receptors

As seen in Figure 5, the Project site is situated in close proximity to numerous sensitive receptors, which are inadequately addressed in the DEIR. Specifically, the site is approximately 1.3 miles from Heber Elementary School District, 1.1 miles from El Toro Land & Cattle Co., and 1.2 miles from Holtz Ranch. The DEIR does not adequately evaluate the potential health impacts on these nearby locations. For the elementary school, a primary concern is the potential degradation of air quality due to elevated levels of hydrogen sulfide ( $H_2S$ ), which could adversely affect students' health. For the cattle export plot, emissions and odors from the geothermal plant may compromise the environmental quality for livestock, potentially impacting their health and that of the workers on-site. Similarly, the nearby ranch could face disruptions from possible contamination of water sources as a result of geothermal operations. These environmental

G A-8



impacts could significantly affect the daily operations of both the ranch and the cattle export plot. Absent comprehensive impact assessments and mitigation strategies to safeguard these sensitive receptors, air quality and health risk impacts to nearby sensitive receptors remain significant and unmitigated.

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**Figure 5:** Project Site Location (Depicted in Dark Orange) and Nearby Sensitive Receptors (Including the Elementary School, Land & Cattle Export, and Ranch, Depicted in Yellow).



### 2.5 Project Site Proximity and Current Air Quality Considerations

The Project Site is within an area identified as a disadvantaged community under Senate Bill 535 (Figure 6).<sup>16</sup> This bill identifies disadvantaged communities based on socioeconomic indicators, including high poverty rates, low median income, and elevated levels of pollution. The DEIR fails to recognize this designation. This designation highlights that the area is particularly vulnerable to environmental and economic disparities, often facing higher burdens from pollution and reduced access to resources and services. The presence of the Project in such a community raises significant environmental justice concerns as residents of these communities are frequently exposed to greater environmental risks and have fewer resources to address or mitigate these impacts. It is imperative for the DEIR to thoroughly assess and address the potential adverse effects of the Project on this population, not only the direct environmental impacts but also the broader social and economic effects.

The Imperial Valley Air District is also classified as being in non-attainment for ozone concentrations based on the 8-hour Federal standard, non-attainment for ozone based on the 1-hour and 8-hour California standards, and non-attainment for PM<sub>10</sub> based on the California standard. The non-attainment status of the Imperial Valley Air District underscores the need for stringent air quality management and control measures. It highlights the importance of thoroughly evaluating the potential impacts of new projects, such as the proposed geothermal plant, on the already compromised air quality in the region.

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<sup>16</sup> California, State of. "California Climate Investments to Benefit Disadvantaged Communities." CalEPA. Accessed September 20, 2024. <https://calepa.ca.gov/envjustice/cbdiinvest/>





**Figure 6: Disadvantaged Communities in California: Geospatial Analysis of Proximity to Geothermal Power Plants**

### 3. Assessment of Valley Fever Impacts and Mitigation Strategies





### 3.1 Failure to Address Impacts from Exposure to *Coccidioides Immitis* (Valley Fever Cocco) from Construction Activities

The DEIR fails to properly address the known issue of Valley Fever, also known as *Coccidioides Immitis*, within the Imperial Valley region. This fungus typically resides within the upper 2 to 12 inches of soil and when disturbed by wind, construction, or other activities, the spores become airborne. Once airborne, the spores pose a significant risk of inhalation by workers directly involved in soil disturbance and residents or other populations downwind. As the spores are not prone to environmental degradation, any soil entrainment during land development could exacerbate health risks and impact future site development.

The DEIR states that the proposed project will require two months of site preparation on APNs<sup>17</sup> 054-250-031 and 059-020-001 with corresponding acreages of 39.93 acres and 246.61 acres. Furthermore, the Project will involve four months of well drilling and an additional four months of flow testing. While flow testing may result in less direct soil disturbance compared to other phases, it still presents a risk if proper monitoring and dust control measures are not implemented.<sup>17</sup> The total land area to be developed is 123.27 acres, and soil disturbances will occur over a 10-month period.

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### 3.2 Failure to Consider Impacts from *Coccidioides Immitis* (Valley Fever Cocco) Transport from Project Site to Nearby Sensitive Receptors

The DEIR fails to properly address the possibility of impacting nearby sensitive receptors and other at-risk populations in the vicinity of the Project. Construction workers, agricultural workers, and ranchers are among the most vulnerable to Valley Fever infection due to their frequent exposure to dust and disturbed soil in common regions.<sup>18</sup> Construction personnel working directly on the Project are at high risk of inhaling airborne fungal spores, while nearby agricultural and ranching activities could face secondary exposure from airborne dust and soil particles.

Additionally, the DEIR does not sufficiently consider the potential impacts on adjacent properties, including Heber Elementary School, El Torro Cattle and Land Co., and Holtz Ranch. These sites are at risk due to their proximity to the proposed project and the likelihood of dust generation during extensive ground disturbance.

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<sup>17</sup> Refer to Para. 4 on Pg. 3.12-1 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024

<sup>18</sup> "Valley Fever (Coccidioidomycosis) - Overview," Occupational Safety and Health Administration. Accessed September 19, 2024. <https://www.osha.gov/valley-fever>



The Applicants must prepare a thorough assessment of the public health implications associated with extensive soil disruption. Furthermore, before any construction or site activity begins, comprehensive testing for Valley Fever spores should be conducted to ensure that proper mitigation measures are in place, safeguarding the health of workers and the surrounding community.

G A-11  
cont'd

**Table 2-2. Project Construction Process/Phasing**

Construction Phase	Construction Activity	Activity Duration	Phase Duration
Site Preparation	Construction Kick-off/Staging	1 week	2 months
	Demolition/Site Clearing	1 week	
	Site Preparation/Rough Grading	2 weeks	
	Final/Pad Grading, Excavation for Underground Conduit/Utilities, Stormwater	1 month	
Project Construction	Well Pad Construction	3 months	10 months
	Plastic Solder Construction	6 months	
	Medium Voltage Distribution Cable	4 months	
	OEC Installation	6 months	
	Landscaping, Lighting, Architectural Finishes	1 month	
Well Drilling & Pipeline Interconnection	Well Drilling and Completion	4 months	12 months
	Flow Testing	4 months	
	Pipeline Install and Interconnection	4 months	
Substation Development & Interconnection	Project Substation Development	3 months	4 months
	Interconnection with grid	2 weeks	
	Testing	2 weeks	
Testing & Operational	Testing Phase	2 weeks	1 month
	All Facilities Operational	2 weeks	

**Table 5: Project Construction Process/Phasing**



**Table 3.12-1. Project Assessor Parcel Numbers, Acreages, General Plan Land Use, and Zoning**

APN	APN Acreage	Site Component Acreage	General Plan Land Use	Zoning
054-250-031	39.93	-5.68	Heber Specific Plan Area	A-2-G-SPA
059-020-001	246.61	-117.59	Urban	A-2-G-U
054-250-017	160.08	-2	Heber Specific Plan Area	A-2-G-SPA
<b>Total</b>	<b>446.62</b>	<b>-125.27</b>	<b>—</b>	<b>—</b>

APN=assessor parcel number; A-2-G-SPA=General Agriculture with Geothermal Overlay in Special Plan Area; A-2-G-U=General Agriculture with Geothermal Overlay in Urban Area

**Table 6: Project Assessor Parcel Numbers, Acreages, General Plan Land Use, and Zoning**

G A-11  
cont'd

### 3.3 Lack of Evidence to Support Proper Mitigation Measures from Exposure to Valley Fever

The DEIR acknowledges the potential risk of Valley Fever during construction and proposes Best Management Practices (BMPs) alongside Mitigation Measures AQ-3 and AQ-4. However, data indicate that PM<sub>10</sub> levels exceed the thresholds established by ICAPCD even after the proposed mitigation measures are implemented (as shown in Table 7). The DEIR does not provide sufficient evidence to demonstrate that these mitigation strategies will effectively prevent significant impacts related to Valley Fever.

The DEIR asserts, "Accordingly, with implementation of Mitigation Measures AQ-1 through AQ-4 and Mitigation Measure AQ-6, the project would not exceed the ICAPCD's thresholds of significance during construction."<sup>28</sup> It further details that Mitigation Measure AQ-3 mandates the application of additional dust suppression techniques, such as water or chemical stabilization, on all unpaved roads associated with construction activities. Mitigation Measure AQ-4 requires the development and implementation of a dust suppression management plan prior to any earthmoving activities, while Mitigation Measure AQ-6 imposes a speed limit of 15 miles per hour for all vehicles operating on dirt roads onsite<sup>29</sup>

However, the mere assertion of these measures' implementation without presenting empirical evidence to support their efficacy is inadequate. Elevated PM<sub>10</sub> levels significantly exacerbate the

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<sup>28</sup> Refer to Para. 2 on Pg. 3.4-17 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024

<sup>29</sup> Ibid





risk of Valley Fever by enhancing the likelihood of inhalation of fine particulate matter that may harbor *Coccidioides immitis* spores. The disturbance of soil during construction activities can lead to increased airborne dust concentrations, further elevating the risk of exposure.

**Table 3.4-10. Mitigated Project Construction-Generated Emissions (lbs/day)**

Construction Year	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	9.90	83.42	466.38	1.12	2,238.7	226.62
2026	10.72	87.08	520.46	1.30	2,351.7	238.04
ICAPCD Significance Threshold	75	100	650	--	150	--
Exceed Threshold?	No	No	No	--	[Yes] <sup>1</sup>	--

Source: Appendix D of this EIR

Notes:

<sup>1</sup> Guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided.

**Table 7: Mitigated Project Construction-Generated Emissions (lbs/day)**

### 3.5 Inadequate Plan for Addressing Exposure to Valley Fever from Particulate Matter Emitted by the Site

The DEIR fails to present a comprehensive enforcement strategy for the proposed Dust Suppression Management Plan, thereby limiting opportunities for public review and critical examination. This omission raises significant concerns, as it reflects an impermissible deferral of analysis and the formulation of necessary mitigation measures, which contravenes the requirements of the California Environmental Quality Act (CEQA).

Furthermore, conventional dust control practices are insufficient for effectively preventing the transmission or management of Valley Fever<sup>21,22</sup>, as they primarily target larger particulate matter (PM<sub>10</sub>) rather than the much finer particles where *Coccidioides immitis* spores are located. The DEIR's claim that merely watering the soil will provide adequate on-site protection and mitigate the spread of these spores to nearby receptors is misguided. It overlooks the limitations of such measures and fails to account for the environmental dynamics involved in the dispersal of fine particulates.

<sup>21</sup> See, e.g., Cummings and others, 2010, Pg. 509; Schneider et al., 1997, Pg. 908 ("Primary prevention strategies (e.g., dust control measures) for coccidioidomycosis in endemic areas have limited effectiveness.").

<sup>22</sup> F. S. Fisher, M. W. Bultman, S. M. Johnson, D. Pappagianis, and E. Zaborsky, *Coccidioides* Niches and Habitat Parameters in the Southwestern United States: A Matter of Scale, *Annals of the New York Academy of Sciences*, 1111, 2007, 47–72. Exhibit 6.



G A-12  
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G A-13

### *3.6 Failure to Suggest Further Mitigation Measures to Address the Impacts of Valley Fever Exposure from Particulate Matter Emitted by the Site*

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The DEIR recognizes the substantial impact of Valley Fever associated with construction activities; however, it does not evaluate the necessity for supplementary mitigation measures to mitigate these impacts to a level that is considered less than significant.

The Applicants should implement the following additional measures to actively suppress the spread of Valley Fever during construction and related activities:

1. Valley Fever Dust Management Plan:

- o Develop a site-specific Dust Management Plan that includes a Site-Specific Work Plan (SWP) and a Sampling and Analysis Plan (SAP) to assess the presence of *Coccidioides immitis* in the soil before any ground-disturbing activities.
- o The SWP and SAP should outline the investigation goals, sample collection methods, sample quantity, and detection requirements. Results should be submitted to the Imperial County Air Pollution Control District (ICAPCD) for review and approval to ensure compliance.

2. Injury and Illness Prevention Program:

- o Incorporate specific safeguards into the Project's Injury and Illness Prevention Program (IIPP) to prevent the spread of Valley Fever.<sup>23</sup>

3. Dust Control Measures:

- o Apply chemical dust stabilizers at least 24 hours before expected high-wind events.
- o Water all disturbed areas at least three times daily, increasing to four times if visible wind-driven fugitive dust is detected.
- o Provide workers, particularly those with a prior history of Valley Fever, with NIOSH-approved respirators.
- o Use half-face respirators equipped with N-95 filters for workers near surface disturbance activities.
- o During digging operations, workers should wear respirators with N-100 or P-100 filters.

<sup>23</sup> Cal. Code of Regulations, Tit. 8, §3203



- o Prohibit eating and smoking on the worksite and establish clean, separate eating areas with hand-washing facilities.
- o Avoid construction operations during high-wind conditions or dust storms.
- o Limit outdoor construction to essential activities during the fall, when Valley Fever risk is highest.

4. Preventing Spore Transport:

- o Thoroughly clean all equipment and vehicles before moving them offsite.
- o Ensure haul trucks are loaded with at least a 6-inch freeboard and apply water or use covers to prevent dust emissions.
- o Provide workers with daily coveralls and locker facilities to separate work and street clothing.
- o Train workers to recognize that spores can be transported offsite on equipment, clothing, or shoes.
- o Consider installing boot-washing stations and limit visitor access, particularly for those without proper training and respiratory protection.

5. Medical Surveillance:

- o Ensure employees have prompt access to medical care for work-related illnesses and symptoms related to Valley Fever.
- o Collaborate with medical professionals to develop protocols for the evaluation and treatment of symptomatic employees.
- o Contract with 1-2 local clinics and ensure providers are aware of Valley Fever risks in the area, improving the likelihood of prompt diagnosis and consistent medical care.
- o Implement a respirator clearance program that includes medical evaluations for new employees, annual re-evaluations, fit testing, and training.
- o In the event of a Valley Fever diagnosis, a physician must determine whether the employee should be removed from work, when they can return, and which activities they are cleared to perform.

These measures will help mitigate the risk of exposure and spread of Valley Fever during the Project's soil-disturbing activities, safeguarding both workers and the surrounding community.

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#### 4. Faulty Emissions Assessment For Ozone, Isopentane, Particulate Matter, Hydrogen Sulfide and GHGs

G A-15

##### 4.1 Inadequate Analysis of Ozone Emissions

The Project, located in a non-attainment area for ozone, fails to evaluate compliance with the 2017 Imperial County Plan for the 2008 8-hour O<sub>3</sub> standard and does not adjust its analysis to meet the federal 8-hour NAAQS for ozone of 0.070 ppm.<sup>24</sup> The region already exceeds both the 1-hour and 8-hour ozone standards, as outlined in Table 8 and Table 9. Ozone is known to exacerbate respiratory conditions such as asthma and chronic bronchitis.<sup>25</sup> The formation of O<sub>3</sub> in the atmosphere from precursor pollutants like NO<sub>x</sub> and ROG<sub>s</sub>, which are commonly emitted from motor vehicles and industrial sources, represents a larger problem than addressed within the DEIR.<sup>26</sup> The DEIR underestimates the broader implications of these precursor emissions and fails to adequately address the Project's potential impact on local air quality. The increased VOC emissions associated with the Project could exacerbate the existing non-attainment status by contributing additional ozone precursors, hindering compliance with ozone standards and violating Rule 409-A. The omission of detailed emissions inventories and modeling undermines the credibility of the Project's emissions assessment, neglects necessary mitigation measures, and raises concerns about the Project's compliance with air quality management goals and its broader negative implications for community health. Without adequately quantifying these emissions, the DEIR's claims of minimal ozone impact are unfounded, casting doubt on its assessment of the Project's environmental impact in a region already struggling with ozone non-compliance.

<sup>24</sup> Refer to Para. 1 on Pg. of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024

<sup>25</sup> Refer to Table 5 on Pg. 2-2 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024

<sup>26</sup> Refer to Para. 1 & 4 on Pg. 2-4 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024





Table 5. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Period	California Standard	Federal Standard
Ozone ( $O_3$ )	1 hour	0.20 ppm (180 $\mu g/m^3$ )	Revoked
Ozone ( $O_3$ )	8 hour	0.070 ppm (137 $\mu g/m^3$ )	0.07 ppm (137 $\mu g/m^3$ )
Respirable Particulate Matter ( $PM_{10}$ )	24 hour	50 $\mu g/m^3$	150 $\mu g/m^3$
$PM_{10}$	Annual	20 $\mu g/m^3$	Revoked
Fine Particulate Matter ( $PM_{2.5}$ )	24 hour	none	35 $\mu g/m^3$
$PM_{2.5}$	Annual	12 $\mu g/m^3$	12 $\mu g/m^3$
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )
CO	8 hour	9 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )
Nitrogen Dioxide ( $NO_2$ )	1 hour	0.18 ppm (329 $\mu g/m^3$ )	0.100 ppm (188 $\mu g/m^3$ )
$NO_2$	Annual	0.030 ppm (57 $\mu g/m^3$ )	0.053 ppm (100 $\mu g/m^3$ )
Lead (Pb)	30 Day Average	1.5 $\mu g/m^3$	—
Pb	Rolling three month period, evaluated over a three-year period	—	0.15 $\mu g/m^3$
Sulfur Dioxide ( $SO_2$ )	1 hour	0.25 ppm (655 $\mu g/m^3$ )	0.075 ppm (196 $\mu g/m^3$ )
$SO_2$	3 hour	—	0.5 ppm (1,300 $\mu g/m^3$ )
$SO_2$	24 hour	0.04 ppm (105 $\mu g/m^3$ )	0.14 ppm (for certain areas)

Table 8 State and Federal Ambient Air Quality Standards

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Table 8: Attainment Status – Imperial Valley Portion of the SSAB

Pollutant	California Designation	Federal Designation
Ozone ( $O_3$ )	Nonattainment	Nonattainment
Respirable Particulate Matter ( $PM_{10}$ )	Nonattainment	Attainment
Fine Particulate Matter ( $PM_{2.5}$ )	Attainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Unclassified/Attainment
Nitrogen Dioxide ( $NO_2$ )	Attainment	Unclassified/Attainment
Lead (Pb)	Attainment	Unclassified/Attainment
Sulfur Dioxide ( $SO_2$ )	Attainment	Unclassified/Attainment
Hydrogen Sulfide ( $H_2S$ )	Unclassified	No Federal Standards
Sulfates	Attainment	No Federal Standards
Visibility Reducing Particles	Unclassified	No Federal Standards

Source: CARB 2023

Table 9: Attainment Status – Imperial Valley Portion of the SSAB

#### 4.2 Failure to Address Hydrogen Sulfide Emissions

The Project's failure to address  $H_2S$  emissions from well operations is a significant oversight, as these emissions can exceed local sulfur compound limits, posing odor and health risks.  $H_2S$ , commonly released during well drilling, testing, and cleanout operations, is known for its "rotten egg" odor and potential health impacts, including respiratory irritation and other acute effects. Additionally, the Project predicts that the smell from  $H_2S$  can be present in the air for extended periods, ranging from several hours to 45 days per site.<sup>27</sup> Despite recognizing these risks, the Project does not propose monitoring, mitigation, or cumulative impact assessments, leaving sensitive receptors vulnerable and potentially leading to non-compliance with ICAPCD Rule 405. This lack of specific emissions control measures could result in localized air quality degradation, public nuisance complaints, and increased health risks for nearby communities, particularly during prolonged  $H_2S$  release periods. The absence of a robust monitoring plan underscores the inadequacy of the Project's air quality management strategies, compromising regional air quality and community health standards.

<sup>27</sup> Refer to Para. 2 on Pg. 4-14 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024



The DEIR recognizes H<sub>2</sub>S as a common issue associated with geothermal power plants, as H<sub>2</sub>S is naturally present in geothermal fluids.<sup>28</sup> Upon release into the atmosphere, it emits a characteristic "rotten egg" odor and poses serious environmental and health hazards. Prolonged exposure to elevated concentrations of H<sub>2</sub>S can lead to significant respiratory issues, eye irritation, and, in severe cases, neurological and cardiovascular damage.<sup>29</sup> The Project fails to provide quantified H<sub>2</sub>S emissions from construction activities, noting only that odors could persist from several hours to up to 45 days at each well site.<sup>30</sup> It also acknowledges that H<sub>2</sub>S emissions could exceed the ICAPCD sulfur compound standard (Rule 405) of 0.2 percent by volume.<sup>31</sup>

G A-16  
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Despite the recognition of potential H<sub>2</sub>S emissions surpassing the ICAPCD standards, the DEIR indicates no intent to monitor current H<sub>2</sub>S levels for compliance. Additionally, the Project site is within an area with 17 existing geothermal plants, all of which contribute to the cumulatively significant H<sub>2</sub>S emissions that could affect nearby receptors, including residents and workers.<sup>32</sup> These nearby receptors are vulnerable to H<sub>2</sub>S exposure, especially in downwind conditions.<sup>33</sup> However, despite acknowledging these risks, the Project outlines no specific plans to mitigate or monitor H<sub>2</sub>S emissions, raising concerns about public health and regulatory compliance.

<sup>28</sup> Refer to Para. 3 on Pg. 3.4-23 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024

<sup>29</sup> "Hydrogen Sulfide." Centers for Disease Control and Prevention, October 21, 2014.

<https://www.cdc.gov/TSP/MMG/MMG>

<sup>30</sup> Refer to Para. 2 on Pg. 4-14 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024

<sup>31</sup> Ibid

<sup>32</sup> S. Olafsdottir, et al. "Spatial distribution of hydrogen sulfide from two geothermal power plants in complex terrain." Atmospheric Environment, January 2014.

<https://www.sciencedirect.com/science/article/abs/pii/S1352231013007668>

<sup>33</sup> L.C. Aguilar-Dodier a, a, b, c, d, e, 1, et al. "Spatial and Temporal Evaluation of H<sub>2</sub>S, SO<sub>2</sub> and NH<sub>3</sub> Concentrations near Cerro Prieto Geothermal Power Plant in Mexico." Atmospheric Pollution Research, September 28, 2019. <https://www.sciencedirect.com/science/article/abs/pii/S1309104219304659#:~:text=Power%20generation%20is%20associated%20with,has%20health%20and%20environmental%20effects>





Pollutant	Averaging Period	California Standard	Federal Standard
Hydrogen Sulfide (H <sub>2</sub> S)	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	—
Sulfates	24 hour	25 µg/m <sup>3</sup>	—
Vinyl Chloride	24 hour	0.010 ppm (26 µg/m <sup>3</sup> )	—
Visibility-Reducing Particles	8 hour	Extinction coefficient of 0.23 per kilometer (visibility of ten miles or more due to particles when relative humidity is less than 70 percent)	—

Notes: ppm = parts per million; ppb = parts per billion; mg/m<sup>3</sup> = milligram per cubic meter; µg/m<sup>3</sup> = micrograms per cubic meter; "—" = no standard.

**Table 4: State and Federal Ambient Air Quality Standards**

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#### 4.3 Inadequate Analysis of Particulate Matter Emissions

G A-17

The Project exhibits a critically flawed emissions assessment concerning particulate matter due to the exclusion of essential sources from its analysis. This deficiency is particularly alarming given that the site is situated in an area already designated as non-attainment for PM levels (Table 10). Exposure to PM<sub>2.5</sub> and PM<sub>10</sub> is associated with heightened risks of long-term health complications, including chronic respiratory diseases, cancer, and increased mortality rates. Additional health impacts include exacerbated respiratory stress, diminished lung function, structural changes in lung tissue, and compromised respiratory defense mechanisms.<sup>34</sup>

The DEIR outlines state and federal ambient air quality standards for PM<sub>2.5</sub><sup>35</sup> but fails to quantify PM<sub>2.5</sub> emissions or assess whether the construction and operational emissions associated with the Project would lead to or contribute to a violation of these ambient air quality standards, as

<sup>34</sup> Refer to Section 2.1.3 on Pg. 2-4 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024

<sup>35</sup> Refer to Table 6 on Pg. 2-3 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024



mandated by CEQA.<sup>36</sup> Moreover, the DEIR fails to adequately determine the significance of Project construction emissions; it does not compare these emissions to any thresholds of significance, nor does it model PM<sub>2.5</sub> concentrations in ambient air to ascertain whether ambient air quality standards for PM<sub>2.5</sub> would be exceeded. For the assessment of Project operational emissions, the Draft EIR relies on the ICAPCD's Rule 207 thresholds for offset requirements, which notably do not include a significance threshold for PM<sub>2.5</sub> (Table 11 and Table 12). However, the absence of a significance threshold does not relieve the County from the obligation to conduct a site-specific analysis of air quality impacts. This oversight further undermines the integrity of the emissions assessment and raises significant concerns about potential health risks associated with particulate matter exposure.

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Table 9: Attainment Status – Imperial Valley Portion of the SSAB

Pollutant	California Designation	Federal Designation
Ozone (O <sub>3</sub> )	Nonattainment	Nonattainment
Respirable Particulate Matter (PM <sub>10</sub> )	Nonattainment	Attainment
Fine Particulate Matter (PM <sub>2.5</sub> )	Attainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Unclassified/Attainment
Nitrogen Dioxide (NO <sub>2</sub> )	Attainment	Unclassified/Attainment
Lead (Pb)	Attainment	Unclassified/Attainment
Sulfur Dioxide (SO <sub>2</sub> )	Attainment	Unclassified/Attainment
Hydrogen Sulfide (H <sub>2</sub> S)	Unclassified	No Federal Standards
Sulfates	Attainment	No Federal Standards
Visibility Reducing Particles	Unclassified	No Federal Standards

Source: CARB 2023

Table 10: Attainment Status – Imperial Valley Portion of the SSAB

Table 10: ICAPCD Daily Operational Emission Thresholds

Pollutant	Tier I	Tier II
NO <sub>x</sub> and Reactive Organic Gases (ROG)	Less than 137 lbs/day	Greater than 137 lbs/day
PM <sub>10</sub> and SO <sub>x</sub>	Less than 150 lbs/day	Greater than 150 lbs/day
CO and PM <sub>2.5</sub>	Less than 550 lbs/day	Greater than 550 lbs/day

Source: ICAPCD 2017

Table 11: ICAPCD Daily Operational Emission Thresholds

<sup>36</sup> Refer to Para. 1 on Pg. 4-8 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024



Table 12. Unmitigated Project Construction-Generated Emissions

Construction Year	Pollutant (lbs/day) <sup>1</sup>					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	27.52	246.06	268.98	0.80	2,243.9	221.29
2026	29.95	272.17	307.92	0.84	2,356.6	242.47
Threshold	75	300	550	—	150	—
Exceed Threshold?	No	Yes	No	—	(Yes) <sup>2</sup>	—

Source: CalREM Results in Attachment A

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**Table 12: Unmitigated Project Construction-Generated Emissions**

The Project's evaluation of PM emissions during the site preparation phase is inadequate and fails to address key sources that can significantly affect local air quality. Given that the construction phase is projected to last 2 months,<sup>37</sup> various activities will inherently elevate PM levels. However, the current emissions modeling fails to account for major contributors to PM, which undermines the credibility of the air quality impact analysis. Potential emission sources from site preparation that should be considered include:

- Dust generation from equipment movement and site setup.
- Dust from demolition activities and clearing debris.
- Emissions from soil disturbance, grading, and heavy machinery operations.
- Dust emissions from fine grading, excavation, and utility installations.

However, the Project's modeling analysis disregards these sources, inaccurately labeling key contributors like "dust from material movement" as zero (Table 13). This oversight is problematic because these site preparation activities can emit substantial amounts of PM, exacerbating localized air pollution and posing health risks to nearby communities. With the proper emissions inputs, the estimated emissions would be much more significant. Comprehensive assessment and accurate modeling of these emissions are essential to ensure effective mitigation and compliance with air quality standards.

<sup>37</sup> DEIR, p. 2-21.



Criteria Pollutants (5/day for daily, ton/yr for annual) and GHGs (5/day for daily, MMT/yr for annual)

14-02[illegible]

#### 4.3(a) Particulate Matter Emissions Trigger BACT





does it provide sufficient justification for the emission factors utilized to estimate emissions from these sources. The construction phase will involve grading approximately 125.27 acres of land over a 10-month period, which is likely to generate substantial PM emissions.<sup>38</sup> Nonetheless, the DEIR fails to incorporate these additional sources of PM into its emissions assessment (all the site preparation PM<sub>2.5</sub> emissions are shown as 0 in CalEEMOD files). As seen in section 3.1 of Appendix D, Attachment A, emissions from onsite truck activity and dust generated by material movement were listed as 0 for all emission categories (Table 13). Onsite vehicles encompass various operational units, including water trucks for dust suppression, flatbed trucks for transporting materials, service vehicles for maintenance and repairs, and dump trucks for hauling excavated materials and aggregates. The site preparation and construction phases will necessitate the use of these vehicles and using a baseline value of zero for emissions can lead to critical errors in the Project's emissions assessment and further complicate the calculated concentration.

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Furthermore, the DEIR neglects to account for ammonia emissions, which are crucial precursors to PM formation. This omission leads to a fundamentally flawed quantitative analysis of PM emissions, thereby compromising the integrity of the emissions assessment and the efficacy of proposed mitigation measures.

The omission of key PM emission sources in the Project triggers the need for Best Available Control Technology (BACT) due to the significant potential for PM emissions exceeding regulatory thresholds. BACT is required when a source has the potential to emit pollutants at levels that could significantly impact air quality, particularly in non-attainment areas.

Comprehensive assessment and accurate modeling of these emissions are essential to ensure effective mitigation and compliance with air quality standards. The omission of critical PM<sub>2.5</sub> emissions, particularly from road dust, wind erosion, and on-site diesel truck emissions, triggers the requirement for BACT.

In the DEIR, emissions from site preparation activities, including those from trucks, excavators, and rollers, have been inaccurately assessed as zero. Furthermore, the total PM<sub>2.5</sub> emissions from the emergency generator are reported as 0.02 lbs/day, while the fire pump is recorded as <0.005 lbs/day, both of which are claimed to be mitigated 100%. These figures are implausibly low for a geothermal plant of this scale, indicating that daily construction activities would produce significantly higher emissions.

The DEIR also states that PM<sub>2.5</sub> emissions from Construction Vehicle Control Strategies would reduce emissions by 55%. For example:

- Watering unpaved roads twice daily is claimed to achieve a 55% reduction in both PM10 and PM2.5.

<sup>38</sup> Refer to Table 3.12-1 on Pg. of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024



- Limiting vehicle speeds on unpaved roads to 25 mph is estimated to reduce emissions by 44%.

In conclusion, the DEIR must comprehensively include PM<sub>2.5</sub> emissions from various significant sources that have been overlooked. These sources encompass dust generation from equipment movement and site setup, dust from demolition activities and debris clearance—which the DEIR currently assesses as zero—emissions resulting from soil disturbance, grading, and heavy machinery operations, as well as dust emissions from fine grading, excavation, and utility installations, which are similarly recorded as zero in DEIR CalEEMOD files.

These omissions lead to an overestimation of emissions reductions and fail to account for the realistic contributions from construction earthmoving activities, which cannot justifiably be deemed negligible. If these emissions were accurately accounted for, the projected PM<sub>2.5</sub> emissions for 2025 alone would likely exceed 550 lbs/day. The Morton Bay Geothermal Project (MBGP) Preliminary Staff Assessment (PSA) has been referenced to create a more accurate emissions profile.<sup>39</sup> The MBGP is a similar type of geothermal project with emission values derived based on the assumption of onsite construction emissions occurring over a 20-hour duration.<sup>40</sup> The following table presents a more realistic input of emissions for onsite vehicles and dust generated from material movement, illustrating the shortcomings of relying on a zero baseline. These values were extracted from the source emissions summary on a monthly basis and converted to daily figures, using the highest emission output when a range was provided over several months. This comparative analysis underscores the importance of incorporating a comprehensive range of emissions sources to establish a robust and scientifically valid modeling framework.

Emission Type	Morton Bay Onsite Construction Vehicles (lbs/day)	Dogwood Onsite Construction Vehicles (lbs/day)	Morton Bay Onsite Construction Vehicles Idling (lbs/day)	Dogwood Onsite Construction Vehicles Idling (lbs/day)	Morton Bay Onsite Fugitive Dust (lbs/day)	Dogwood Onsite Fugitive Dust (lbs/day)
CO	0.059	0	0.0433	0	-	-
VOC	0.002	0	0.00267	0	-	-
NO <sub>x</sub>	0.00367	0	0.044	0	-	-
CH <sub>4</sub>	1.84*10 <sup>-7</sup>	0	1.50*10 <sup>-8</sup>	0	-	-
PM <sub>10</sub>	0.00033	0	-	-	4.449	0
PM <sub>2.5</sub>	0.5017	0	-	-	0.2883	0

<sup>39</sup> Morton Bay Geothermal Project Preliminary Staff Assessment, Docket Number: 23-AFC-01 (TN #: 257470)  
<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-AFC-01>

<sup>40</sup> Refer to Morton Bay Geothermal Project Air Quality Construction Emissions Spreadsheet, Source Emission Summary, Docket Number: 23-AFC-01 (TN #: 253226)



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**Table 14: Comparison of Realistic Construction Emissions: Morton Bay Project vs. Dogwood Project**

To contextualize the data in the previous table, a brief analysis is shown below. The Project is projected to span 34 months, with the site preparation phase lasting 2 months. Assuming a 30-day month, this equates to 21 working days per month to simulate a standard 5-day work week. Consequently, the total duration for site preparation is calculated to be 42 working days.

Referring to Table 14, the estimated PM<sub>2.5</sub> emissions from fugitive dust are projected at 0.2883 lbs/day; therefore, the anticipated emissions during the site preparation phase would be approximately 12.11 lbs of PM<sub>2.5</sub> solely from fugitive dust.

This calculation can be verified as follows:

**Total Site Preparation Duration:**

$$2 \text{ months} \times 21 \text{ working } \frac{\text{days}}{\text{month}} = 42 \text{ working days}$$

**Total PM<sub>2.5</sub> Emissions:**

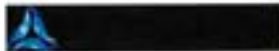
$$42 \text{ days} \times 0.2883 \frac{\text{lbs}}{\text{day}} \approx 12.11 \text{ lbs}$$

Thus, the emissions estimate for the site preparation phase indicates approximately 12.11 lbs of PM<sub>2.5</sub> generated from fugitive dust, which is not accounted for in the Project's initial analysis.

When considering the overall PM<sub>2.5</sub> emissions—including those from site preparation, erosion, and on-site truck operations—the total would likely be more than three times the current emissions, approaching nearly 800 lbs./day for both 2025 and 2026. This significant increase necessitates the implementation of Best BACT management for PM<sub>2.5</sub> to mitigate the potential adverse impacts on air quality and public health.

In summary, the failure to adequately assess PM<sub>2.5</sub> emissions from key sources not only undermines the Project's compliance with air quality standards but also raises significant public health concerns, necessitating stringent emissions control measures to ensure adherence to regulatory requirements. The reliance on a zero-emissions baseline for crucial contributors skews the Project's concentration estimates, leading to a significant underestimation of actual emissions and inaccurate concentration calculations.

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#### 4.4 Incorrect Representation of Purging Emissions of Isopentane

The Project's fugitive emission calculations rely on emission factors derived from the worst-case quarterly emissions data from 2019 and 2020. A reduction factor of 50% was applied based on assumptions about fewer leak sites and equipment failures, attributed to the use of a reduced number of components such as seals, flanges, pumps, and valves.<sup>41</sup> This approach yielded a purge emission factor of  $1.45 \times 10^5$  pounds per day per 1000 gallons (lbs/day/1,000 gal), as seen in Table 14. However, this analysis is critically flawed due to inaccuracies in the assessment of equipment components and purge systems, leading to a significant underestimation of emissions.

A comprehensive analysis of the purge systems should include detailed quantification of all equipment, and parts involved. The proposed OEC and Isopentane Thermal Liquid Unit (ITLU) have a combined isopentane volume of 82,140 gallons, while the two isopentane storage tanks add an additional 40,000 gallons. The Project has a cumulative on-site isopentane volume of 122,140 gallons.<sup>42</sup> Given the vapor recovery units (VRU) are 95% efficient, it is expected that 5% of the isopentane vapors would be emitted. Based on the total volume of isopentane, the expected emissions from the purge systems should be approximately 17 gallons per day (i.e. 112 lbs/day), calculated as follows:

$$\frac{122,140 \text{ gallons/year} \times 0.05}{365 \text{ days/year}} = 16.73 \text{ gallons/day}$$

This calculation suggests that the reported emissions are significantly underestimated (DEIR shows that emissions are below 75 lbs/day and do not trigger BACT). Purging emissions alone trigger BACT for isopentane emissions management. The DEIR does not provide a definitive count or assessment of the equipment, and parts used, further compromising the quality and accuracy of the quantitative analysis. The emission factors currently used lack empirical support and are likely misrepresenting the true scale of emissions. A comprehensive evaluation, including precise quantification of all emission sources and contributing components is essential to ensure the emission estimates and compliance with environmental standards.

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<sup>41</sup> Refer to Para. 1 on Pg. 4-3 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024

<sup>42</sup> Refer to Para. 2 on Pg. 4-3-4 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024



Table 9. Project-Specific Isopentane Emission Factors

Emission Category	Site-Specific Emission Factor Based on 2019 and 2020 Emissions (lb/day/1,000 gallons)	Emissions Reduction Due to Reduced Complexity	Project-Specific Emission Factor
Maintenance	0.45	50%	0.23
Purging	$2.9 \times 10^{-5}$	0%	$3.45 \times 10^{-5}$
Fugitive	1.20	50%	0.60

Source: ICAPCD ATC 42217A-6 (September 28, 2021)

Table 14: Project-Specific Isopentane Emission Factors

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#### 4.5 Unaccounted Isopentane Emissions from Accidental Releases

The DEIR neglects to consider the potential for accidental releases of isopentane as a ROG, which is a precursor to ozone formation. The Project is projected to maintain a total volume of 122,410 gallons of isopentane on-site. Accidental releases may occur via various mechanisms, including equipment malfunctions, human error, or external factors such as natural disasters. Such incidents could result in the release of substantial quantities of isopentane into the atmosphere, thereby intensifying ozone formation and its associated adverse health effects.

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The Clean Air Act (CAA) Section 112(r)(1) General Duty Clause (GDC) establishes regulatory requirements for all stationary sources that manage regulated substances or other extremely hazardous substances, regardless of the quantity involved.<sup>43,44</sup> Isopentane is recognized as a regulated substance under California law due to its flammability and potential health risks. The GDC requires that owners and operators of such facilities implement all reasonable measures to prevent accidental releases and mitigate their impacts should they occur.

The Imperial County California Accidental Release Prevention (CalARP) Program focuses on preventing accidental hazardous chemical releases from stationary sources, which pose risks to communities.<sup>45</sup> Facilities handling substances like ammonia, sulfur dioxide, and butane must submit Risk Management Plans (RMPs) detailing safety measures and past incidents. The Project's failure to address accidental releases in its report compromises the DEIR's assessment by neglecting the cumulative impact of isopentane emissions on local air quality and public health, leaving critical risks unassessed.

<sup>43</sup> EPA, Accessed September 26, 2024, <https://www.epa.gov/enforcement/national-enforcement-and-compliance-initiative-reducing-risks-accidental-releases>

<sup>44</sup> Clean Air Act Section 114 Information Collection request ... Accessed September 27, 2024.

[https://www.epa.gov/system/files/documents/2022-01/chemical-manufacturing-section-114\\_enclosure-1-6\\_0.pdf](https://www.epa.gov/system/files/documents/2022-01/chemical-manufacturing-section-114_enclosure-1-6_0.pdf)

<sup>45</sup> Imperial CUPA California Accidental Release Prevention Program | Department of Toxic Substances Control



The exclusion of these potential emissions from the DEIR significantly undermines the thoroughness of the environmental assessment, as it fails to consider the cumulative impacts of isopentane releases in relation to local air quality standards. Additionally, this oversight has broader implications for public health, as it does not provide a comprehensive risk assessment related to isopentane emissions.

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#### 4.6 Inadequate Analysis of ROG/Isopentane Emissions

The DEIR presents multiple shortcomings in identifying and analyzing the sources and impacts of Reactive Organic Gases (ROGs) emissions associated with the Project. The anticipated increased in emissions are linked to isopentane releases and emissions resulting from the use of landscaping equipment during routine maintenance activities.<sup>46</sup> However, key infrastructure components such as the purge system, heat exchangers, well heads, vapor recovery systems, and underground piping are not considered despite being substantial sources of fugitive ROG emissions. The inadequacy of the DEIR in addressing these sources, along with emissions generated from well drilling and operational activities, leads to an unsupported ROG emission estimate of 107 pounds per day (lbs/day). In fact, the regulatory threshold of 137 lbs/day is exceeded when all emission sources are duly considered.

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Table 15. Unmitigated Project Operational Emissions

Emission Source	Pollutant (lb/day) <sup>1</sup>					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Area <sup>2</sup>	38.56	1.98	234.91	0.01	0.42	0.32
Mobile <sup>3</sup>	0.03	0.02	0.26	<0.005	6.87	0.69
Energy <sup>4</sup>	0.00	0.00	0.00	0.00	0.00	0.00
Stationary <sup>5</sup>	0.12	0.34	0.31	<0.005	0.02	0.02
Fugitive Isopentane <sup>6</sup>	67.77	0.00	0.00	0.00	0.00	0.00
TOTAL	106.48	2.34	235.16	0.02	7.31	1.03
Threshold	137	137	550	150	150	550
Exceeds Threshold?	No	No	No	No	No	No

Source: CalEEMod Results in Attachment A

Table 15: Unmitigated Project Operational Emissions

The DEIR's emission calculations are unsupported due to a significant underestimation of ROG emissions resulting from equipment leaks, which are typically underestimated by factors ranging from three to twenty when relying on conventional emission factors. This discrepancy has been corroborated by studies conducted by the U.S. Environmental Protection Agency (USEPA) and research findings from Sweden.<sup>47</sup> This underestimation is reflected in the DEIR's emission

<sup>46</sup> Refer to Para. 1 on Pg. 4-9 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024

<sup>47</sup> U.S. EPA, VOC Fugitive Losses: New Monitors, Emissions Losses, and Potential Policy Gaps, 2006





calculations. This underestimation has profound implications for the overall emissions inventory presented in the DEIR.

When adjusted by a factor of three, the minimum range of underestimation identified in the studies suggests that fugitive isopentane emissions would approximate 203.31 lbs/day, significantly exceeding the established threshold. Furthermore, the Project's isopentane emissions may be further elevated due to the exclusion of leakage from critical components as previously noted. This omission, coupled with flawed calculations, poses a serious risk to the integrity of the Project's comprehensive assessment.

Further when 17 gallons/day (equivalent to 112 lbs/day) of isopentane (from purging emissions) is added, this would result in 315.31 lbs/day of isopentane emissions. This is higher than the standard threshold of 75 lbs/day and triggers BACT management of isopentane emissions. ICAPCD Rule 207(C)(1)(c) requires that BACT shall be applied for each pollutant(s) for which a threshold is exceeded. Here, the ROG significance threshold utilized in the DEIR is 75 pounds per day.<sup>48</sup> Isopentane emissions are therefore significant and must be mitigated.

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#### 4.7 Undocumented Isopentane Deliveries

The DEIR fails to adequately address the frequency and volume of isopentane deliveries necessary to maintain acceptable operational levels, which raises concerns regarding potential emissions that remain unassessed. This oversight not only introduces uncertainties regarding the actual emissions generated from these delivery activities but also amplifies the inaccuracies inherent in the overall emissions assessment. The unassessed isopentane emissions could result in higher-than-anticipated levels of VOCs in the atmosphere, further contributing to the formation of ground-level ozone and other secondary pollutants. Without a clear understanding of how often isopentane must be delivered and the volumes required to sustain operations, there is a high likelihood that associated emissions remain unquantified, leaving a critical gap in the Project's environmental analysis.

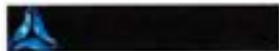
The DEIR contends that the temporary nature of construction activities, including the use of on-site heavy-duty equipment, material deliveries, and debris removal, warrants the classification of associated impacts as negligible.<sup>49</sup> This rationale is used to justify the omission of delivery and transportation emissions associated with isopentane handling. However, as isopentane circulates within the system, it will inevitably be lost through fugitive emissions and other release

G A-22

International Workshop (Oct. 25-27, 2006), at 23. See also results of Swedish studies in this same report at Pg. 213.

<sup>48</sup> DEIR at 3.4-12.

<sup>49</sup> Refer to Para. 3 on Pg. 4-14-15 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024.



mechanisms. Over time, these losses will be contaminated with air and water, necessitating the periodic replacement of isopentane to maintain operational levels.

The DEIR does not provide a loss rate, which is critical for accurately estimating the frequency of isopentane replenishment required to maintain the total site volume of 122,140 gallons. A properly calculated loss rate would allow for a more precise determination of how frequently isopentane deliveries would be needed to sustain the minimum operational volume.

Replacing the lost isopentane will necessitate regular deliveries involving transport vehicles, which operate as on-site heavy-duty equipment. The DEIR fails to quantify the frequency of these deliveries and their associated emissions, leading to an unsupported assumption that delivery and transportation emissions are negligible. This omission significantly undermines the environmental assessment's validity, as it overlooks the emissions and potentially significant environmental impacts associated with ongoing isopentane replenishment. Comprehensive quantification of these emissions is essential for an accurate and realistic evaluation of the project's overall environmental impact.

Overall, the failure to comprehensively identify and quantify ROG emissions undermines the integrity of the emissions assessment and poses significant risks to air quality and public health in the surrounding region.

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#### *4.8 Incorrect and unclear projection of Greenhouse Gas Emissions*

DEIR states that an estimated 0.375 pounds of SF<sub>6</sub> would be released annually. Using the GWP for SF<sub>6</sub> of 23,300 as summarized in Table 7 (above), annual emissions of 0.375 pounds of SF<sub>6</sub> gas would be equivalent to approximately 3.96 metric tons carbon dioxide equivalent (MTCO<sub>2</sub>e) as shown in Table 16. The GWP used here is outdated and needs to be updated to calculate correct SF<sub>6</sub> leaks.

**Correction of SF<sub>6</sub> Global Warming Potential (GWP)** -The assessment inaccurately cites the GWP for sulfur hexafluoride (SF<sub>6</sub>) as 23,300. The correct GWP value is 23,900<sup>10</sup>. This discrepancy is critical as it impacts the estimated annual emissions attributed to SF<sub>6</sub>.

**Revised SF<sub>6</sub> Emissions Calculation:** Given that three circuit breakers will utilize SF<sub>6</sub>, with an estimated total of 75 pounds of SF<sub>6</sub> gas, the calculation of emissions should be as follows:

Total SF<sub>6</sub> Required: 75 pounds

Annual Leakage Rate: 0.5%

<sup>10</sup> <https://ww2.arb.ca.gov/our-work/programs/sulfur-hexafluoride-non-electric-non-semiconductor-sources/about#:~:text=Research%20Division,About,Intergovernmental%20Panel%20on%20Climate%20Change.>



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**Annual Leakage Calculation:**

Annual Leakage = Total SF6 × Leakage Rate

= 75 pounds × 0.005

= 0.375 pounds/year

Conversion of Pounds to Metric Tons:

Annual Leakage in MT = 0.375 pounds / 2204.62 pounds/MT

= 0.000170 MT

Annual GHG Emissions in MTCO2e:

Using the corrected GWP of 23,900:

Annual Emissions (MTCO2e) = Annual Leakage in MT × GWP

= 0.000170 MT × 23,900

= 4.06 MTCO2e

**Discrepancies in Emissions from CalEEMod Modeling**

The assessment states that "additional sources of GHG emissions associated with operations include those related to landscape equipment use for routine maintenance work, water use, and operation of auxiliary stationary equipment (i.e., emergency diesel generator and emergency diesel fire pump)," which were estimated to contribute approximately 97 MTCO2e per year. However, upon reviewing the CalEEMod files, it appears that:

- **Lack of Clarity:** The CalEEMod outputs do not substantiate the claim of 97 MTCO2e for operational emissions. The files should provide detailed documentation of all assumptions and calculations related to these operational activities.
- **Construction Emissions Modeling:** The report mentions that construction emissions would result in a maximum of 17,592 MTCO2e per year. However, the methodology and specific calculations behind this figure are unclear and inadequately documented in the modeling outputs.

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Table 17. Proposed Project Amortized Annual GHG Emissions

Emission Source	GHG (MT CO <sub>2</sub> e/year)
Construction (amortized over 30-year life of Project)	839.93
Operations (i.e., mobile, area, water)	97
Leaking SF <sub>6</sub>	1.96
<b>TOTAL</b>	<b>940.89</b>

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Table 16: Proposed Project Amortized Annual GHG Emissions

#### 4.9 Unaddressed Ammonia Emissions

The DEIR fails to acknowledge or address ammonia emissions related to the Project, which is a significant oversight given the relevance of NH<sub>3</sub> as a precursor to secondary particulate matter formation. NH<sub>3</sub> is another important atmospheric pollutant that can be emitted from geothermal plants. Airborne NH<sub>3</sub> neutralizes acids coming from oxides of sulfur and nitrogen to produce aerosols and smog.<sup>51</sup> Geothermal plants typically emit NH<sub>3</sub> during well drilling, steam separation, and venting processes due to its [NH<sub>3</sub>] presence in geothermal fluids. This omission highlights a critical gap in the emissions assessment, as NH<sub>3</sub> emissions from geothermal operations can interact with other pollutants, contributing to air quality degradation and potential health impacts. The lack of consideration for NH<sub>3</sub> within the emissions inventory and modeling undermines the reliability of the DEIR's conclusions on air quality and public health protections.

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#### 4.10 Overlooked Analysis of Nitrogen Oxides Emissions from Drilling Activities

The DEIR reveals that NO<sub>x</sub> emissions will exceed established regulatory thresholds, specifically during construction (Table 17 and Table 18). The drilling process, lasting four months, involves heavy machinery such as drilling rigs and generators, which operate on fossil fuels. The combustion process of the fossil fuels directly releases NO<sub>x</sub> into the atmosphere and contribute to air quality degradation. The project's failure to accurately quantify these emissions not only undermines compliance efforts but also compromises the integrity of environmental assessments. This oversight poses a serious risk to public health, particularly for vulnerable

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<sup>51</sup> L.C. Aguilar-Dodier a, a, b, c, d, e, 1, et al. "Spatial and Temporal Evaluation of H<sub>2</sub>S, SO<sub>2</sub> and NH<sub>3</sub> Concentrations near Cerro Prieto Geothermal Power Plant in Mexico." Atmospheric Pollution Research, September 28, 2019. <https://www.sciencedirect.com/science/article/abs/pii/S1309104219304659#:~:text=Power%20generation%20is%20associated%20with,has%20health%20and%20environmental%20effects.>





populations living near the drilling site, who may experience worsened respiratory conditions and other health issues.

Table 11. ICAPCD Daily Construction Emission Thresholds

Pollutant	Threshold (lbs/day)
PM <sub>10</sub>	150
ROG	75
NO <sub>x</sub>	100
CO	550

Source: ICAPCD 2017

Table 17: ICAPCD Daily Construction Emission Threshold

Table 12. Unmitigated Project Construction-Generated Emissions

Construction Year	Pollutant (lbs/day) <sup>1</sup>					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	27.52	246.06	368.98	0.80	2,243.9	231.29
2026	29.55	272.17	307.92	0.84	2,356.6	242.47
Threshold	75	100	550	—	150	—
Exceed Threshold?	No	Yes	No	—	[Yes] <sup>2</sup>	—

Source: CalEEMod Results in Attachment A

Notes:

<sup>1</sup> Emissions are representative of the maximum daily output (i.e., maximum of summer or winter results).

<sup>2</sup> Guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analysis for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided below.

Table 18: Unmitigated Project Construction-Generated Emissions

## 5. Unaccounted and Underestimated Health Risks

### 5.1 Failure to Provide Evaluation of Ozone Compliance and Associated Health Risks

The DEIR fails to assess the potential impact of volatile organic compound (VOC) emissions, particularly from isopentane, which is commonly used in geothermal power plants. Isopentane, a VOC, can contribute to the formation of ground-level ozone through photochemical reactions when exposed to sunlight. This omission raises serious concerns about the project's potential to worsen existing air quality violations or contribute to new non-compliance with federal ozone



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standards, particularly in regions like the Imperial Valley that already struggle with air quality issues.

Health risks associated with elevated ozone levels are well-documented and can have severe implications for public health. Short-term exposure to high ozone concentrations can result in respiratory problems, including exacerbation of asthma, reduced lung function, and increased susceptibility to respiratory infections. Long-term exposure can lead to chronic respiratory diseases, cardiovascular issues, and detrimental effects on lung development in children.<sup>52</sup>

Additionally, the presence of ozone can adversely affect sensitive populations, including the elderly, children, and individuals with pre-existing health conditions. By failing to adequately assess the implications of VOC emissions and their contribution to ozone formation, the DEIR overlooks critical public health risks associated with air quality degradation in the Imperial Valley region. This omission warrants a more thorough evaluation to ensure that potential health impacts are fully understood and addressed.

### *5.2 Omission of Particulate Matter Health Impacts*

The DEIR fails to adequately address emissions of particulate matter from several significant sources and does not include relevant data in its analysis. Unpaved areas, such as construction sites and agricultural lands, are particularly prone to wind erosion and vehicular activity, which can release fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) into the atmosphere. Additionally, sand separators, used to filter sand from geothermal fluid, can generate particulate emissions during the handling and transport of sand, further contributing to air quality concerns.

Particulate matter, particularly PM<sub>10</sub> and PM<sub>2.5</sub>, poses well-documented health risks. These fine particles can penetrate deep into the respiratory system, leading to respiratory irritation, exacerbation of asthma, and chronic respiratory diseases such as COPD. Long-term exposure has been linked to cardiovascular issues and even premature mortality. Vulnerable populations, including children, the elderly, and those with pre-existing conditions, face heightened risks, especially in areas already struggling with poor air quality, such as the Imperial Valley.<sup>53</sup>

The DEIR does not even provide modeling to estimate the potential emissions from unpaved areas or sand separators, which significantly undermines the report's air quality impact assessment. This omission prevents a proper evaluation of how these emissions could contribute to regulatory non-compliance and ignores the need for adequate protective measures. Considering the public health risks posed by elevated levels of particulate matter, a

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<sup>52</sup> EPA. Accessed September 19, 2024. <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>

<sup>53</sup> EPA. Accessed September 19, 2024. <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>



comprehensive reevaluation—including proper emissions modeling—is necessary to protect vulnerable populations and ensure the project meets environmental regulations.

The DEIR fails to adequately assess the significance of PM<sub>2.5</sub> emissions, despite claiming that implementation of Mitigation Measures AQ-1 through AQ-5 would prevent exceedances of ICAPCD thresholds.<sup>34</sup> This lack of a detailed evaluation is particularly concerning, as the report does not provide any air quality modeling to substantiate these claims. The omission of such critical modeling prevents a comprehensive understanding of the potential emissions and their impacts on air quality. This lack of evaluation also poses significant public health concerns, as PM<sub>2.5</sub> can penetrate deep into the lungs and bloodstream, leading to serious respiratory and cardiovascular issues. In regions like the Imperial Valley, already in non-attainment for air quality standards, this omission is particularly troubling. The failure to evaluate cumulative PM<sub>2.5</sub> impacts risks exacerbating existing health disparities in these vulnerable communities.

A rigorous analysis, including proper air quality modeling, is essential to ensure that the proposed mitigation measures are effective, and that public health is adequately protected. The current lack of data and modeling in the DEIR raises serious concerns about the potential for underestimating the true impact of PM<sub>2.5</sub> emissions.

#### *5.4 Underestimated Isopentane Health Risks due to Incorrect Meteorological Data*

The DEIR underestimates health risks from hazardous air pollutants due to inaccuracies in both emission data and meteorological inputs, leading to flawed health impact assessments.

A key issue is the reliance on meteorological data from Imperial City, which is 11.8 miles away from the project site, instead of closer stations in El Centro or Calexico, located just 5.8 and 5.1 miles away, respectively. As shown in Table 19, the Project utilizes average meteorological data, including a wind speed of 1.5 m/s, an ambient temperature of 77°F, and a wind direction from the west. However, these parameters are not accurate for the Project site. The wind direction is based on wind rose plots from the Imperial County meteorological station, which is located a significant distance from the Project site, resulting in data that is not representative. The local wind patterns at the site are expected to be oriented towards the southeast rather than the west. Consequently, the ALOHA modeling employs incorrect meteorological inputs, including wind direction, wind speed, and temperature, that do not reflect the Project's specific conditions. As a result, the modeling outputs inaccurate isopentane emission concentrations and associated health impact assessments. To ensure accurate representation, the modeling should incorporate localized micrometeorological data, which can be obtained from the El Centro meteorological station, closer to the Project site (Figure 7). The meteorological data should be spatially and climatologically representative of the project area. The decision to use data from a more distant

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<sup>34</sup> Refer to Para. 1 on Pg. 4-13 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024





location introduces inaccuracies into air dispersion modeling, as local wind patterns and environmental conditions are not properly accounted for. As a result, the DEIR's assessment of pollutant dispersion and its impact on air quality is highly underestimated, further compounded using generalized data from EPA RMP regulations instead of accurate, station-specific surface and upper air measurements.<sup>55</sup> A reevaluation using local meteorological data is essential to ensure a more accurate analysis of the project's air quality impacts.

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$$C(x, y, z) = \frac{Q}{\pi u \sigma_y \sigma_z} \exp\left(-\frac{y^2}{2\sigma_y^2}\right) \exp\left(-\frac{(z-H)^2}{2\sigma_z^2}\right)$$

Figure 9: Dispersion Modeling Equation

The dispersion modeling equation commonly used for meteorological data (Figure 9) is based on the Gaussian dispersion model, which calculates the concentration of pollutants in the air based on several factors, including wind speed, atmospheric stability, and source characteristics. The general form of the equation can be expressed as:

Where:

- $C(x, y, z)$ ,  $C(x, y, z)$ ,  $C(x, y, z)$  is the pollutant concentration at a specific location,
- $Q$  is the emission rate,
- $u$  is the wind speed,
- $H$  is the effective stack height,
- $\sigma_y$  and  $\sigma_z$  are the standard deviations of the concentration distribution in the horizontal and vertical directions, respectively.

Using incorrect meteorological parameters in dispersion modeling can lead to significant inaccuracies in predicting pollutant concentrations. For instance, inaccurate wind speed or direction can misrepresent how far isopentane travels and where it is ultimately deposited. Similarly, temperature and wind speed are directly related to the concentration, resulting in either overestimations or underestimations of isopentane's impacts on air quality. Ultimately, these inaccuracies could compromise regulatory compliance assessments and public health evaluations, thereby exposing communities to unrecognized health risks associated with isopentane exposure.

<sup>55</sup> Refer to Para. 2 on Pg. 8 of Ormat, Dogwood Geothermal Power Generation Facility, April 2024



Meteorological Parameters		
Atmospheric Stability	F stability	As per 40 CFR §68.22 (b), "For the worst-case release analysis, the owner or operator shall use a wind speed of 1.5 meters per second and F atmospheric stability class"
Wind Speed	1.5 m/s	
Wind Direction	W	Wind Direction from the west based on the Wind Rose plot for Imperial, CA (closest city with wind rose plot available). Since the endpoint distance and circle of interest is presented in this report, the wind direction does not impact the analysis/distance to endpoint and instead is a generic input that ALOHA modeling software requires.
Measurement Height above Ground	10 m	Wind speed is assumed to be measured at this elevation, as this is the standard height at which the National Weather Service usually reports wind speed.
Ambient Temperature	77°F (25°C)	As per 40 CFR §68.22 (c), "An owner or operator using the RMP Offsite

PARAMETER	INPUT VALUE	NOTES
Relative Humidity	50%	Consequence Analysis Guidance may use 25 °C and 50 percent humidity as values for these variables"
Ground temperature	122°F	As per 40 CFR §68.22 (g), "for worst case, [R] shall be considered to be released at the highest daily maximum temperature, based on data for the previous three years appropriate for the stationary source." Temperature data was sourced from Weather Underground <sup>(1)</sup> for Imperial, CA (closest available city with temperature history) and the highest daily maximum temperature from the previous 3 years was identified.

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Table 19: Worst Case Release Scenario Dispersion Modeling Parameters



Compounding this issue, the DEIR also fails to properly identify sensitive receptors near the project site, such as an elementary school and two ranches (Table 20). These omissions are critical, as these receptors represent vulnerable populations—including children and agricultural workers—who are more susceptible to the harmful effects of air pollution. Proximity to the pollution source significantly influences exposure levels, and children at the nearby elementary school face heightened risks due to their still-developing respiratory systems. Ranch workers, who spend extended periods outdoors, are similarly at risk from long-term exposure to pollutants such as PM<sub>2.5</sub> and ozone precursors like NO<sub>x</sub>. The DEIR's failure to recognize these sensitive receptors leads to a significant underestimation of the cumulative health impacts, particularly in a region already burdened with air quality challenges from agriculture and transportation sources.

The combination of inaccurate meteorological data and the failure to account for sensitive receptors severely undermines the DEIR's health impact assessment. These errors result in an incomplete understanding of both quantitative and qualitative health risks, particularly for vulnerable populations. Without accurate data and consideration of these factors, the DEIR fails to develop adequate mitigation measures, ultimately leaving the surrounding community exposed to greater environmental health risks. Addressing these critical gaps is necessary to ensure a thorough evaluation and to protect public health.

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Table 9: Summary of Sensitive and Environmental Receptors

RECEPTOR	WCU (0.063 Mi)	ARS (0.832 Mi)
<b>Population Receptors</b>		
Schools	No	No
Residences	No	No
Hospitals	No	No
Prisons/Correction Facilities	No	No
Recreation Areas	No	No
Major Commercial, Office, or Industrial Areas	No	No
Child Daycare	No	No
Long-term Health Care (e.g., convalescent homes)	No	No
Other (Government Buildings)	No	No
<b>Environmental Receptors</b>		
National or State Parks, Forests, or Monuments	No	No
Officially Designated Wildlife Sanctuaries, Preserves, or Refuges	No	No
Federal Wilderness Areas	No	No

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Table 20: Summary of Sensitive and Environmental Receptors







**Figure 10:** Locations of Meteorological Stations (Imperial, El Centro, and Calexico) Relative to the Project Site (Highlighted in Red)

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## 6. Insufficient Analysis of Cumulative Impacts

The EIR's omission of a comprehensive assessment of cumulative impacts from multiple sources in proximity to the proposed project is a critical oversight. The omission is particularly concerning given the proximity of sensitive receptors, including a nearby school, a cattle export, a ranch, and the Heber 2 Parasitic Solar Facility, with the former being located approximately 540 feet from the Project site.<sup>54</sup> These receptors could experience compounded effects from emissions generated by the Project, yet no measures have been proposed to evaluate or mitigate these impacts. This failure undermines the accuracy of the Air District's evaluation and violates Section 15355 of the CEQA guidelines. Which states that "cumulative impacts" as the combined effects

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<sup>54</sup> Refer to Para. 1 on Pg. 4-15 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024



of two or more individual actions that, when considered together, are significant or exacerbate other environmental impacts. This includes:<sup>17</sup>

1. Individual effects that can occur from a single project or multiple separate projects.
2. Cumulative impact resulting from several projects, which is the change in the environment caused by the incremental effect of the project when added to other closely related past, present, and reasonably foreseeable future projects.
  - a. These impacts can emerge from individually minor projects that, collectively, have a significant effect over time

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The DEIR inadequately addresses the potential impacts of the proposed Project on, and from, the 17 existing geothermal plants within the Imperial County region, as illustrated in Figure 3 and Figure 4. These plants, from closest to furthest, include Heber Geothermal, Second Imperial, Ormesa I, II, and III, North Brawley, Salton Sea Power LLC Unit 5, Salton Sea Power Co LLC Unit 4, Salton Sea Power Co LLC Unit 3, Salton Sea Power Co LLC Unit 1, Salton Sea Power Co LLC Unit 2, Vulcan-BN Geothermal Power Company, Del Ranch Company, CE Turbo LLC, CE Leathers, Elmore Company, and John L. Featherstone Plant. This omission encompasses several critical areas, including environmental impacts, resource management, regulatory and permitting challenges, operational interference, and infrastructure capacity assessment.

Heber Geothermal and Second Imperial Plants should be included to perform a comprehensive cumulative environmental evaluation. This entails not only evaluating the direct effects of the proposed Project but also analyzing how it interacts with and potentially exacerbates the effects of existing geothermal facilities. Neglecting to account for existing plants in the assessment could result in incomplete or misleading conclusions regarding the Project's overall environmental impact.

Proper evaluation is essential for understanding the status of the geothermal resource. Analyzing the impact of existing plants on the geothermal reservoir is crucial for understanding whether the proposed Project could intensify resource depletion or affect the sustainability of geothermal energy production. Additionally, the new Project could face regulatory and permitting challenges if it fails to account for the cumulative impacts of existing plants. Regulatory authorities may require further assessments or modifications to ensure that the proposed development does not adversely affect the region.

The proposed Project may also interfere with the operations of existing geothermal plants, such as affecting steam fields or reservoir management, which could compromise their efficiency and operational stability. Furthermore, evaluating the environmental setting must include an assessment of existing infrastructure capacity to determine whether it can accommodate the

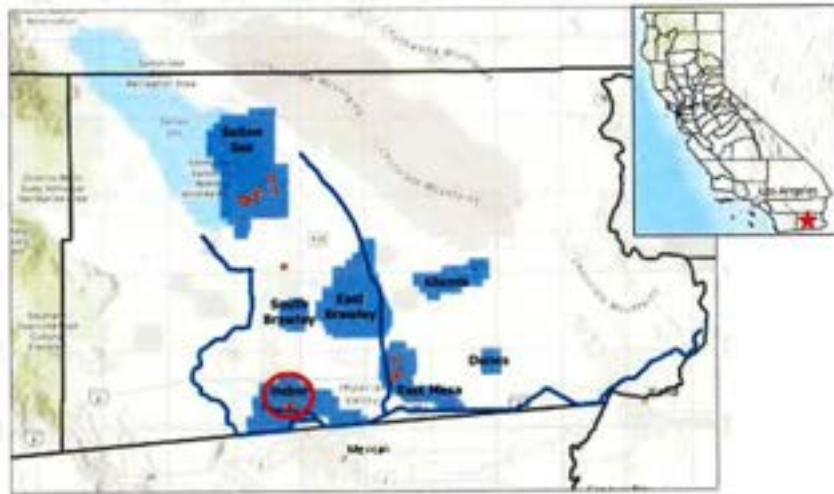
<sup>17</sup> Cal. Code Regs. Tit. 14 § 15355



additional strain from the new project or if upgrades are necessary. Without this analysis, the Project might inadvertently place excessive demand on existing systems or resources.

Using data obtained from the U.S. Energy Information Administration<sup>58</sup> and Grid Info Electricity Generation Insight<sup>59</sup>, Table 3 was created to show the 17 existing geothermal plants within Imperial County, their cumulative net capacities, and commercial operating dates.

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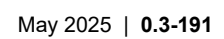
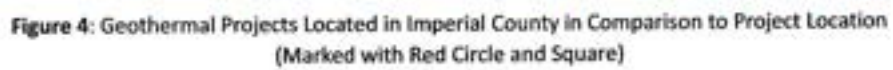
**Figure 3:** Map of Known Geothermal Resource Areas (KGRA) (Shaded in Blue), Existing Geothermal Power Plants (Indicated by Orange Dots), Project Site (Circled in Red), and the Imperial County Region (Highlighted with a Red Star).

<sup>58</sup>U.S. Energy Information Administration - EIA - Independent Statistics and Analysis. "Electricity Data Browser." Accessed September 19, 2024. <https://www.eia.gov/electricity/data>

<sup>59</sup>Directory of power plants in the United States. Accessed September 17, 2024. <https://www.gridinfo.com/plants?se>







Project Name/Location	Net Capacity (MW)	Commercial Operation Date
Heber Geothermal	91.5	1985
Second Imperial	74.5	1993
Ormesa I	26.4	1986
Ormesa II	24.0	1989
Ormesa III	24.0	2009
North Brawley	80.0	2009
CE Turbo LLC	11.5	2000
CE Leathers	45.5	1989
John L. Featherstone Plant	55.0	2012
Elmore Company	45.5	1988
Vulcan-BN Geothermal Power Company	39.6	1985
Del Ranch Company	42.0	1989
Salton Sea Power LLC unit 5	58.3	2000
Salton Sea Power Co LLC unit 4	47.5	1996
Salton Sea Power Co LLC unit 3	53.9	1989
Salton Sea Power Co LLC unit 2	19.5	1990
Salton Sea Power Gen Co Unit 1	10.0	1982
Total Existing	747.7	

**Table 3: Geothermal Power Plants Operating in Imperial County**

The failure to include nearby sources in the cumulative impact analysis is a serious methodological flaw. Background concentrations play a critical role in developing accurate air quality concentration estimates for cumulative impact analysis.<sup>40</sup> According to regulatory guidelines, emissions from individual sources near the project area, especially those not adequately captured by ambient monitoring data, should be explicitly modeled to ensure accurate assessment.<sup>41</sup> In many cases, sources contributing to significant concentration gradients in the vicinity are not sufficiently represented by background ambient monitoring alone, necessitating a more detailed emissions modeling approach.<sup>42</sup> The Guidelines recommend two essential steps in such scenarios: (1) explicit modeling of emissions from nearby sources and (2) using adequately representative ambient monitoring data to characterize contributions from

<sup>40</sup> 40 C.F.R. Pt. 51, App. W § 8.3.1.

<sup>41</sup> *Id.* §§ 8.3.1.1, 8.3.1.3.

<sup>42</sup> *Id.* §§ 8.3.1.1, 8.3.1.3.



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other sources.<sup>63</sup> The omission of these steps leads to an incomplete and potentially misleading evaluation of the project's environmental and public health impacts.

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#### *6.1 Inadequate Consideration of Cumulative Impacts from Existing Geothermal Facilities*

The DEIR fails to consider 17 existing geothermal plants in the Imperial County from its cumulative impact assessment creates significant gaps in evaluating the project's full environmental and public health impacts.

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Existing geothermal facilities in Imperial County contribute to elevated levels of PM, O<sub>3</sub>, and H<sub>2</sub>S, pollutants that have well-documented adverse effects on air quality and health. The nearby existing geothermal plants, including Heber Geothermal and Second Imperial (as seen in (Figure 11 and Table 21), should be explicitly included in the cumulative impact modeling as required by regulatory guidelines. Without incorporating these nearby sources, such as Heber Geothermal and Second Imperial, the DEIR fails to fully assess the additive impacts of PM, O<sub>3</sub>, and H<sub>2</sub>S from multiple facilities operating in proximity. This exclusion can result in an underestimation of the total pollutant load, leading to inadequate mitigation strategies and potentially exacerbating non-compliance with air quality standards in an already compromised region like the Imperial Valley.

By neglecting the cumulative contributions of these existing plants, the DEIR risks overlooking key sources of pollution and underestimating the region's environmental burdens. This could result in a failure to adequately protect public health and ensure regulatory compliance, particularly for vulnerable populations in a region already facing significant air quality challenges.

<sup>63</sup> 40 C.F.R Pt. 51, App. W § 8.3.1.3.a.





**Figure 11: Geothermal Projects Located in Imperial County in Comparison to Project Location**  
(Marked with Red Circle and Red Square)





Project Name/Location	Net Capacity (MW)	Commercial Operation Date
Heber Geothermal	91.5	1985
Second Imperial	74.5	1993
Onmesa I	26.4	1986
Onmesa II	24.0	1989
Onmesa III	24.0	2009
North Brawley	90.0	2009
CE Turbo LLC	11.5	2000
CE Leathers	45.5	1989
John L. Featherstone Plant	55.0	2012
Elmore Company	45.5	1988
Vulcan-BN Geothermal Power Company	39.6	1985
Del Ranch Company	42.0	1989
Salton Sea Power LLC unit 5	58.3	2000
Salton Sea Power Co LLC unit 4	47.5	1996
Salton Sea Power Co LLC unit 3	53.9	1989
Salton Sea Power Co LLC unit 2	19.5	1990
Salton Sea Power Gen Co Unit 1	10.0	1982
<b>Total Existing</b>	<b>747.7</b>	

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**Table 21: Geothermal Power Plants Operating in Imperial County**

The DEIR's failure to comply with ICAPCD guidelines, particularly in relation to the selection of representative meteorological data and the inclusion of nearby sources, significantly compromises the integrity of its cumulative impact analysis. By neglecting to incorporate emissions data from nearby geothermal plants and relying on distant meteorological data, the report fails to capture the true environmental and health risks posed by the project. The absence of localized data introduces inaccuracies in air dispersion modeling, leading to a potentially flawed evaluation of pollutant concentrations, such as  $PM_{10}$ ,  $PM_{2.5}$ ,  $O_3$ , and  $H_2S$ , in the surrounding area.

A reevaluation of the air quality assessment is essential to address these deficiencies. Proper adherence to ICAPCD guidelines would require the use of meteorological data from closer, more representative stations, as well as the explicit modeling of emissions from all significant nearby sources. This would provide a more accurate portrayal of cumulative impacts, allowing for a more effective and data-driven approach to mitigation. Without such comprehensive analysis, the



project risks exacerbating existing air quality issues and posing significant public health risks, particularly in already vulnerable communities in the Imperial Valley. Implementing a more rigorous and accurate assessment will ensure compliance with environmental regulations and better protect public health.

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## 7. Insufficient Mitigation Strategies for Various Emissions

### 7.1 Particulate Matter and Ozone Emissions Trigger BACT

The exclusion of critical PM and ozone ( $O_3$ ) sources results in inadequate mitigation strategies, as the estimated PM emissions are substantially lower than what would realistically occur. The region is already designated as non-attainment for both  $PM_{2.5}$  and  $O_3$ , as explained in section 4.1, and the Project is expected to release considerable quantities of these pollutants from multiple operational sources. The failure to include these emissions in the modeling process ultimately results in significant mismodeling of the air quality impacts associated with the Project.

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Moreover, the Project does not disclose ammonia emissions, which are a precursor to the formation of secondary  $PM_{2.5}$ . It also neglects to address the reaction of  $NO_x$  emissions with ROGs, such as isopentane which contribute to ozone formation—a significant concern given the area's existing non-attainment status for ozone. This oversight is particularly concerning as it triggers the need for Best Available Control Technology (BACT) to mitigate the impacts of unaccounted ozone and particulate matter emissions. Additionally, ammonia emitted from the Project can interact with sulfur trioxide ( $SO_3$ ) and nitrogen dioxide ( $NO_2$ ) in the atmosphere, leading to the formation of secondary particulate matter in the form of ammonium sulfate ( $(NH_4)_2SO_4$ ), ammonium bisulfate ( $(NH_4)HSO_4$ ), and ammonium nitrate ( $NH_4NO_3$ ).<sup>64,65,66</sup> The failure to consider these chemical processes (including the formation of secondary particulate matter emissions and the full accounting of total particulate matter emissions) not only exacerbates air quality issues but also undermines the Project's compliance with regulatory standards and public health protections. Effective mitigation measures must be based on accurate modeling and comprehensive emissions assessments to ensure that the Project does not contribute to the already challenging air quality conditions in the region. If the accurate  $PM_{2.5}$  emissions are calculated by including the previously overlooked sources (see Section 4.3), it is highly likely that the overall concentration of  $PM_{2.5}$  will significantly increase. This elevated

<sup>64</sup> John H. Seinfeld and Spyros N. Pandis, *Atmospheric Chemistry and Physics*, John Wiley & Sons, Inc., New York, 1998, Pg. 529-534.

<sup>65</sup> S. Matsuda, T. Kama, A. Kato, and F. Nakajima, Deposition of Ammonium Bisulfate in the Selective Catalytic Reduction of Nitrogen Oxides with Ammonia, *Ind. Eng. Chem. Prod. Res. Dev.*, v. 21, 1982, Pg. 48-52.

<sup>66</sup> J.M. Burke and K.L. Johnson, Ammonium Sulfate and Bisulfate Formation in Air Preheaters, Report EPA-600/7-82-025a, April 1982.



concentration could trigger the necessity for implementing BACT to manage emissions effectively. Consequently, failing to account for these sources not only compromises the integrity of the emissions assessment but also raises serious concerns about regulatory compliance and public health, as unmitigated PM<sub>2.5</sub> emissions can have detrimental effects on air quality and community well-being.

The methodology for conducting a top-down BACT analysis, incorporated into California law under Health and Safety Code §42506, as follows:

**Key Steps in the "Top-Down" BACT Process:<sup>67</sup>**

- **Step 1: Identify All Control Technologies**
  - Create a comprehensive list, including Lowest Achievable Emission Rate (LAER) technologies.
- **Step 2: Eliminate Technically Infeasible Options**
  - Clearly document technical infeasibility, demonstrating through physical, chemical, and engineering principles that technical difficulties would prevent successful use of the control option on the emission unit under review.
- **Step 3: Rank Remaining Control Technologies by Control Effectiveness**
  - Rank the feasible technologies based on:
    - Control effectiveness (percentage reduction of the targeted pollutant)
    - Anticipated emission rates (tons per year)
    - Projected emission reductions (tons per year)
    - Energy requirements and impacts (BTU, kWh)
    - Environmental impacts (other media impacts and emissions of toxic/hazardous air pollutants)
    - Economic impacts (total cost-effectiveness, incremental cost-effectiveness)
- **Step 4: Evaluate Most Effective Controls and Document Results**
  - Perform a detailed case-by-case evaluation of the most effective controls, considering energy consumption, environmental, and economic impacts.
  - If the highest-ranked option is not selected as BACT, evaluate the next most effective control option.
- **Step 5: Select BACT**

G A-31  
cont'd

<sup>67</sup> Health and Safety Code §42506.



- o The most effective control option that is not rejected becomes BACT.

G A-31  
cont'd

Overall, the failure to accurately model and assess these emissions jeopardizes public health and compliance with regulatory standards, necessitating more effective mitigation strategies to address the region's already compromised air quality

## 7.2 Insufficient Waste Management Plan

G A-32

The DEIR outlines comprehensive waste management strategies for the project during both construction and operation phases, including proper refuse disposal by workers, provision of sanitary facilities maintained by local contractors, and compliance with all local, state, and federal waste disposal regulations. <sup>48</sup>Solid waste will be routinely collected and sent to an approved landfill, specifically the Calexico Solid Waste Site, which has sufficient capacity and is expected to operate until 2079 (CalRecycle 2019). The project's waste generation is anticipated to be minimal and within regulatory thresholds, ensuring no adverse impact on local waste management infrastructure or solid waste reduction goals. <sup>49</sup>The project will adhere to the California Integrated Waste Management Act of 1989 and the California Solid Waste Reuse and Recycling Access Act of 1991, maintaining compliance with state mandates for waste management and recycling.

To enhance the waste management plan proposed in the DEIR, implementing the following structured waste management strategies can significantly improve its effectiveness and compliance with environmental standards:<sup>50</sup>

- **Collection:** Establish clear waste collection methods that meet health and safety standards.
- **Segregation:** Sort waste into specific categories (hazardous, recyclable, compostable) at the source for better management.
- **Accumulation/Storage:** Set criteria for waste storage locations, including documentation and safety requirements.
- **Monitoring:** Institute protocols for monitoring waste management activities to identify issues in real-time.

<sup>48</sup> Refer to Section 2.7.6 on Pg. 2-26 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024

<sup>49</sup> Refer to Para. 5 on Pg. 6-3 of Draft Environmental Impact Report: Dogwood Geothermal Energy Project, SCH No. 2024010510, Imperial County, CA August 2024

<sup>50</sup> Pre-incident all-hazards waste management plan guidelines. Accessed September 27, 2024. See 'V. Waste Management Strategies/Options'. [https://www.epa.gov/sites/default/files/2019-05/documents/4\\_steps\\_document.pdf](https://www.epa.gov/sites/default/files/2019-05/documents/4_steps_document.pdf)





By incorporating these strategies into the waste management plan, the project can enhance its compliance with local, state, and federal regulations while promoting environmental sustainability. Clear definitions, monitoring procedures, and proper segregation of waste types will not only reduce environmental impacts but also improve the overall efficiency and effectiveness of waste management practices.

G A-32  
cont'd

### 7.3 Lack of LDAR Measures for Isopentane

G A-33

The DEIR fails to implement all feasible mitigation measures necessary to address ROG emissions resulting from fugitive leaks, which is crucial for compliance with CEQA. Notably, the DEIR does not incorporate low-leak technology or establish a comprehensive Leak Detection and Repair (LDAR) program. LDAR programs serve as essential tools for monitoring and mitigating ROG emissions, employing techniques to measure concentrations at component interfaces and mandating immediate repairs when leak concentrations surpass specified thresholds. The efficacy of an LDAR program centers around several critical factors, including the established leak rate, the time interval between leak detection and mandatory repair, the frequency of monitoring activities, and the number of components included in the program. A rigorous LDAR initiative can substantially reduce emissions by enabling early leak identification and ensuring timely repairs, thereby minimizing the potential for fugitive emissions to enter the atmosphere. The lack of such a program compromises the effectiveness of emissions controls and results in noncompliance with BACT requirements.

Additionally, the DEIR is deficient in establishing a comprehensive Emission Management Plan that should encompass BACT emission limits, compliance verification protocols, recordkeeping procedures, and methods for accurately determining isopentane volumes, calculating loss rates, detecting breakdowns, and preventing leaks. The implications of this noncompliance are profound, as elevated ROG emissions contribute to the formation of ground-level ozone, exacerbating respiratory health issues in nearby communities. Adequate documentation is critical for demonstrating compliance with local, state, and federal emissions regulations. An accurate emissions inventory is essential for understanding the potential emissions from operations and for calculating actual emissions outputs. Specifically, the loss rates of isopentane are indicative of the quantity of the substance released into the atmosphere, enabling better estimates of actual emissions and the formulation of effective mitigation strategies. Furthermore, timely leak detection and repair are vital for reducing the duration and volume of harmful emissions.

### 7.4 Inadequate Mitigation Measures: MM AQ-3 and MM AQ-4

G A-34

The current mitigation strategies in place are insufficiently detailed and lack the rigor necessary for effective implementation. Specifically, MM AQ-3 (Dust Suppression) and MM AQ-4 (Dust Suppression Management Plan) exhibit notable weaknesses in their enforceability due to a lack of comprehensive guidelines.



MM AQ-3 outlines the requirement for approval from the ICAPCD approval to ensure oversight and accountability. It mandates the stabilization of unpaved roads and specifies the application of a quantified rate of 0.1 gallons per square yard of chemical dust suppressant, in accordance with product manufacturer instructions. However, the term "effective stabilization" remains ambiguous, lacking a clear definition that delineates acceptable performance standards. Furthermore, there are no specific requirements for monitoring the effectiveness of dust suppression measures or for reporting results to the ICAPCD. Additionally, explicit guidelines detailing the conditions under which dust suppressants should be applied are notably absent, which undermines the operational integrity of this measure.

G A-34  
cont'd

MM AQ-4 details that a dust control plan must be submitted prior to any earthmoving activities and requires approval from both ICAPCD and the Imperial County Planning and Development Services (ICPDS). While this establishes a necessary pre-activity framework for review and oversight, the plan lacks detailed stipulations regarding its content. Specifically, it does not outline the necessary components that should be included in the dust control plan, such as:

- **Methods of Dust Suppression:** Clear identification of the techniques to be employed for effective dust control.
- **Monitoring Protocols:** Requirements for how dust suppression effectiveness will be monitored over time.
- **Personnel Responsibilities:** Designation of specific individuals responsible for implementing and overseeing dust control measures.
- **Procedures for Exceedances:** Clear instructions on actions to be taken if dust emissions exceed regulatory thresholds<sup>71,72</sup>

The deficiencies in both MM AQ-3 and MM AQ-4 illustrate a critical need for more stringent and detailed guidelines to enhance their enforceability and effectiveness in mitigating dust emissions associated with project activities.

## 7.6 Lack of Isopentane Management Plan

G A-35

The DEIR must incorporate BACT emission limits that are enforceable in practical terms. This necessitates the inclusion of appropriate averaging times, compliance verification procedures, and recordkeeping requirements, as outlined in the New Source Review (NSR) Manual.<sup>73</sup>

<sup>71</sup> ICAPCD, "Rule 403: Fugitive Dust" SSAQMP - documents. Accessed September 27, 2024.  
[https://saltonseaprogram.com/aqm/docs/Salton\\_Sea\\_Air\\_Quality\\_Mitigation\\_Program.pdf](https://saltonseaprogram.com/aqm/docs/Salton_Sea_Air_Quality_Mitigation_Program.pdf)

<sup>72</sup> California Environmental Quality Act (CEQA) Guidelines

<sup>73</sup> NSR Manual, Pg. B.56





Currently, the DEIR lacks enforceability due to the omission of critical methods necessary for determining compliance with these limits.

To rectify this deficiency, the following methods should be clearly defined and incorporated into the report:

- **Daily Isopentane Volume Assessment:** A standardized methodology for quantifying the daily volume of isopentane present on the project site.
- **Loss Rate Calculation:** A systematic approach to calculating the loss rate of isopentane during various operational phases.
- **Detection and Reporting of Breakdown Events:** An established protocol for promptly detecting and reporting incidents of equipment breakdown that may lead to isopentane emissions.
- **Leak Repair Protocol:** A robust plan for the immediate repair of leaks identified during monitoring activities to minimize emissions.
- **Maintenance and Monitoring Plan:** A comprehensive maintenance plan that includes routine monitoring and preventive measures to avert isopentane leaks.

Inclusion of these methodologies in the report is essential for the BACT determination and must be made available for public review. The absence of this critical information raises significant concerns regarding the integrity and reliability of the environmental assessment, and it is imperative that these details be provided to ensure comprehensive evaluation and compliance.

G A-35  
cont'd

#### 7.7 No Leak Detection Technology for SF<sub>6</sub>

The Project recognizes Measure MM AQ-4, which mandates comprehensive record-keeping of greenhouse gas emissions during operational phases. However, it notably omits the implementation of a leak detection plan specifically for sulfur hexafluoride (SF<sub>6</sub>). As an extremely potent greenhouse gas, SF<sub>6</sub> poses significant environmental risks, particularly due to potential leaks from transmission system infrastructure, including electrical switchgear and circuit breakers. Effective containment of SF<sub>6</sub> requires robust insulation of equipment, as inadequate sealing can lead to severe operational failures such as overheating, component melting, or even fires. Given SF<sub>6</sub>'s high global warming potential any emissions, no matter how minimal, can have disproportionately detrimental effects on climate change.

In 2007, the California Air Resources Board (CARB) instituted regulations aimed at mitigating SF<sub>6</sub> emissions from electrical transmission and distribution systems. This initiative culminated in the

G A-36



formal adoption of regulations in 2010 that imposed strict limits on SF<sub>6</sub> emissions, delineated a phased reduction strategy, and mandated comprehensive reporting practices.<sup>74</sup>

G A-36  
cont'd

The Project anticipates utilizing approximately 25 pounds of SF<sub>6</sub> gas per circuit breaker, aggregating to a total of 75 pounds at the site, with an estimated annual release of 0.375 pounds (equating to 3.96 metric tons of CO<sub>2</sub> equivalent per year).<sup>75</sup> Despite these figures, the absence of a dedicated leak detection plan is a significant oversight. Without such a plan, the Project cannot effectively monitor or mitigate SF<sub>6</sub> emissions, thereby jeopardizing compliance with regulatory standards and exacerbating its environmental footprint. A comprehensive leak detection strategy is essential not only for safeguarding the integrity of the equipment and operational safety but also for ensuring adherence to state regulations aimed at reducing the impact of SF<sub>6</sub> emissions.

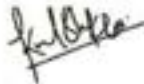
### Conclusion

Following the expert review, it is clear that the DEIR lacks a comprehensive emissions assessment for pollutants such as ozone and particulate matter. The project also triggers BACT for particulate matter (PM<sub>2.5</sub>). The DEIR inaccurately calculates isopentane emissions and neglects the health risks associated with various pollutants. Furthermore, the assessment fails to adequately address cumulative impacts, and its proposed mitigation measures are flawed. Therefore, the Project must develop an EIR that thoroughly addresses these issues. Currently, the DEIR does not provide accurate emissions data, which could lead to significant adverse effects if the project proceeds.

G A-37

Sincerely,

**GROUP DELTA CONSULTANTS, INC.**



Dr. Komal Shukla  
Technical Director – Air Quality

<sup>74</sup> "California Air Resources Board." Electricity Transmission and Distribution Greenhouse Gas Emissions | California Air Resources Board. Accessed September 26, 2024. <https://ww2.arb.ca.gov/our-work/programs/elec-tandd/about>

<sup>75</sup> Refer to Para. 2 on Pg. 4-16 of Dogwood Geothermal Energy Project, Air Quality and Greenhouse Gas Technical Report, Prepared for: Imperial County Planning & Development Services, July 16, 2024



**Komal Shukla, Ph.D., M.Sc., B.Sc**  
**Air Quality Scientist**



**Education**

Ph.D. in Photochemical Modeling of Air Pollution (Environmental Engineering), Indian Institute of Technology Delhi-IIT Delhi (Photochemical Modeling of Ground Level Ozone), Delhi, India; Visiting Ph.D. Student, Institute Fellow, Gees, University of Birmingham, UK; MPhil Environment and Sustainable Development, IESD, Banaras Hindu University, Varanasi, India; M.Sc. Environment Management, University School of Environment Management (Sustainable and Low Carbon Energy Plan for Delhi), Delhi, India; B.Sc Chemistry (with honors) in Chemistry, University of Delhi, India

**Years of Experience:** 7

**Years with Group Delta:** 1

Dr. Shukla has a Ph.D. in air quality and atmospheric phenomenon modeling, with a strong technical background in tropospheric chemistry, industrial and city level environmental solutions, regulatory and global model applications, trace gases and particulate matter impact on human health and climate, and observations data analytic. Dr. Shukla is an air quality emissions modeler with nearly a decade of technical and research experience. She served as an in-house lead in federal contract scientific projects supporting the EPA's mission. Related experience includes:

**Litigation, Compliance, Environmental Justice, On-Road Emissions, Industrial Emissions, California:** As Air Quality Modeling Scientist, Ms. Shukla completed two major projects, including: Project I: Source apportionment of ozone and particulate matter pollution using photochemical modeling techniques, and Project II: Transportation and near-road air quality and emissions projection.

**Environment and Climate Change Canada (ECCC), Toronto, Canada:** As Research Scientist (Air Quality Modeling and Compliance in Alberta), Ms. Shukla completed two significant projects, including: Project I: Developing a photo-chemical transport model to understand oil and sands region emissions in North America and Project II: Modeling applications in delineating chemistry of tropospheric tracers.

**University of North Carolina, Institute of Environment, Chapel Hill, North Carolina:** As Postdoctoral Research Associate (Air Quality – NYSERDA Led Air Quality Model Development, Ms. Shukla worked on critical projects including: Project I: Air quality modeling of various city level sources and health exposure sciences in New York City, - funded by NYSERDA and Project II: TRECH project (<https://www.hsph.harvard.edu/c-change/news/trechstudy/>) - Transportation, Equity, Climate & Health CMAQ based modeling of vehicular emission and policy assessment on the East Coast.

**Indian Institute of Technology Delhi (IIT Delhi), Delhi, India:** As Research Associate, Ms. Shukla worked on Project I: Quantification and contribution of paddy stubble burning emissions in Haryana to estimate PM<sub>2.5</sub> concentrations in its surrounding cities and Delhi. Role: Modelling meteorology and PM<sub>2.5</sub> for north India using WRF-chem and Project II: A Systems Approach to Air Pollution in Delhi (ASAAP) mobility grant funded by GCRF and NERC. Role: Monitored outdoor PM<sub>2.5</sub> concentrations at two flyovers in Delhi and assessed pavement dwellers exposure to air pollution of PM<sub>2.5</sub> near heavily trafficked roads to see impact on dwellers.

**Various Technical Skills**

**Languages:** T and C Shell-script, MATLAB, Fortran, Python, NCL, R, and NETCDF satellite data retrievals and analysis  
**Models:** WRF-Chem, GEM-MACH, CMAQ, GCAM, CTOOLS, AERMOD, CALPUFF, ADMS, MOVES, InMAP and COBRA.



Photochemical pollutant and aerosol/dust modeling and urban air quality. Expertise in tropospheric chemistry, machine learning aided regression models, WRF-Chem/CMAQ (Chemical transport models), dispersion models.

**Air Quality:** CTOOLS/AERMOD/ADMS/R-LINE and satellite data assessment (OMI-AURA and MODIS). USEPA observation and meteorology handling, anthropogenic/energy emission inventory QA and preparation (MOVES), and impacts-benefits.

**Select Research Papers:**

- Shukla, K., Seppanen, C., Naess, B., Chang, C., Cooley, D., Maier, A., .. & Arunachalam, S. (2022). ZIP Code Level Estimation of Air Quality and Health Risk Due to Particulate Matter Pollution in New York City. *Environmental Science & Technology*.
- Shukla, K., Kumar, P., Mann, G. S., & Khare, M. (2020). Mapping spatial distribution of particulate matter using Kriging and Inverse Distance Weighting at supersites of megacity Delhi. *Sustainable cities and society*, 54, 101997.
- Shukla, K., Srivastava, P. K., Banerjee, T., & Aneja, V. P. (2017). Trend and variability of atmospheric ozone over middle Indo-Gangetic Plain: Impacts of seasonality and precursor gases. *Environmental Science and Pollution Research*, 24(1), 164-179.
- Shukla, K., Dadheech, N., Kumar, P., & Khare, M. (2021). Regression-based flexible models for photochemical air pollutants in the national capital territory of megacity Delhi. *Chemosphere*, 272, 129611.
- Gulia, S., Khanna, I., Shukla, K., & Khare, M. (2020). Ambient air pollutant monitoring and analysis protocol for low- and middle-income countries: An element of comprehensive urban air quality management framework. *Atmospheric Environment*, 222, 117120.
- Khare, M., & Shukla, K. (2020). Outdoor and Indoor Air Pollutant Exposure. In *Environmental Pollutant Exposures and Public Health* (pp. 95-114).
- Kumar, G. S., Sharma, A., Shukla, K., & Nema, A. K. (2020). Dynamic programming-based decision-making model for selecting optimal air pollution control technologies for an urban setting. In *Smart Cities- Opportunities and Challenges* (pp. 709-729). Springer, Singapore.

**Select Technical Conferences:**

- Shukla, K., Ojha, N., & Khare, M., (2019) Air Quality Simulations over Delhi Using WRF-Chem in Conference of Indian Aerosol Science and Technology Association 2018 "Aerosol Impacts: Human Health to Climate Change" 2018 <http://cas.iitd.ac.in/iasta2018/pdf/>
- Shukla, K., Xiaoming, C., Ojha, N., & Khare, M., (2018), Air Quality Simulations over Delhi Using WRF-Chem: Effects of Local Pollution and Regional-Scale Transport , A42A-01 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec. <http://abstractsearch.agu.org/meetings/2018/FM/A42A-01.htm1> (Talk)
- Shukla, K., & Khare M., (2019) Behaviour of Ground Level Ozone and Its Association with Precursors and Meteorology in Delhi, India, AS17-A023, *Atmospheric Chemistry in Highly Polluted Environments: Emissions, Fates, and Impacts*, AS17-A023 presented at 2019 16th Annual meeting AOGS, Singapore, 28th -2nd August (Poster)
- Shukla, K., Kumar, S., & Nema A., (2019) Environmental Characterization of Two Chromium-based Industrial Waste Contaminated Sites of India, accepted as BIH-2219, to be presented in presented at 2019 Fall Meeting, AGU, San Francisco, CA, USA 09-13 Dec. (Poster)
- Shukla, K., & Khare M., (2019), Behavioral Chemistry of ground level ozone formation in heavily polluted environment of Delhi city, accepted as A21G-2645, to be presented in presented at 2019 Fall Meeting, AGU, San Francisco, CA, USA 09-13 Dec.
- (Poster) Kumar, S, Sharma, A., Shukla K., Nema, A.K., (2019). Dynamic programming based decision-making model for selecting optimal air pollution control technologies for an urban setting. Presented at 1st smart cities conference, Delhi, India (Talk).



Komal Shukla, Ph.D., M.Sc., B.Sc.

#### International Panelist

##### Air Pollution, Environmental Management and Policy Related Invited Talks:

- Minimizing air pollution in Delhi city, Pure Earth, NY, USA, Boston College, 2019
- Photochemical pollution in heavily polluted environments of India and China" in the Development of Traffic Pollution Dispersion Models based upon Artificial Intelligence Technology, Chang'an University, Xian, 2019, China
- Air Pollution Challenges and Mitigation Opportunities in Delhi, CADTIME, Newcastle University, 2019, UK
- Indoor Air Quality: Problems and Initiatives", 2nd Indian International National Conference on Air Quality Management (IIAQM 2017): Health and Exposure, Indian Institute of Technology Delhi, New Delhi 2017, India
- Tackling the Challenges of Air Pollution in India", Indian Institute of Public Administration, New Delhi, 2019, India

## **EXHIBIT B**



Memorandum

November 14, 2024

**HOUSE  
AGRICULTURAL  
CONSULTANTS**

*Providing expertise  
in agricultural science,  
management, & appraisal  
since 1977.*

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Davis, California 95616  
telephone +1 530 753-3361

November 14, 2024

To:

Kelilah Federman & Alaura R. McGuire  
Adams Broadwell Joseph & Cardozo

Re:

Expert review of the agricultural element of *DEIR 6959 — Dogwood Geothermal Project, Imperial County*—draft memorandum subject to attorney-client privilege

From:

Gregory A. House & Henry House  
House Agricultural Consultants  
(via electronic mail)

Dear Ms. Federman and Ms. McGuire:

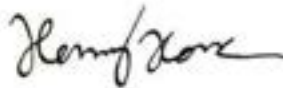
At your request, we have analyzed the document titled *Draft EIR — Dogwood Geothermal Energy Project: SCH No. 2024010510, Imperial County, California, August 2024* (hereinafter, *the DEIR*) and the proposed project described therein (hereinafter, *the project*) to comment on agricultural resources in our capacity as agriculture experts. We, House Agricultural Consultants (hereinafter, *HAC*), are an agricultural-consulting firm that has analyzed agricultural impacts of numerous similar projects as well as agricultural-reclamation plans over a period of many years.

In brief, we have found that

- 1) The DEIR's proposed mitigation options are inadequate, as detailed by section 2.
  - a) Of these, Option 1, to "Provide Agricultural Conservation Easement(s)", can be brought to adequacy with appropriate improvements; see page 3.
  - b) Option 2, "Agricultural In-Lieu Mitigation Fee", is seriously flawed while Option 3, "Public Benefit Agreement", is fatally flawed.
  - c) Option 4, "Avoid Prime Farmland", is feasible and has our full support.
- 2.) The DEIR's site-reclamation plan (AG-1b) is grossly inadequate, lacking an effective mechanism to ensure its success, as section 3 explains.
- 3.) Lastly, the DEIR's Impact 3.3-3 fails to correctly analyze changes in the existing environment; details in section 4.

Our analysis and preliminary findings are found on the following pages. A description of our qualifications as agricultural consultants is included in the appendices of this memorandum on page 12.

Sincerely,



Henry House



Gregory A. House

G B-1

G B-2

Memorandum · November 14, 2024

## 1 Relevant background facts about the project

The Dogwood Geothermal Energy Project of the DEIR is composed of several proposed facilities, including the Dogwood Geothermal Energy Project (proper) and the Heber 2 Solar Energy Project, collectively hereinafter in this memorandum encompassed within *the project*.

**1.1 Location.** The project is proposed to be located on approximately 125 acres of privately-owned lands in southern Imperial County, California (hereinafter, the *subject property*), approximately one mile south of the City of Heber, approximately one-half mile northwest of the City of Calexico, and approximately one mile north of the international border with Mexico. The subject property is mapped and identified by Imperial County as portions of assessor's parcels 054-250-031, 059-020-001, and 054-250-017.

G B-3

**1.2 General-plan designation and zoning.** The current general plan of Imperial County (dated 2015) designates ninety-four percent of the subject property for "urban" land use, while the remaining six percent of land lies within the Heber Specific Use Plan area. Imperial County's zoning ordinance places the subject property within the "A-2—General Agriculture" zone. All types of agriculture are permitted in the A-2 zone.

**1.3 CEQA protected-farmland status.** In sum, approximately 110 acres, 22 acres of *prime farmland* and 88 acres of *farmland of statewide importance* are proposed to be converted by the Project. The DEIR correctly notes that the California Environmental Quality Act (CEQA) considers the conversion of *prime farmland* and *farmland of statewide importance* a significant impact which ordinarily requires mitigation. By legal precedence, this mitigation is satisfied by the establishment of an agricultural conservation easement on other land.

## 2 Findings on Impact 3.3-1: The DEIR's proposed mitigation options are inadequate

The DEIR correctly finds significant impact in Impact 3.3-1, the conversion of *prime farmland* and *farmland of statewide importance*. While the DEIR correctly concludes that there shall be mitigation for the affected 110 acres, the mitigation measures (two alternative overall options) that the DEIR proposes are inadequate for reasons we elucidate next.

G B-4

**2.1 Two overall approaches to mitigation are proposed in the DEIR with four specific mitigation options.** To mitigate Impact 3.3-1, the DEIR proposes two broad mitigating approaches:

AG-1a.—four specific options to mitigate the farmland to be converted. Discussion follows in this section.

AG-1b.—future site reclamation after the project's facility is decommissioned.

We discuss the four mitigation options next in this section 2. Our discussion of the site-reclamation approach is later in this memorandum; section 3.

#

Memorandum • November 14, 2024

G B-4  
cont'd

**2.2 AG-1a—mitigation by conservation easements, payment of agricultural- and other-benefit fees, etc.** This mitigation measure is subdivided into separate, parallel plans for *prime farmland* and *non-prime farmland* (in this case consisting of *farmland of statewide importance*), and each mitigation plan is given several options.

**2.2.1 FOUR OPTIONS IN AG-1A FOR MITIGATING PRIME FARMLAND CONVERTED.** The DEIR lays out four different options for mitigating the 22 acres of *prime farmland* that project will convert, with three for its conversion of 88 acres of *farmland of statewide importance*, which are,

- Option 1—entitled “Provide Agricultural Conservation Easement(s)”;
- Option 2—“Agricultural In-Lieu Mitigation Fee”;
- Option 3—“Public Benefit Agreement”; and
- Option 4—“Avoid Prime Farmland”.

The final Option 4 is not proffered by the DEIR for the proposed conversion by the project of 88 acres of *farmland of statewide importance*.

**2.2.2 OPTION 1 FOR AG-1A, PROVIDING AGRICULTURAL-CONSERVATION EASEMENTS FOR CONVERTED FARMLAND.** This first option to mitigate the conversion of both *prime farmland* and *farmland of statewide importance* proposes that, for *prime farmland*, the permittee procure agricultural-conservation easements “on a ‘2 on 1’ basis” (the quotation marks are in the original), and for *farmland of statewide importance* on a “1 on 1” basis; such easement will be placed on

- land of equal size,
- land of equal quality as farmland, and
- land outside the path of development.

Likewise, the conservation easements “shall meet DOC<sup>1</sup> regulations and shall be recorded prior to issuance of any grading or building permits”.

**A permanent conservation easement.** We assume that the phrase “2 on 1” (it is so written in quotation marks in DEIR) means that two acres of land will be conserved for every one acre of land converted via a permanent conservation easement and that “1 on 1” means that one acre of land will be conserved for every one acre of land converted via a permanent conservation easement.<sup>2</sup>

Although most conservation easements are permanent, some are not, and this is the first point in this measure that is not adequately defined. We note in passing that the DEIR at the top of page 120 states: “Implementation of Mitigation Measure AG-1a would reduce the impact associated with the temporary conversion of important farmlands to non-agricultural uses to a level less than significant.” The DEIR lacks support for its conclusion that this is a “temporary” conversion. We draw attention to this statement in Measure AG-1a as it bears on the permanency of the mitigation effected by the proposed conservation easement as well as the site reclamation plan.

Assuming the permanent status of the proposed conservation easement, we find the “1 on 1” requirement for conserving *farmland of statewide importance* does adequately ensure the preservation of farmland and farming, and, while it is less effective than 2:1 conservation, it does meet the minimum standard established by precedent throughout California.

<sup>1</sup> We note that “DOC” in this context refers to the California Department of Conservation.

<sup>2</sup> This meaning is typically stated as a 2:1 ratio or 1:1 of farmland conserved to farmland converted, for those respective cases.

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In order to place the conservation easement on land of "equal quality" and "outside the path of development", the DEIR needs further definition, and the proposed criterion "shall meet DOC regulations" also requires specific definition.

*Defining equal-quality farmland.* A typical method for evaluating the quality of farmland in a regulatory context and a method referenced by CEQA is use of the Land Assessment and Site Evaluation (LESA) model. The DOC has in fact created its own version of the LESA and this version is commonly used in regulatory contexts throughout California. The DOC's website describes its LESA model thusly:

The California Agricultural LESA Model evaluates measures of soil resource quality, a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, the factors are rated, weighted, and combined, resulting in a single numeric score.

The DOC's California Agricultural LESA Model applied to the subject Project acres would provide the necessary information to adequately define "equal quality" farmland per the DEIR. This should be a requirement of the Project.

*What would meet "DOC regulations".* The DOC does not regulate conservation easements, but, as noted above, has developed and maintains a model agricultural-conservation easement, available at its web site<sup>3</sup>, as well as administering various funding programs for agricultural-conservation easements, each of which has varying standards, but all of which are oriented towards an easement similar model conservation easement, which is permanent.<sup>4</sup>

*Need for comprehensive farmland-conversion-mitigation ordinance.* The DEIR proposes that the project's mitigating conservation easement be placed on an agricultural property "outside the path of development". However, the DEIR does not define or identify areas of Imperial County within the "path of development".

As noted, the 125-acre subject property is located a half mile from the City of Calexico, which had a population of 38,633 in 2020; Calexico is the American sister city to the much larger Mexicali in Mexico, population 689,775, according to the 2010 census. The two cities adjoin each other, separated by the international border. The combined Calexico-Mexicali metropolitan area is home to approximately one million inhabitants considering both sides of the Mexico-United States border.

According to the DEIR, Imperial County's current general plan "recognizes the area as one of the finest agricultural areas in the world", noting that "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".

Although it is not directly stated, the DEIR seems to imply that the subject property lies in the path of development, hence the suggestion of placing a conservation easement on land outside the path of development. While this needs to be defined, there is a larger issue at hand: Imperial County lacks a comprehensive ordinance on mitigation of farmland conversion. Such an ordinance would define not only the "path of development" but also standardize Imperial County's policies regarding the mitigation of farmland conversion to assure compliance of such mitigation with CEQA. Many counties in California, as well as many larger cities, already have such ordinances. Without binding standards governing the proposed conservation easements, Imperial County cannot ensure

<sup>3</sup> (<https://www.conservation.ca.gov/dlrp/grant-programs/cfcg>).

<sup>4</sup> The California Civil Code section 815 has a definition of a conservation easement, stating, among other criteria, that it is perpetual in duration.

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that a mitigation measure will adequately preserve or permanently protect existing agricultural land, as required by CEQA. The mitigation measure at hand must be revised to include specifically define the "path of development" and identify specific performance standards for conservation easements purchased for the project to ensure permanent protection of the easement lands.

In the long term, Imperial County should also consider that establishing a conversion-mitigation ordinance in the county is crucial to the preservation of agriculture in the county, and will go a very long way in allowing the County of Imperial to achieve its several goals of item III.B of its general plan's Agricultural Element, the "preservation of important farmland".

2.2.3 OPTION 2 FOR AG-1A, IN-LIEU MITIGATION FEE FOR CONVERTED FARMLAND. Under Option 2 to mitigate conversion of *prime farmland*, the DEIR proposes:

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.

GB-8

This option fails to provide adequate, if any, mitigation for the conversion of important farmland (which includes both *prime farmland* and *farmland of statewide importance*) that this project proposes. This option confounds the appraisal concept of fair market value<sup>2</sup>, provides no mechanism or standards for the analysis of "five comparable sales", and inexplicably reduces the land value (which is the measure of the conversion's significant impact) to thirty percent of the "fair market value" (so-called, incorrectly as noted) in the case of *prime farmland* that is proposed to be converted, twenty percent in the case of the *farmland of statewide importance*.

*Fair market value of what?* The DEIR's appraisal/valuation methodology is unsupported and inconsistent with industry practice. Option 2 improperly attempts to define "fair market value" of the project's land by specifying a valuation "based on five comparable sales". This is a not a definition of value but rather a flawed and half-baked valuation methodology that seriously conflicts with professional appraisal standards as well as existing, established definitions of *fair market value*.

First, it is unclear whether the "five comparable sales" will be compared to the subject property, or some other imputed property. We suspect the latter because the subject property is located within one half mile of Calexico, which is not outside the path of development. The former option, to fabricate an imputed appraisal subject, will not lead to fair market value, as it is understood in law and the appraisal profession. If some other definition of value is to be pursued, then its terms must be defined. Option 2 does not even attempt to describe any parameters required for identifying the comparable sales. An acceptable in-lieu fee based on fair market value—a term defined by law as that which is opined by professional appraisers—is not a known price that can be read from market records by a unqualified arbitrary individuals; its determination must involve a qualified appraisal professional.

It is beyond the scope of this memorandum to guide this DEIR to a proper appraisal methodology; however, fair market value can only be established by a professional appraiser with the experience and expertise to carry it out to generally accepted valuation standards as promulgated by the *Uniform Standards of Professional Appraisal Practice*. If the Imperial County Board of Supervisors is to pursue an fee-based in-lieu approach, we strongly recommend that fee be based

<sup>2</sup> Fair market value is a term defined by law and is that kind of value which is opined by professional appraisers; thus, "fair market value" is incorrectly defined and incorrectly understood in the DEIR.



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on a real appraisal that follows the current guidelines of the California Department of General Services (which are followed by the California Department of Conservation), and be performed by a qualified, licensed professional. The California Department of General Services (and thus the California Department of Conservation) require that fair market value be determined by a professional appraiser holding a Certified General Appraiser license.

G B-8  
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*Valuation by percentage is improper.* Once a “fair market value” has been established, Option 2 proposes that only thirty percent of that monetary value in the case of prime farmland, and twenty percent in the case of the farmland of statewide importance, will become the in-lieu fee. There is no evidentiary basis that a partial percentage of the “fair market value” can provide full and adequate mitigation for the conversion of important farmland. In fact, the DEIR offers no evidence to support a determination that fair market value would be anything less than one-hundred percent of the value.

The consultants of HAC are licensed appraisers (see our qualifications in the appendices of this memorandum). We have assisted numerous parties, including municipal corporations and other local governments, with farmland-conservation and open-space programs over several decades. As experienced appraisers, we can unequivocally state that any proposed partial percentage of fee value as in-lieu fees will not assure adequate funding to obtain comparable land, and will therefore result in inadequate mitigation. Moreover, valuation by percentage is not allowed by the Uniform Standards of Professional Appraisal Practice, nor is it approved by the California Department of Conservation.<sup>6</sup>

*In-lieu fees have performed poorly as a mitigation mechanism in other jurisdictions.* Second, in-lieu fees in other jurisdictions and settings have consistently failed to adequately mitigate agricultural land conversion because of the time lapse between collecting the fee and the actual acquisition of the conservation easement. Moreover, if the County establishes a predetermined, set in-lieu fee, it is surely likely to become stale: in all likelihood the fee will quickly become insufficient due to land value appreciation.

Land prices fluctuate over time and are subject to many unpredictable exterior forces which have nothing to do with the quality of the land, such as interest rates, government policies and regulations, and commodity prices, etc. For instance, between 2014 and 2015, irrigated agricultural land of good quality in Imperial County appreciated from approximately \$10,000 per acre to approximately \$14,000 per acre, peaked at approximately \$15,000 per acre during 2016 to 2019, and now stands at approximately \$14,500 per acre.<sup>7</sup>

Simply put, an in-lieu fee of any type—whether a predetermined set amount or established by formula or ratio—cannot guarantee equal acres conserved for equal acres converted because of the bureaucratic nature of the procedure, which, in our experience, has often taken many years from the time of fee collection (the time of the land conversion) to the actual placement of an agricultural conservation easement on acres to effect the mitigation, or in many cases has simply failed entirely to occur, in part because of severe loss of purchasing power by the agency holding the fees.

Similarly, the provision in Option 2 of the DEIR for in-lieu fee administrative costs also suffers a similar problem as that of land values in that administrative costs can be predicted to increase every year (though not necessarily at a predictable rate), and therefore any delays more than one

<sup>6</sup> The percentages of easement value versus unencumbered-fee value often discussed are merely a statistic that emerges after the easement's acquisition. The percentage value will vary by local market conditions and timing.

<sup>7</sup> Data from California Chapter of the American Society of Farm Managers and Rural Appraisers, 2024 *Trends in Agricultural Land and Lease Rates*, pages 108 to 115; see references.



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year in acquisition of the easement will inevitably reduce the utility of the sum of funding held for mitigation, again defeating the acre-for-acre intent of the mitigation plan.

Some counties have attempted to solve this problem of shrinking purchasing power and funding by the prepurchase of mitigation land and the establishment thereon of a so-called "land bank", but this also has a number of problems including the holding period which its financial opportunity costs, the problem of matching agricultural land quality of the converted with the conserved, and the overall logistical difficulty of administering such a program.

In any case, an in-lieu fee cannot achieve the timeliness or certainty of the previous Option 1, providing an agricultural-conservation easement, which is required under that option by the DEIR to "be recorded prior to issuance of any grading or building permits".

For all of these reasons, the DEIR's proposed in-lieu fee program is seriously flawed—and is furthermore unnecessary in light of the feasibility of other, more effective mitigation. There is no reason why a developer, with reasonable effort, cannot obtain at least a small-acreage conservation easement at the time of project approval, even if it is on a portion of a legal parcel. Providing a recorded agricultural-conservation easement is unequivocally the only proven method to efficiently and equivalently mitigate the conversion of important farmland. It is furthermore a well-established and widely practiced method throughout California.

As mitigation by conservation easement is feasible, this project should adhere to a similar standard. Payment of an in-lieu fee or dedication of an easement elsewhere in the county outside the path foreseeable development would fail to mitigate the project's significant agricultural impacts.

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**2.2.4 OPTION 3 FOR AG-1A, A PUBLIC-BENEFIT AGREEMENT.** In this option laid out by the DEIR, the permittee and the County of Imperial voluntarily enter into an enforceable public-benefit-agreement or development agreement that includes a payment of an agricultural-benefit fee. This option is fatally flawed in that it does not require an agricultural-conservation easement as mitigation.

The DEIR states that the funds collected must be held by the county in a restricted account to be used "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", and goes on to suggest the funds could be used for social and economic woes such as agricultural-job loss in the local economy and the "creation of jobs in the agricultural sector of the local economy for the purpose of offsetting jobs displaced by this Project".

This proposed activity is not mitigation for farmland loss in any reasonable sense, because it is not farmland mitigation as such at all but rather redefines a vague list of potential objectives from other field of public policy as "mitigation". Thus, notwithstanding the high-minded language of this option, it does not hit the mark in actually preserving agricultural land through the establishment of a permanent agricultural-conservation easement—and therefore completely fails in the purpose of mitigating agricultural-land conversion, as established by California court precedent.

G B-9

**2.2.5 OPTION 4 FOR AG-1A, AVOIDING PRIME FARMLAND.** This last option for the "mitigation" of Impact 3.1-1, while obviously not mitigation per se, and not intended for farmland of statewide importance, is surely an excellent option, as under this option no conversion of prime farmland would occur. We cannot find any objection to the permittee revising its *Conditional Use Permit Application/Site Plan* to avoid converting 22 acres of prime farmland, provided, of course, that it does not then seek to convert other important farmland as identified by the DOC's Farmland Mapping and Monitoring Program.

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### 3 Findings on AG-1b—Site-reclamation plan

**3.1 Restoration plan is grossly inadequate as presented.** The entire description of the agricultural component of the site-restoration plan is stated in the following paragraph on page 3.3-11 of the DEIR:

GB-11

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.

Additionally, on pages 3.3-13 and 3.3-16, there are brief discussions of the likely effect on soil health and its effects after the project is decommissioned and the site-reclamation plan is implemented, and: "This is considered a significant impact attributable to the project." However, no solution is offered, and the impact is dismissed as "Mitigation Measures AG-1b and AG-2 would reduce this impact to a level less than significant." Without definition of a detailed site reclamation plan, this statement is mere bravado.

The site-reclamation plan must provide a detailed explanation of how the plan would achieve its requirement of returning the land and soil to its current condition. It should be included in a second-draft DEIR so that it can be evaluated for its effectiveness; it should include a detailed documentation of the current condition and productivity of the land before the issuance of a grading permit for initiation of the project.

**3.1.1 AGRONOMIC-BASELINE REPORT NEEDED.** In order to restore the project site to its current agricultural condition, there must be a requirement to establish that baseline agronomic condition. There is no mention in the DEIR of whether and how any specific factors influencing the land's productivity are to be measured, evaluated, or documented for future reference. A start would be to assess the chemical and physical properties of each soil unit on the project site, using the chemical and physical categories listed in the "Soil Properties and Qualities" pages of the United States Department of Agriculture's Web Soil Survey. See figure 1 for details on what scientific features these pages describe for the actual soil on the project site.

GB-12

**3.1.2 DETAILS OF AGRONOMIC RESTORATION REQUIRED WITH TIMELINE.** In order to restore the land to its former condition, following documentation in an agronomic baseline report by a qualified professional agronomist, a detailed schedule of agricultural will be required. There are no such specifics in the DEIR.<sup>8</sup> At a minimum: (1) a land releveling survey should be provided with topsoil yardage needs; (2) a schedule of planned machinery operations, such as removal of rubble and buried pipes and cables, grading, ripping, and other operations to re-establish soil tilth; (3) a schedule of soil amendments provided; and (4) a schedule of revegetation and re-establishment of soil microbiology. Each schedule should clearly state the operations to be undertaken and the time required for their completion.

GB-13

**3.1.3 POSTED BOND FOR RECLAMATION.** The DEIR requires that a bond be posted to cover the cost of the site-reclamation plan, which will be prepared prior to issuing the grading permit:

GB-14

<sup>8</sup> Page 2-25 of the DEIR states: "The general objective of the final reclamation phase is to return the site as close as possible to the conditions prior to geothermal development. A Preliminary Reclamation Plan and Cost Estimate was provided by the Applicant to the County to confirm feasibility of reclamation." However, this preliminary plan is not included within the DEIR and is thus outside the scope of our present comment; regardless, the DEIR indicates in numerous locations that the actual reclamation plan does not yet exist but is to be prepared.

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FIGURE 1 "Soil Properties and Qualities" pages of the United States Department of Agriculture's Web Soil Survey: (a) overview, (b) detail of chemical properties, (c) detail of physical properties.



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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

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Reclamation Plan in the event Permittee fails to perform the Reclamation Plan.

However, we were unable to find a definite time period for either the permitted or “useful life” of the project as described in the DEIR. It appears to be unspecified and undetermined.

Without a definite time frame in which to estimate those future costs, the DEIR has failed to adequately assure that a bond will actually cover the costs. An estimate made in 2024 would likely not be the same estimate given in, for example, thirty to forty years. Costs will surely be higher due to both inflation and specific environmental factors and regulations that are likely to change as well. The bond estimate must be required to consider these future changes in cost (which could reasonably be foreseen to rise at a greater rate than general inflation) to adequately assure the costs will be covered.

Thus, to reiterate, mitigation measure AG-1b of the DEIR is unable as written to enforce its goal of restoration to preproject agricultural productivity: there are no measurable performance standards stated (“current agricultural condition” is a goal rather than a measurable standard); and, as noted, no agronomy expert who would be professionally qualified to draft such measurable performance standards is specified.<sup>8</sup>

Finally, we note that nowhere in the DEIR’s discussion of the proposed reclamation plan can we find a statement that a qualified professional agronomist will be engaged. Agricultural reclamation presents numerous technical issues that require the specific expertise of an agronomist (for example, soil microbial health—see citation from the *Journal of Soils and Sediments* for a case study in the references). Civil engineers are not qualified to manage agronomy-specific issues within reclamation.

G B-14  
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## 4 Findings on Impact 3.3-3: Changes in existing environment are inadequately analyzed

### 4.1 Impacts on surrounding parcels. Impact 3.3-3 questions—

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?

In answering this question, the DEIR finds on page 3.3.13 that the development of the project would not contribute to a “leapfrogging” pattern of development, because the proposed facilities are located in proximity to existing industrial uses such as the Heber 2 Geothermal Energy Complex (HGECC). However, we have examined the DEIR’s description of the location and independently examined the nearby farming parcels and cannot concur.

The presence of active agriculture to the east (APNs 054-25-047 and 054-250-048, both zoned A-2) is neither described nor considered; these parcels are located between the project and the city of Calexico. Similarly, APNs 054-25-010 and 054-250-011, which adjoin the project on its north, are in active agriculture and are sandwiched between the project and the urban community of Heber. Other adjacent parcels, all in active agriculture, are APNs 054-160-023, 054-250-037, 054-250-037, 054-250-038, 054-250-039, and 054-25-042. The project’s impact on the probable new conversion pressure on any of these parcels has not been addressed.

G B-15

<sup>8</sup> A proper restoration must set measurable performance standards in the reclamation program which have been formed with the expertise of a recognized agronomist. As an example of an adequate reclamation program which has measurable performance standards is that of the County of Yuba for its gravel-mined agricultural lands (reference: see item “Mining Projects and Permits” within <https://www.yubacounty.org/>). HAC was not involved in the preparation of any of Yuba County’s reclamation plans. We were hired in 2021 in our capacity as professional agronomists to assess the performance of the ongoing reclamation of several postmining sites to the standards of the plans.



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**4.2 Likelihood of decommissioning.** The DEIR claims repeated that the project will not permanently use the land, stating, for example on page 3.3-13:

Also, the use of the agricultural land is not considered permanent given that the project applicant will be conditioned to restore the project site back to agricultural use. In this context, the project would be consistent with applicable General Plan policies and is considered less than significant.

This assertion is unfounded and unproven, especially in the context that there does not appear to be any decommissioning date expressed in the DEIR. Moreover, the likelihood of decommissioning of the project such that its site will return to agricultural use is extremely remote, given the quantity and cost of infrastructure that will go into the development and operations of the project. We have researched this subject in the past, finding no solar farms and no battery storage sites that have been returned to agriculture. On the contrary, we have found one solar farm that ran out its time permit and subsequently was reused to construct a new solar-energy facility: this in City of Davis.

GB-16

**4.2.1 CITY OF DAVIS CASE STUDY BELIES THE ASSERTION THAT DECOMMISSIONING WILL OCCUR.** One of the oldest photovoltaic-generation facilities in the United States is located in Davis, California. This 86-acre project was originally installed in 1986 by Pacific Gas & Electric Company as a research facility, and subsequently commercially operated from 2003 to generate 650 kilowatts of electricity by the companies Clean Energy Assets and CleanPath Ventures. CleanPath received permission from the Davis City Council in 2010 to expand power production to as much as 15 megawatts. Thus, this project, upon reaching the end of its originally planned useful life—approximately twenty-five years in 2012—was not being decommissioned in 2012 but was instead being refurbished and expanded for continued use into the indefinite future.<sup>18</sup>

**4.2.2 THE PROJECT IS DE FACTO PERMANENT.** The DEIR thus fails to consider the likelihood that the project is in fact a permanent land use in every normal sense of the term.

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## 5 Conclusion—summary of HAC's comments

The following summarizes HAC's initial comments in this matter.

**5.1 Mitigation options inadequate.** The DEIR's proposed mitigation options are inadequate, as we explain in section 2.

a) Of these, Option 1, to "Provide Agricultural Conservation Easement(s)", can be brought to adequacy with appropriate improvements which we discuss on page 3.

b) Option 2, "Agricultural In-Lieu Mitigation Fee", is seriously flawed (page ??), while Option 3 "Public Benefit Agreement" is fatally flawed and must be forgone (page 7).

c) Option 4, "Avoid Prime Farmland", is commendable, is feasible, and has our full support, provided that the footprint of the project is not expanded to make up the difference in built-out acreage.

GB-18

**5.2 Site-reclamation plan (AG-1b) is grossly inadequate.** The proposed site-reclamation plan to follow putative future decommissioning is grossly inadequate; recall section 3. The plan that is presented lacks an affective mechanism to ensure its success. Furthermore, this project is

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<sup>18</sup> See (<https://davisindependent.org/2020/04/city-releases-faq-signs-leave-option-agreement-for-solar-farm/>).

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de facto permanent—available evidence demonstrates that decommissioning and reclamation are unlikely to occur in the future (discussion on page 11 ).

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**5.3 Changes in existing environment improperly analyzed (Impact 3.3-3).** The DEIR's analysis of changes in existing environment (Impact 3.3-3) is deficient, as we explain in section 4. More specifically, it fails to consider adjoining and neighboring parcels in agricultural use and fails to consider the de facto permanent nature of the project.

G B-20

**5.4 Closing.** This concludes our initial review regarding this DEIR. A description of our qualifications as consultants follows as an appendix to this memorandum.

G B-21

Sincerely,

  
Henry House

  
Gregory A. House

## 6 Appendices

### 6.1 Sources referenced.

- California Chapter of the American Society of Farm Managers and Rural Appraisers. *2024 Trends: Agricultural Land and Lease Values*, 2021. Web site: [calasmfra.com](http://calasmfra.com).
- Piotrowska-Dlugosz, A.; Charzyński, P. *The impact of the soil sealing degree on microbial biomass, enzymatic activity, and physicochemical properties in the Ekranic Technosols of Toruń (Poland)*. In: *Journal of Soils and Sediments*, 2015.

### 6.2 Qualifications of House Agricultural Consultants. 6.2.1 GREGORY A. HOUSE. Agricultural Consultant - Agronomist - Professional Farm Manager - Rural Appraiser - Farmer.

#### Experience:—

- Agricultural consultant, 1983–present—House Agricultural Consultants, providing agricultural science, economics, management, and appraisal services.
- Farmer, 1987–present.—Growing organic apples, peaches, cherries, apricots, field and seed crops.
- Corporation secretary and consulting agronomist, 1977–1983—Hannesson, Riddle & Associates, Inc.

#### Professional affiliations:—

- American Society of Farm Managers & Rural Appraisers
- American Society of Agronomy
- Crop Science Society of America
- Soil Science Society of America
- California Certified Organic Farmers
- California Farm Bureau.

#### Accreditations:—



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- Accredited Farm Manager (AFM), American Society of Farm Managers & Rural Appraisers, certificate no. 501
- Certified Professional Agronomist (CPAg), American Registry of Certified Professionals in Agronomy, Crops, & Soils, Ltd., certificate no. 2319
- Certified Crop Advisor (CCA), American Registry of Certified Professionals in Agronomy, Crops, & Soils, Ltd.
- Accredited Rural Appraiser (ARA), American Society of Farm Managers & Rural Appraisers, certificate no. 749
- Certified General Appraiser in the State of California, license no. AG-001999.

N.B.—These credentials have continuing-education requirements with which I am in compliance.

*Education:—*

- B.S., Crop Ecology, University of California, Davis, 1975, with Honors
- Numerous courses from the University of California Extension in agricultural economics, crop management, real estate, & hazardous waste management
- Cornell University Certificate Program, Implementing Good Agricultural Practices: A Key to Produce Safety
- Courses of the American Society of Farm Managers & Rural Appraisers: Principles of Rural Appraisal · Advanced Rural Appraisal · Eminent Domain · Report Writing School · Economics of Farm Management · Principles of Farm Management · Standards and Ethics · Permanent Plantings Seminar · Standards and Ethics for Farm Managers · ASFMRA Code of Ethics
- National Uniform Standards of Professional Appraisal Practice Courses of the Appraisal Institute: Basic Valuation Procedures · Real Estate Statistics and Valuation Modeling · Advanced Income Capitalization · Valuation of Conservation Easements Certificate Program · Condemnation Appraising: Principles and Applications · Appraising the Appraisal · How Tenants Create or Destroy Value: Leasehold Valuation and Its Impact on Value.

*Expert-witness court testimony:—*

- Superior Court Qualified Expert Witness in the following California counties: Alameda, Colusa, Kern, Fresno, Madera, Merced, Monterey, Orange, Riverside, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Solano, Sonoma, Sutter, Ventura, Yolo
- United States Tax Court qualified expert witness
- United States Bankruptcy Court qualified expert witness.

A comprehensive listing of Mr. House's depositions and trial appearances is available upon request. The list currently numbers seventy-two matters in which Mr. House gave sworn testimony (either deposition, trial or hearing appearance, or both), including thirty-two trial appearances.

*Awards:—*

- CCOF Presidential Award, California Certified Organic Farmers, February, 2001
- Meritorious Service in Communications, American Society of Farm Managers & Rural Appraisers, November 2004
- H.E. Buck Stalcup Excellence in Education Award, American Society of Farm Managers & Rural Appraisers, October, 2011.

*Appointments & activities:—*

- Adjunct Lecturer, University of California, Davis, Department of Agricultural & Resource Economics, current; Courses ARE 140 Farm Management; ARE 145 Appraisal of Farms & Rural Resources, 2015-2021.

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- Instructor, "Principles of Farm Management", an Internet course of the American Society of Farm Managers & Rural Appraisers, 1996-2007.
- President, California Chapter American Society of Farm Managers & Rural Appraisers 1994-1996; Secretary-Treasurer, 1984-1990.
- Board of Directors, Yolo Land Trust, 1993-2001.
- Board of Directors, American Red Cross, Yolo County Chapter 1987-1989.
- Member, Yolo County Right to Farm Grievance Committee 1992-1995.
- Vice Chairman, Management Education Committee, American Society of Farm Managers & Rural Appraisers, 1998-2000 (committee member since 1986).
- Yolo County LAFCo Agricultural Forum LESA subcommittee, 1999.
- California Certified Organic Farmers: Treasurer of the Board of Directors, 1998-2003; Executive Director, 1999-2000; Member of the Finance Committee, 1998-current.
- CCOF Foundation Going Organic Program, Management Team member, 2006-2012.
- USDA Organic Grant Panel member, Washington, DC, 2002.
- City of Davis Open Space and Habitat Commission, 2006-2016, Chairman, 2007-2009.
- Member, Fruit Orchard Technical Advisory Group, Filoli Gardens, Woodside, California.
- Member, Organic and Sustainable Agriculture Program Steering Committee, University of California Cooperative Extension, Yolo and Solano Counties, California, 2008-2013.
- Member, Solano County Right to Farm Grievance Committee 2022-present.

*Speaking engagements:—*

- Guest lecturer, University of Florida at Gainesville-Vegetable Crops Department. Seminar on transition to organic agriculture, November 1994.
- Featured program speaker, 1995 annual *Eco-Farm Conference*. Lecture on economics of organic-apple production, Asilomar, California, 1995.
- Guest speaker, multiple events of Community Alliance with Family Farmers. Presentations on farm management and agricultural economics, 1996 and 1997.
- Instructor, American Society of Farm Managers & Rural Appraisers. Course "M-12", *Standards and Ethics for Professional Farm Managers*, March 1997.
- Guest speaker, American Horticultural Society. Lecture entitled *Challenges of Organic Stone Fruit Production*, Sacramento, California, July 2001.
- Organizer and presenter, *Going Organic Kickoff Meetings*. A program of California Certified Organic Farmers, November 2005 and December 2006.
- Master of ceremonies, annual meeting of California Certified Organic Farmers. Sacramento, California, February 2006.
- Featured program speaker, 2012 annual *Eco-Farm Conference*. Lecture entitled *Imitating Natural Systems: Towards an Indigenous Agro-forestry*, Asilomar, California, 2012.
- Seminar presentation, American Society of Farm Managers & Rural Appraisers. *Rapid Fire Seminar: What Makes for Comparable Sales in Condemnation Appraisal*—Reno, Nevada, October 2013.
- Featured program speaker, 2014 annual *Eco-Farm Conference*. Lecture entitled *Food Safety Regulatory Compliance in Fruit Orchards*, Asilomar, California, 2014.

*Publications:—*

- *Principles of Farm Management*, course "M-10", a forty-hour professional-credit online educational offering of the American Society of Farm Managers & Rural Appraisers.
- *Conservation Issues in Agriculture*, a unit of course "M-25", a fifteen-hour professional-credit online educational offering of the American Society of Farm Managers & Rural Appraisers.

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– *A Primer on Organic Agriculture*, an article in 2006 *Trends in Agricultural Land and Lease Values*, a publication of the California Chapter of the American Society of Farm Managers & Rural Appraisers.

– *Case Study: Using Indigenous Agroforestry Management Techniques to Support Sustainability in Production Agriculture*, a paper-poster presented at *Harlan II, An International Symposium on Biodiversity in Agriculture: Domestication, Evolution and Sustainability*, September 14–18, 2008, University of California–Davis.

#### 6.2.2 HENRY HOUSE. Agricultural Economist • Agricultural Consultant • Licensed Appraiser • Farmer.

**Keywords:**—agricultural economist; agricultural appraiser; forensic appraiser; business valuation; crop loss; farming standard of care; agricultural dust; livestock standard of care; fencing; California Food & Agriculture Code section 17121; right to farm; eminent domain; lost profits.

**Summary of professional expertise:**—

- Agricultural economics and lost profits.
- Value of lost crops.
- Farm management: good farming practices in orchards, such as almonds and walnuts, row crops.
- Livestock management: carrying capacity of land, range management, standard of care for grazing animals, fencing.
- Right-to-farm issues, e.g., vehicle-agriculture, vehicle-livestock conflicts in agricultural districts, feasibility of agriculture on urban-proximate lands.
- Appraisal: valuation in disputes concerning real property, valuation of agricultural and rural land, valuation of livestock, valuation of agricultural personal property, valuation of agricultural-commercial facilities (e.g., aquaculture), valuation of development rights, assessed-value analysis for assessment appeal. California appraiser's license number AG-3010876 (Certified General Appraiser).
- Condemnation: valuation services for this appraisal specialty, including severance damages, in support of eminent-domain litigation.
- Management evaluation of commercial equestrian facilities.
- Management of rural-residential property.
- Statistical analysis, geographic-information-system (GIS) analysis, and software engineering (analytics).
- Expert services to litigation on the foregoing with deposition and trial-testimony experience; partial list of matters below.

**Representative recent matters in which Mr. Henry House was retained by counsel as a forensic expert:**—

Federal venue, August 2024.—Topic: farm management, real-property rights. A federal-court matter, involving appraisal and farm-management expertise, which is confidential per our agreement with the client. This matter was venued in a federal district of California.

County of Solano, June 2024–current.—Topic: agricultural economics. *Freese Farms, LLC v. Asiductor, LLC*. Mr. House was retained to analyze and opine on issues of agricultural economics and farm management of almonds in Solano County in a controversy over an irrigation-design company's services to an almond-orchard developer.

County of Los Angeles, March 2024.—Topic: real-estate appraisal. *JP's Nevada Trust v. 2Bulls Conservation Ventures et al.* Mr. House opined on valuation methodology and opined the fair market value of three ranch properties at the times of three controverted transactions in service of

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the plaintiff in a dispute in which the buyer (plaintiff) alleged conspiracy to defraud and a pattern of racketeering activity in violation of 19 U.S.C. § 1962(c), the Racketeer Influenced and Corrupt Organizations Act (RICO). Additional details on this matter are found in Mr. House's testimony list.

County of Tulare, September–October 2023.—Topic: farming standard of care. *Vasquez et al. v. Hundal Farms, Inc., et al.* An auto-accident case wherein dust allegedly originating from the defendants' almond orchard obscured visibility on a public road, contributing to an accident with multiple vehicles involved. Mr. House was retained to opine on the defendant's standard of care in managing its orchard, best practices during nut harvest, and the right-to-farm policies in rural Tulare County.

County of Franklin, State of Washington, September 2023–June 2024.—Topic: real-estate appraisal. *Ice Harbor Properties, LLC and Certain Underwriters Subscribing to Certificate No. XLS0342717 v. Agri Control Technologies, Inc. d.b.a. BTU Ventilation and Parrish Stakkeland* (case no. 20-2-50118-11, Superior Court of the State of Washington, County of Franklin). A dispute over the compensation due by the defendants for the fire loss of the plaintiff's real property, a warehouse specialized for climate-controlled bulk storage of potatoes and onions. The plaintiffs retained and designated Mr. House as a rebuttal witness to opine on the fair market value of the lost building, the market for similar buildings, and other experts' opinions.

County of Tulare, July 2023.—Topic: livestock economics, real-estate appraisal. *Jones, et al. v. Pleasant Valley Canal Company, et al.* (Tulare County Superior Court case no. VCU274417). A dispute over a cattle-ranching and hay-growing operation which the plaintiffs alleged had been damaged by the operation of a canal crossing the plaintiffs' property. The scope for which Mr. House was retained and designated included analyzing the plaintiffs' alleged diminution of value of real estate, analyzing the plaintiffs' alleged economic loss from death of cattle, and opining on the water company's standard of care in maintenance of its canal. Additionally, I assisted retaining counsel to engage an expert in veterinary pathology.

County of Yolo, March 2023–current.—Topic: real-estate appraisal in condemnation. *The People of the State of California, acting by and through the Sacramento and San Joaquin Drainage District v. Conaway Preservation Group, LLC, et al.* A matter of eminent domain (Code Civ. Proc., § 1250.310) regarding farmland in Yolo County. Mr. House has provided appraisal and valuation services to assist Conaway Preservation Group, LLC, in the defense of its interests in this taking.

County of Minidoka, State of Idaho, March–August 2023.—Topic: standard of care for livestock fencing. *Michael O. Otley v. Hanssen et al.* (case no. CV34-21-00168, District Court of the Fifth Judicial District of the State of Idaho, in and for the County of Minidoka). An auto-accident case wherein the defendants' cattle had escaped onto a public road and been struck by the plaintiff in rural Minidoka County, Idaho. The defendants retained and designated Mr. House to analyze the defendants' standard of care in managing the cattle, to opine on the quality of the defendants' fencing in comparison to locally accepted standards of adequacy, and for rebuttal of the plaintiff's fencing expert.

County of Imperial, November 2022–February 2024.—Topic: agricultural economics. *Freddi Abatti et al. v. James Davis, et al.* (Imperial County Superior Court case no. ECU002597). The defendants retained and designated Mr. House to evaluate the lost profits in hay crops in Imperial County resulting from a fire.

County of Merced, September 2022–January 2024.—Topic: agricultural economics. *Athwal Investments et al. v. San Luis Pump Co. et al.* (case no. 20CV03787). A matter of almond trees in Merced County allegedly damaged consequent to lack of irrigation water. Scope included analysis of the economic lost profits from orchard trees lost and replanted as well as from lost yield in service of two defendants.

See also.—Mr. House's separately provided list of testimonies lists additional matters.

*Memorandum - November 14, 2024*

*Partial list of management-consulting assignments:—*

- Numerous consulting assignments for Leland Stanford Junior University on the management of its agricultural lands, which feature cattle, horses, and vegetable crops. Topics addressed have included livestock standard of care, carrying capacity of lands, safety of animals, safety of structures, and management of drainage and water quality.
- Consulting farm management for John and Marie Cronin Trust B, a landowner near Rio Vista, California. Lands were utilized for cattle grazing.
- Numerous appraisal assignments of farmland and rangeland properties utilized for crops and livestock (cattle, sheep, and aquaculture).
- A list of additional management-consulting clients served available on request.

*Experience:—*

Agricultural consultant, appraiser, consulting agricultural economist.— House Agricultural Consultants, providing agricultural science, economics, management, and appraisal services. 2000–present.

Farmer.— Coco Ranch, a family farm growing organic apples, peaches, cherries, and field crops and raising sheep, poultry, and goats. 2000–present.

*Education:—*

- B.S., “Natural History”, University of California, Davis, 1999, with Honors. Coursework in agronomy, botany, ecology, entomology, geology, hydrology, nematology, plant pathology, soil biology, sustainable agriculture, statistics, and wildlife biology.
- Numerous courses of the American Society of Farm Managers & Rural Appraisers (ASFMRA) regarding farm management, agricultural consulting, and appraisal. Recently completed: *Livestock Ranch Seminar* (February 15, 2024) and *Appraisal of Water Rights Seminar* (March 8, 2024), both in ASFMRA’s appraisal-education series.
- Numerous courses of the Appraisal Institute regarding real-estate appraisal.
- Courses from Savory Institute regarding livestock management.

*Appointments & activities:—*

- Member, Solano County Farm Bureau.
- Member, American Society of Farm Managers & Rural Appraisers.
- Board of Directors, Davis Media Access, Davis, California, 2014–2017.
- Board of Directors, Davis Farmers Market Association, 2001–2003.
- Assistant instructor, “Principles of Farm Management”, course M-10, an Internet course of the American Society of Farm Managers & Rural Appraisers, 1999–2003.
- Course proctor, “M-25: Enhanced Client Services”, an Internet course of the American Society of Farm Managers & Rural Appraisers, 1999–2003.

*Publications & speaking engagements:—*

- Lecturer/instructor, “Farm Management”, course ARE 140, and “Appraisal of Farms & Rural Resources”, course ARE 145, University of California–Davis, 2015–2021.
- *Principles of Farm Management*, Course M-10, a 40-hour professional credit Internet educational offering of the American Society of Farm Managers & Rural Appraisers
- Educational speaker at the annual meeting of the California Chapter of the American Society of Farm Managers & Rural Appraisers, November 19, 2021, Coalinga, California. Topic: valuation of conservation easements.





**Gregory A. House**

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**Agricultural Consultant  
Agronomist  
Professional Farm Manager  
Rural Appraiser  
Farmer**

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**Experience**

**Agricultural Consultant**, House Agricultural Consultants, providing agricultural science, economics, management, and appraisal services, 1983–present

**Farmer**, 1987–present. Organic apples, peaches, cherries, apricots, field and seed crops

**Corporation Secretary & Consulting Agronomist**, Hannesson, Riddle & Associates, Inc., 1977–1983.

**Professional Affiliations**

- American Society of Farm Managers & Rural Appraisers
- American Society of Agronomy
- Crop Science Society of America
- Soil Science Society of America
- California Certified Organic Farmers
- California Farm Bureau

**Accreditations**

- Accredited Farm Manager (AFM), American Society of Farm Managers & Rural Appraisers, Certificate #501
- Certified Professional Agronomist (CPAg), American Registry of Certified Professionals in Agronomy, Crops, & Soils, Ltd. Certificate # 2319
- Certified Crop Advisor (CCA), American Registry of Certified Professionals in Agronomy, Crops, & Soils, Ltd.
- Accredited Rural Appraiser (ARA), American Society of Farm Managers & Rural Appraisers, Certificate #749
- Certified General Appraiser, State of California License # AG 001999

These credentials have continuing education requirements with which I am in compliance.

## Qualifications of Gregory A. House, continued

### Education

- B.S., Crop Ecology, University of California, Davis, 1975, with Honors
- Numerous courses from the University of California Extension in agricultural economics, crop management, real estate, & hazardous waste management
- Courses of the American Society of Farm Managers and Rural Appraisers:
  - Principles of Rural Appraisal
  - Advanced Rural Appraisal
  - Eminent Domain
  - Report Writing School
  - Economics of Farm Management
  - Principles of Farm Management
  - Standards and Ethics
  - Permanent Plantings Seminar
  - Standards and Ethics for Farm Managers
  - ASFMRA Code of Ethics
  - National Uniform Standards of Professional Appraisal Practice
- Courses of the Appraisal Institute:
  - Basic Valuation Procedures
  - Real Estate Statistics and Valuation Modeling
  - Advanced Income Capitalization
  - Valuation of Conservation Easements Certificate Program
  - Condemnation Appraising: Principles and Applications
  - Appraising the Appraisal

### Expert Witness Court Testimony

- Superior Court Qualified Expert Witness in the following California counties: Alameda, Colusa, Kern, Fresno, Madera, Merced, Monterey, Orange, Riverside, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Solano, Sonoma, Sutter, Yolo
- United States Tax Court Qualified Expert Witness
- United States Bankruptcy Court Qualified Expert Witness

A list of depositions and trial appearances is available upon request.

G B

## Qualifications of Gregory A. House, continued

### Awards

- CCOF Presidential Award, California Certified Organic Farmers, February, 2001
- Meritorious Service in Communications, American Society of Farm Managers and Rural Appraisers, November 2004
- H.E. Buck Stalcup Excellence in Education Award, American Society of Farm Managers and Rural Appraisers, October, 2011

### Appointments & Activities

- Adjunct Lecturer, Farm Management Courses ARE 140 & ARE 198, University of California, Davis, Department of Agricultural & Resource Economics, current
- Instructor, "Principles of Farm Management", an Internet course of the American Society of Farm Managers and Rural Appraisers, 1996 to 2007
- President, California Chapter American Society of Farm Managers & Rural Appraisers 1994–1995; Secretary-Treasurer, 1984 to 1990
- Board of Directors, Yolo Land Trust, 1993–2001
- Board of Directors, American Red Cross, Yolo County Chapter 1987–1989
- Member, Yolo County Right to Farm Grievance Committee 1992–1995
- Vice Chairman, Management Education Committee, American Society of Farm Managers and Rural Appraisers, 1998–2000 (committee member since 1986)
- Yolo County LAFCo Agricultural Forum LESA subcommittee, 1999
- California Certified Organic Farmers: Treasurer of the Board of Directors, 1998–2003; Executive Director, 1999–2000; Chairman of Certification Committee, Yolo Chapter, 1993–2005; Member of the Finance Committee, 1998–current
- CCOF Foundation Going Organic Program, Management Team member and Chapter Leader, 2006–current
- USDA Organic Grant Panel member, 2002
- City of Davis Open Space and Habitat Commission, 2006–current, Chairman, 2007–2009
- Member, Fruit Orchard Technical Advisory Group, Filoli Gardens, Woodside, California
- Member, Organic and Sustainable Agriculture Program Steering Committee, University of California Cooperative Extension, Yolo and Solano Counties, California, 2008–2013

## Qualifications of Gregory A. House, continued

### Speaking Engagements

- Guest Lecturer, University of California at Davis, Agricultural Economics 145, Farm and Rural Resources Appraisal, on professional farm appraisal (1985–1997)
- Guest Lecturer, University of California at Davis, Agricultural Economics Department, Course 140, “Farm Management”, on adoption of new technologies, farm budgeting, cash flow management, cost accounting, etc. (1985–present)
- Guest Lecturer, University of Florida at Gainesville, Vegetable Crops Department, seminar on transition to organic agriculture, (November, 1994)
- Featured Program Speaker, 1995 Eco-Farm Conference, Asilomar, California, on economics of organic apple production
- Guest Speaker, Community Alliance with Family Farmers, on farm management and agricultural economics, 1996 and 1997
- Instructor, American Society of Farm Managers and Rural Appraisers, Course M-12, “Standards and Ethics for Professional Farm Managers”, March, 1997
- Guest Speaker, American Horticultural Society, “Challenges of Organic Stone Fruit Production”, Sacramento, California, July 2001
- Organizer and Presenter, Going Organic Kickoff Meetings, November 2005 and December 2006
- Master of Ceremonies, California Certified Organic Farmers, Annual Meeting, February, 2006, Sacramento, California
- Featured Program Speaker, 2012 Eco-Farm Conference, Asilomar, California, “Imitating Natural Systems: Towards an Indigenous Agro-forestry”
- Seminar presentation: “What Makes for Comparable Sales in Condemnation Appraisal”, Rapid Fire Seminar, American Society of Farm Managers and Rural Appraisers, Reno, NV, October 2013.

### Publications

- “Principles of Farm Management”, Course M-10, a 40-hour professional credit Internet educational offering of the American Society of Farm Managers & Rural Appraisers
- “Conservation Issues in Agriculture”, a unit of Course M-25, a 15-hour professional credit Internet educational offering of the American Society of Farm Managers & Rural Appraisers
- “A Primer on Organic Agriculture,” an article in *2006 Trends in Agricultural Land and Lease Values*, a publication of the California Chapter of the American Society of Farm Managers & Rural Appraisers
- “Case Study: Using Indigenous Agroforestry Management Techniques to Support Sustainability in Production Agriculture”, a paper-poster presented at Harlan II, An International Symposium on Biodiversity in Agriculture: Domestication, Evolution and Sustainability, September 14-18, 2008, University of California, Davis

## House Agricultural Consultants Partial Listing of Clients Served

Allied Insurance Group	Morrison & Foerster
American Farmland Trust	San Francisco, California
Balverne Winery & Vineyards	Oakdale Irrigation District
Sonoma County, California	Pajaro Valley Water Management Agency
Bank of America	Watsonville, California
Best, Best & Kreiger, LLP	Phillips 66 Company
Riverside, California	Republic Indemnity Company of America
California Giant Berry Farms	San Francisco, California
California Department of Fish & Game	Royal & Sun Alliance
Wildlife Conservation Board	Sacramento Valley Conservancy
California Department of Justice	Sacramento Valley Farm Credit Banks
City of Davis	San Andreas Farms
City of Fairfield	Fresno County, California
City of Morgan Hill	San Joaquin Council of Governments
City of Sacramento, City Attorney	San Luis Delta Mendota Water Authority
Continental Casualty Company	Sanwa Bank, N.A.
Chicago, Illinois	Sacramento, California
County of Solano	Solano Land Trust
County of Yolo	Stanford Management Company
Downey, Brand, Seymour & Rohwer	Stanford University
Sacramento, California	The Nature Conservancy
Glenn-Colusa Irrigation District	The Prudential Agricultural Group
Hamel Ranch Partnership	Sacramento, California
Davis, California	The Travelers Insurance Company
Harris Farms, Inc.	The Trust for Public Land
Farmers' Home Administration (U.S.D.A.)	U. S. Fish & Wildlife Service
Sacramento, California	U. S. Departments of Justice & Treasury
Internal Revenue Service, District Counsel	University of California, Davis
San Francisco, California	Yolo Land Trust
McMahon-Graf Partners	Wells Fargo Bank, N.A.
Winters, California	

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## EXHIBIT C

Shawn Smallwood, PhD  
3108 Finch Street  
Davis, CA 95616

Jim Minnick, Planning & Development Services Director  
Imperial County Planning & Development Services Department  
801 Main Street  
El Centro, CA 92243

14 November 2024

RE: Dogwood Geothermal

Dear Mr. Minnick,

I write to comment on the analysis of potential project impacts to wildlife that is presented in the Draft Environmental Impact Report (DEIR) that was prepared for the proposed Dogwood Geothermal Project, which I understand would consist of a 25 MW geothermal facility with two-turbine combined cycle binary unit, two double-walled 20,000-gallon above-ground isopentane storage tanks, a cooling tower array, a substation with 128.6 m of eight-foot-tall chain link fence, 22 MW solar PV, an injection well, three geothermal production wells (244 m of fence per well pad), 1.368 km of geothermal fluid production pipeline, and 1.964 km of medium-voltage distribution lines on 106.88 acres. I am concerned that the characterization of the existing environmental setting is grossly deficient and the impacts analysis is incomplete and inaccurate.

G C-1

My qualifications for preparing expert comments are the following. I hold a Ph.D. degree in Ecology from University of California at Davis, where I also worked as a post-graduate researcher in the Department of Agronomy and Range Sciences. My research has been on animal density and distribution, habitat selection, wildlife interactions with the anthroposphere, and conservation of rare and endangered species. I authored many papers on these and other topics. I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and Raptor Research Foundation, and I've lectured part-time at California State University, Sacramento. I was Associate Editor of wildlife biology's premier scientific journal, The Journal of Wildlife Management, as well as of Biological Conservation, and I was on the Editorial Board of Environmental Management. I have performed wildlife surveys in California for thirty-seven years. My CV is attached.

G C-2

#### SITE VISIT

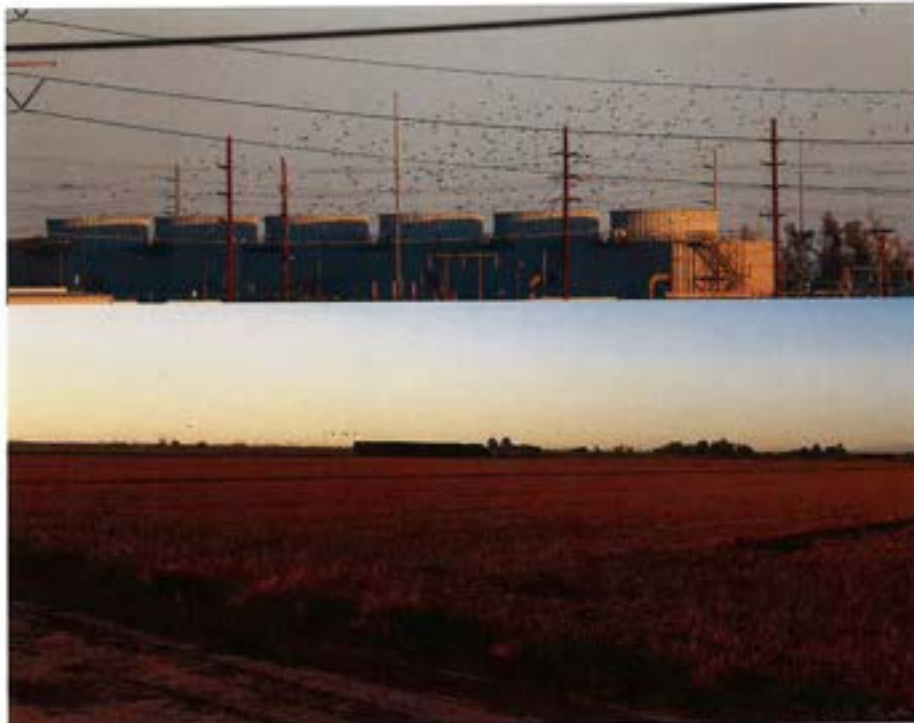
Noriko Smallwood, who is a wildlife biologist with a Master's Degree from California State University Los Angeles, accompanied me during a visual-scan survey visit to the east side of the project site on 4 and 5 September 2024. We visited the site for 2.17 hours starting at 17:20 hours on the 4<sup>th</sup>, and for 3 hours starting at 05:59 hours on the 5<sup>th</sup>. We visually scanned the site with the aid of binoculars for 5.17 hours total. Starting at 19:28 hours on the 4<sup>th</sup>, we also performed a 1.5-hour bat survey using Sonobat software connected to a Petterson D500 bat detector mounted 28 feet above ground.

G C-3

We recorded all species of vertebrate wildlife we detected, including those whose members flew over the site or were seen nearby, off the site. Animals of uncertain species identity were either omitted or, if possible, recorded to the Genus or higher taxonomic level.

G C-3  
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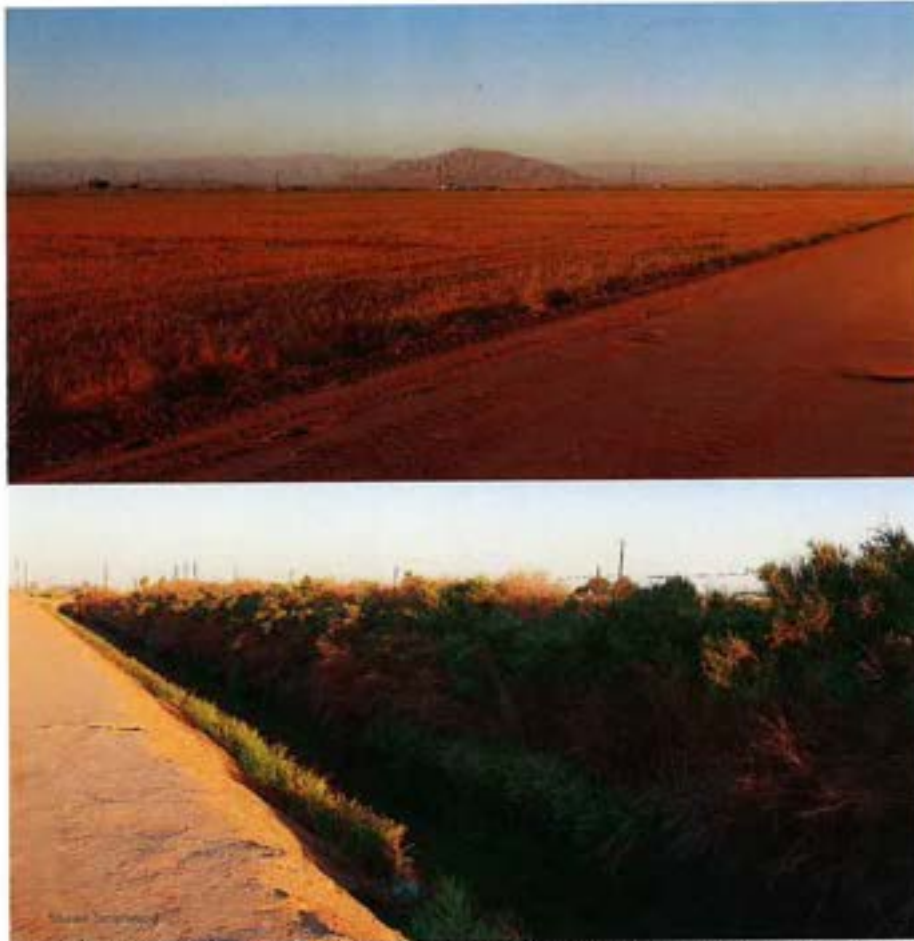
Conditions were clear both days, and 112° to 103° F as the day cooled into evening with no wind on the 4th, and 84° to 98° F as the day warmed with no wind on the 5<sup>th</sup>. The site proposed for the project includes a portion of the Heber 2 project site (Photo 1) as well as fields currently in alfalfa, which was mowed and cleared of hay and in between irrigation (Photos 2–3). Abutting the alfalfa were Dogwood Canal north of Willoughby Road and Beech Drain, the latter of which is lined with arrow weed and other wetland-adapted plants (Photo 4). Arrow weed thicket is a sensitive natural community ranked by CDFW as S3.



**Photos 1 and 2.** A view toward the Heber 2 project site, where the Dogwood Geothermal facility would be built just north of the structures seen here (top), and alfalfa where utility-scale solar PV arrays are proposed (bottom), 5 September 2024. Note the many birds flying over the site in both photos.

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G C-3  
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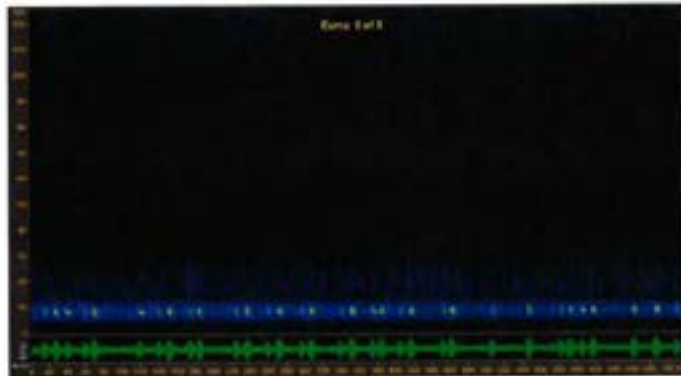
**Photos 3 and 4.** Alfalfa where solar PV panels are proposed (top), just south of Beech Drain, which is lined with thick stands of arrow weed and other wetland-adapted plants (bottom), 5 September 2024. Note the round-tailed ground squirrel on the right side of the top photo. This and many other burrows were plenty large enough to accommodate burrowing owls.

We saw evidence of ecological keystone species, which are species whose presence disproportionately supports the likelihoods of occurrence of other species of wildlife. Photos of some of these and other species appear in the **Appendix** at the end of this letter. Examples of ecological keystone species included harvester ants (Photo 5), round-tailed ground squirrels (Photo 6), and Botta's pocket gophers. We saw many birds making dual use of the alfalfa fields and Beech Drain and Dogwood Canal (Photos 7–11), and many birds flying into the arrow weed-lined Beech Drain (Photo 12). We saw white-faced ibises and mallards (Photos 13 and 14), black-necked stilts (Photos 15 and 16), cattle egrets and snowy egrets (Photos 17 and 18), great egrets, double-crested cormorants and killdeer (Photos 19–21), muskrat and blue grosbeaks (Photos 22 and 23), great-tailed grackles and orange-crowned warblers (Photos 24 and 25), common yellowthroats, Brewer's sparrows and savannah sparrows (Photos 26 and 27), lazuli buntings and black phoebes (Photos 28 and 29), hundreds of red-winged blackbirds including hundreds of juveniles (Photos 30 and 31), and fledgling verdin (Photo 32). We also saw thousands of small fish in Beech Drain, and some very large fish in Dogwood Canal. People fished Dogwood Canal both day and night while we were there.

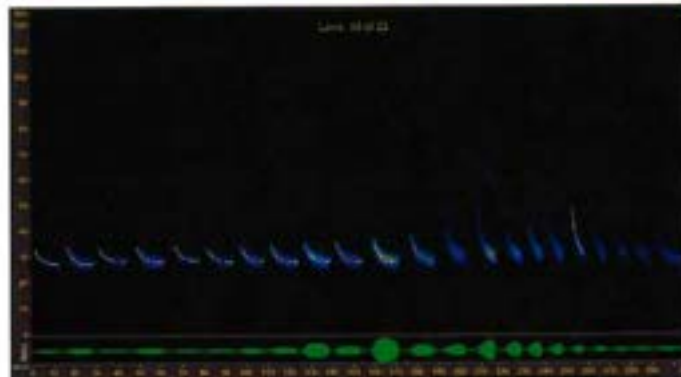
During our 90-minute bat survey, we recorded 33 calling passes, 20 of which were indefinite to species, nine were spotted bat (Figure 1), two were silver-haired bat (Figure 2), and two were Mexican free-tailed bat (Figure 3).

The channelized wetlands of Dogwood Canal and Beech Drain attract many wild birds and mammals, and provide cover for lizards as well. Many birds on these wetlands feed on fish or aquatic arthropods, and many travel back and forth to the upland portions of the project site. Over our morning, evening and nocturnal surveys, we detected 53 species of terrestrial vertebrate wildlife, including nine special-status species (Table 1). Including our survey results from two nearby project sites known as Heber 1 and Cal 98, only 0.5 and 1.6 miles away, respectively, we detected 90 species of terrestrial vertebrate wildlife, and including Monarch we detected 23 special-status species (Table 1).

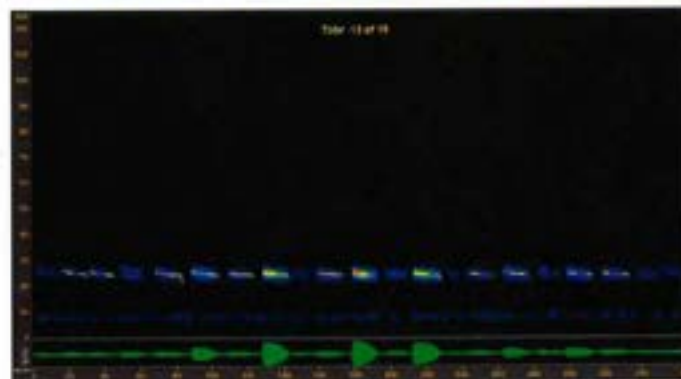
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**Figure 1.** Spotted bat call recorded by Sonobat on the Dogwood Project site, 4 September 2024.



**Figure 2.** Silver-haired bat call recorded by Sonobat on the Dogwood Project site, 4 September 2024.



**Figure 3.** Mexican free-tailed bat call recorded by Sonobat on the Dogwood Project site, 4 September 2024.

G C-3  
cont'd



**Table 1. Species of wildlife Noriko and I observed during 3.67 hours on 4 September 2024 and 3 hours on 5 September 2024 on the project site, during 4.33 hours on 11-12 December 2021, 0.75 hours on 4 February 2022, and 2.25 hours on 1 November 2023 at the Heber 1 site, and during 2.8 hours on 28 April 2024 and 3.42 hours on 29 April 2024 at the Cal 98 site.**

Common name	Species name	Status <sup>1</sup>	Heber 1	Cal 98	Dogwood	Notes
Harvester ant	<i>Pogonomyrmex</i>				X	Many colonies
Small checkered skipper	<i>Pyrgus scriptura</i>				X	
Monarch	<i>Danaus plexippus</i>	FC		X		
American bullfrog	<i>Lithobates catesbeianus</i>	Non-native			X	Called from canals
Western side-blotched lizard	<i>Uta stansburiana</i>				X	
Canada goose	<i>Branta canadensis</i>				x	Near Cal 98 site
Blue-winged teal	<i>Spatula discors</i>				X	Beech Drain
Mallard	<i>Anas platyrhynchos</i>			X	X	Beech Drain
Gambel's quail	<i>Callipepla gambelii</i>			X		
Rock pigeon	<i>Columba livia</i>	Non-native	X	X		
Eurasian collared-dove	<i>Streptopelia decaocto</i>	Non-native	X	X	X	
Common ground dove	<i>Columbina passerina</i>		X			
White-winged dove	<i>Zenaida asiatica</i>		X	X	X	Many
Mourning dove	<i>Zenaida macroura</i>		X	X	X	Many
Greater roadrunner	<i>Geococcyx californianus</i>				X	Tracks
Lesser nighthawk	<i>Chordeiles acutipennis</i>			X		
Anna's hummingbird	<i>Calypte anna</i>			X		
Costa's hummingbird	<i>Calypte costae</i>	BCC		X		
Common gallinule	<i>Gallinula galeata</i>				X	Beech Drain
American coot	<i>Fulica americana</i>		X			
Black-necked stilt	<i>Himantopus mexicanus</i>				X	Many
Killdeer	<i>Charadrius vociferus</i>		X	X	X	
Plover					X	
Whimbrel	<i>Numenius phaeopus</i>	BCC		X		
Long-billed curlew	<i>Numenius americanus</i>	TWL		X		
Ring-billed gull	<i>Larus delawarensis</i>		X			
California gull	<i>Larus californicus</i>	BCC, TWL	X			
Herring gull	<i>Larus argentatus</i>			X		

Common name	Species name	Status <sup>1</sup>	Heber 1	Cal 98	Dogwood	Notes
Iceland gull (Thayer's)	<i>Larus glaucoideus thayeri</i>		X			
Caspian tern	<i>Hydroprogne caspia</i>			X		
Forster's tern	<i>Sterna forsteri</i>		X			
Double-crested cormorant	<i>Nannopterum auritum</i>	TWL		X	X	
Great blue heron	<i>Ardea herodias</i>			X		
Great egret	<i>Ardea alba</i>		X	X	X	Many
Snowy egret	<i>Egretta thula</i>		X		X	Many
Cattle egret	<i>Bubulcus ibis</i>		X	X	X	With juvenile, Beech Drain
Green heron	<i>Butorides virescens</i>				X	Beech Drain
Black-crowned night-heron	<i>Nycticorax nycticorax</i>				X	Many
White-faced ibis	<i>Plegadis chihli</i>	TWL	X		X	
Turkey vulture	<i>Cathartes aura</i>	BOP	X	X	X	
Northern harrier	<i>Circus cyaneus</i>	BCC, SSC3, BOP	X			
Cooper's hawk	<i>Accipiter cooperii</i>	TWL, BOP	X			
Swainson's hawk	<i>Buteo swainsoni</i>	CT, BOP	X			
Red-tailed hawk	<i>Buteo jamaicensis</i>	BOP	X			
Great horned owl	<i>Bubo virginianus</i>	BOP		X		
Burrowing owl	<i>Athene cunicularia</i>	BCC, SSC2, BOP			X	Three observed
American kestrel	<i>Falco sparverius</i>	BOP	X	X	X	Hunted over alfalfa
Peregrine falcon	<i>Falco peregrinus</i>	BOP	X			
Prairie falcon	<i>Falco mexicanus</i>	TWL, BOP	X			
Monk parakeet	<i>Myiopsitta monachus</i>	Non-native		X		
Cassin's kingbird	<i>Tyrannus vociferans</i>			X		
Western kingbird	<i>Tyrannus verticalis</i>			X		
Black phoebe	<i>Sayornis nigricans</i>		X		X	
Loggerhead shrike	<i>Lanius ludovicianus</i>	SSC2	X			
Common raven	<i>Corvus corax</i>		X	X	X	Juvenile at Beech Drain
Verdin	<i>Auriparus flaviceps</i>	BCC	X	X	X	
Tree swallow	<i>Tachycineta bicolor</i>			X		
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>				X	

Common name	Species name	Status <sup>1</sup>	Heber 1	Cal 98	Dogwood	Notes
Barn swallow	<i>Hirundo rustica</i>			X	X	
Cliff swallow	<i>Petrochelidon pyrrhonota</i>			X	X	
Northern mockingbird	<i>Mimus polyglottos</i>		X	X		
European starling	<i>Sturnus vulgaris</i>	Non-native	X	X	X	
House finch	<i>Haemorphous mexicanus</i>			X		
American goldfinch	<i>Spinus tristis</i>		X			
Brewer's sparrow	<i>Spizella breweri</i>				X	Beech Drain
White-crowned sparrow	<i>Zonotrichia leucophrys</i>		X			
Savannah sparrow	<i>Passerculus sandwichensis</i>		X		X	
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC3	X			
Western meadowlark	<i>Sturnella neglecta</i>		X	X	X	
Hooded oriole	<i>Icterus cucullatus</i>				X	Beech Drain
Red-winged blackbird	<i>Agelaius phoeniceus</i>		X	X	X	Large flocks low over site
Brown-headed cowbird	<i>Molothrus ater</i>		X			
Brewer's blackbird	<i>Euphagus cyanocephalus</i>		X		X	
Great-tailed grackle	<i>Quiscalus mexicanus</i>		X	X	X	Large flocks low over site
Orange-crowned warbler	<i>Oreothlypis celata</i>				X	Beech Drain
Common yellowthroat	<i>Geothlypis trichas</i>	Possible SSC2		X	X	Beech Drain
Yellow warbler or Wilson's warbler	<i>Setophaga petechia</i> or <i>Wilsonia pusilla</i>					
Yellow-rumped warbler	<i>Setophaga coronata</i>		X			
Western tanager	<i>Piranga ludoviciana</i>			X		
Blue grosbeak	<i>Passerina caerulea</i>				X	Beech Drain
Lazuli bunting	<i>Passerina amoena</i>	WBWG:M		X	X	
Silver-haired bat	<i>Lasiorycteris noctivagans</i>					
Spotted bat	<i>Euderma maculatum</i>	SSC, WBWG:H			X	

Common name	Species name	Status <sup>1</sup>	Heber 1	Cal 98	Dogwood	Notes
Mexican free-tailed bat	<i>Tadarida brasiliensis</i>	WBWG:L		X	X	
Desert cottontail	<i>Sylvilagus audubonii</i>		X	X		
Round-tailed ground squirrel	<i>Xerospemophilus tereticaudus</i>				X	
American badger	<i>Taxidea taxus</i>	SSC			X	Claw marks in burrow
Virginia opossum	<i>Didelphis virginiana</i>	Non-native			X	Tracks
Coyote	<i>Canis latrans</i>		X	X	X	Tracks
Muskrat	<i>Ondatra zibethicus</i>				X	Beech Drain
Kangaroo rat	<i>Dipodomys sp.</i>				X	Burrows
California vole	<i>Microtus californicus</i>			X	X	Burrows
Botta's pocket gopher	<i>Thomomys bottae</i>		X	X	X	Burrows

<sup>1</sup> Listed as FT or FE = federal threatened or endangered, CT or CE = California threatened or endangered, CFP = California Fully Protected (CPG Code 3511), SSC = California Species of Special Concern, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, TWL = Taxa to Watch List (Shuford and Gardali 2008), BOP = Birds of Prey (California Fish and Game Code 3503.5), and WBWG = Western Bat Working Group with priority rankings, of low (L), moderate (M), and high (H).



## EXISTING ENVIRONMENTAL SETTING

The first step in analysis of potential project impacts to biological resources is to accurately characterize the existing environmental setting, including the biological species that use the site, their relative abundances, how they use the site, key ecological relationships, and known and ongoing threats to those species with special status. A reasonably accurate characterization of the environmental setting can provide the basis for determining whether the site holds habitat value to wildlife, as well as a baseline against which to analyze potential project impacts. For these reasons, characterization of the environmental setting, including the project site's regional setting, is one of CEQA's essential analytical steps. Methods to achieve this first step typically include (1) surveys of the site for biological resources, and (2) reviews of literature, databases and local experts for documented occurrences of special-status species. In the case of the proposed project, these needed steps were not completed.

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### Environmental Setting informed by Field Surveys

To CEQA's primary objective to disclose potential environmental impacts of a proposed project, the analysis should be informed of which biological species are known to occur at the proposed project site, which special-status species are likely to occur, as well as the limitations of the survey effort directed to the site. Analysts need this information to characterize the environmental setting as a basis for opining on, or predicting, potential project impacts to biological resources.

G C-5

Catalyst's (2024) field survey of 21 February 2023 blended objectives of reconnaissance and a focus on burrowing owls – a blend that can never be achieved when one of the survey objectives includes a focus on one species. According to Catalyst (2024: 1-1), "The purpose of the field survey was to characterize existing biological communities and to determine if suitable habitat for special status plant and animal species is present, including a survey protocol specific to burrowing owl (*Athene cunicularia*).” Additional stated objectives were "to photograph and document the general habitat present on the site as well as to record wildlife and vegetation observed..." The surveys were pedestrian with use of binoculars and a search for sign such as pellets and whitewash of burrowing owls at burrows. Regardless of how the survey was performed, a focused survey for burrowing owls would not have left much surveyor bandwidth for reconnaissance, and likewise a reconnaissance survey would interfere with the focus needed for a burrowing owl survey.

G C-6

Making matters worse, Catalyst (2024) followed the wrong survey guidelines. According to Catalyst (2024: 2-2), "The California Department of Fish and Wildlife (CDFW) generally requires protocol surveys for burrowing owls that are consistent with the California Burrowing Owl Consortium (CBOC) Survey Protocol and Mitigation Guidelines (CBOC 1993)." This statement is in accurate. CDFW recommends use of the CDFW (2012) survey guidelines. Catalyst (2024) did not conduct its burrowing owl survey in accordance with the CDFW (2012) guidelines, nor did it even meet the minimum standards of the CBOC guidelines.

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Catalyst's biologists searched for sign of burrowing owl presence at ground squirrel burrows. However, this approach was unreliable in February, before male members of breeding pairs stand guard at or near nest sites. Also, burrowing owls do not concentrate their pellets and whitewash at particular burrows during the non-breeding season, making it very difficult to determine which burrows are in use. Furthermore, Catalyst's approach of determining burrow occupancy based on the diameter of the tunnel entrance is of dubious reliability, especially before burrowing owls have committed to nest sites. Burrowing owls are perfectly capable of reaming burrows that are initially too narrow, and I have often seen burrowing owls digging out burrows to expand them for their use.

Moreover, Noriko and I saw many burrows that were large enough for burrowing owls to use. We also saw three burrowing owls on site, two at one location, and the third at a second location. Burrowing owls are present. Protocol-level breeding-season surveys consistent with the CDFW (2012) guidelines are needed to determine the number of burrowing owls and burrowing owl nest sites on the project site.

Catalyst (2024) assumed burrowing owl habitat is present, so its biologists combined Phases I and II of the outdated survey protocol into the same 21 February 2023 survey. Catalyst (2024: 2-2) then concluded "As no burrowing owl or sign was observed during the Phase II survey, Phase III nesting-season surveys were not conducted." This conclusion was inconsistent with the standards of the CDFW (2012) survey and mitigation guidelines, as explained below.

There are three types of surveys recommended and described in the CDFW's (2012) survey and mitigation guidelines: (1) Habitat assessment, (2) Detection surveys, and (3) Preconstruction survey. The habitat assessment is intended to evaluate the likelihood that the site supports burrowing owls, and to decide whether detection surveys should be performed. The detection surveys, otherwise described as either or both breeding-season or non-breeding-season surveys, are intended to detect whether the site actually does support burrowing owls, and if so where and how many. The preconstruction survey, otherwise known as a take-avoidance survey, is intended to determine whether burrowing owls immigrated to the site since completion of the detection survey, or returned to the site since passive or active relocations were performed as mitigation. The three types of survey carry distinct but inter-related purposes, and they are to be completed in chronological order.

The first two types of survey support impacts analysis, whereas the third type of survey is a mitigation measure. Burrowing owls can be determined absent based on evidence derived either from the habitat assessment or from the detection survey, but only if the surveys achieved the minimum standards of CDFW (2012). Whereas an absence determination naturally follows from the negative findings of properly performed detection surveys, the following three questions must be answered negatively to determine absence based on the habitat assessment:

- A) Are there occurrence records nearby the project site?
- B) Is the site's vegetation cover and height typical of where burrowing owls are found?



C) Are there fossorial mammals present which typically construct burrows useable by burrowing owls, or are there surrogate cavities that can serve as nest sites?

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If the answers to these questions are compellingly negative, then detection surveys are not necessary, but they could be implemented to make certain the site is absent of burrowing owls. If the answers to these questions are affirmative or not compellingly negative, then it should be assumed that burrowing owl habitat exists on the site until detection surveys prove otherwise.

To question A, there are many burrowing owl occurrence records near the project site, five of which are within 1.74 miles of the site and one of which is only 1.2 miles from the site (see online occurrence databases eBird and iNaturalist). Noriko and I have seen burrowing owls nearby as well, and during our site visit we saw three burrowing owls directly on the project site.

To question B, the ground cover and irrigation infrastructure of the site is typical of the area, and is typical of ground cover and irrigation infrastructure often used by burrowing owls in the Imperial Valley. And as I noted earlier, Catalyst (2024) assumes the site is burrowing owl habitat.

To question C, both Catalyst and Noriko and I observed round-tailed ground squirrels on the project site. Noriko and I additionally found a badger-reamed squirrel burrow on site. Ground squirrels construct burrows used by burrowing owls, and ground squirrels and burrowing owls mutually alarm-call for predators and survive better together (K. S. Smallwood, unpublished data).

The answers to all three habitat assessment questions are affirmative. Detection surveys for burrowing owls are warranted. Adding to the need to perform detection surveys, burrowing owls have rapidly declined throughout California. The decline has been so rapid and so substantial that a lot of effort was directed toward the preparation of a listing petition, which was submitted to the California Fish and Game Commission (Miller 2024). CDFW (2024) staff endorsed the petition, which was considered at a Hearing scheduled for 10 October 2024. On October 15, 2024, CDFW issued a notice accepting the listing petition for consideration and designating western burrowing owl as a candidate species as defined by Section 2068 of the Fish and Game Code.<sup>1</sup> If the project goes forward without having properly implemented the CDFW (2012) burrowing owl survey and mitigation guidelines, it would likely cause unmitigated negative impacts to burrowing owls. Detection surveys need to be completed prior to the public circulation of the CEQA document so that the CEQA document includes the results of the surveys.

More generally to the reconnaissance survey, Catalyst (2024) fails to report its survey start time and its survey duration. Failure to report these essential survey attributes fails to meet the minimum reporting standards of CDFW (2012). It also fails to inform the reader of the most essential information needed to interpret the findings of the

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<sup>1</sup> <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=227089&inline>

reconnaissance survey. Catalyst's biologists detected 29 species of vertebrate wildlife during their reconnaissance survey, which are more species than I usually see reported from such surveys in Imperial County. However, without knowing the survey details, it is impossible for me to put their findings into context of survey effort.

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Catalyst's biologists detected 12 species of vertebrate wildlife that we did not, whereas we detected 26 species that they did not. Overall, we detected nearly twice the number of species of vertebrate wildlife as compared to Catalyst, but again it is impossible to know what this means without knowing what time of day and for how long the Catalyst biologists worked. Nonetheless, between our two surveys, 65 species of vertebrate wildlife were detected at the project site.

Lastly, I must point out that Catalyst performed no surveys for bats. The geographic ranges of many bat species overlap the project site, so acoustic detection surveys, mist-netting, or use of a thermal-imaging camera was warranted. But no survey was implemented.

#### **Environmental Setting informed by Desktop Review**

The purpose of literature and database review and of consulting with local experts is to inform the field survey, and to augment interpretation of its outcome. Analysts need this information to identify which species are known to have occurred at or near the project site, and to identify which other special-status species could conceivably occur at the site due to geographic range overlap and migration flight paths.

G C-9

By not reviewing eBird or iNaturalist for online records of species occurrences, Catalyst (2024) performed a relatively weak desktop review. Catalyst (2024) reviewed only iPAC and the California Natural Diversity Data Base (CNDDB), but it is unclear how far its queries extended from the project site. The Quadrangles that turn up in Catalyst's query results include Heber, El Centro, Calexico, Mount Signal; otherwise the scope of query is not reported). Regardless, by relying on the CNDDB query, Catalyst (2024) screened out many special-status species from further consideration in the characterization of the wildlife community as part of the existing environmental setting. CNDDB is not designed to support absence determinations or to screen out species from characterization of a site's wildlife community. As noted by the CNDDB, "*The CNDDB is a positive sighting database. It does not predict where something may be found. We map occurrences only where we have documentation that the species was found at the site. There are many areas of the state where no surveys have been conducted and therefore there is nothing on the map. That does not mean that there are no special status species present.*" Catalyst (2024) and the DEIR misused CNDDB.

The CNDDB relies entirely on volunteer reporting from biologists who were allowed access to whatever properties they report from. Many properties have never been surveyed by biologists. Many properties have been surveyed, but the survey outcomes never reported to the CNDDB. Many properties have been surveyed multiple times, but not all survey outcomes reported to the CNDDB. Furthermore, the CNDDB is interested only in the findings of special-status species, which means that species more recently

assigned special status will have been reported many fewer times to CNDDDB than were species assigned special status since the inception of the CNDDDB. The lack of many CNDDDB records for species recently assigned special status had nothing to do with whether the species' geographic ranges overlapped the project site, but rather more to do with the brief time for records to have accumulated since the species were assigned special status. And because negative findings are not reported to the CNDDDB, the CNDDDB cannot provide the basis for estimating occurrence likelihoods, either.

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In my assessment based on database reviews and site visits, 121 special-status species of wildlife are known to occur near enough to the site to warrant analysis of occurrence potential (Table 2). Of these species, 13 (11%) were recorded on the project site, and another 10 (8%) species have been documented within 1.5 miles of the site ('Very close'), another 20 (17%) within 1.5 and 4 miles ('Nearby'), and another 71 (59%) within 4 to 30 miles ('In region'). More than a third (36%) of the species in Table 2 have been reportedly seen within 4 miles of the project site. The site therefore supports multiple special-status species of wildlife and carries the potential for supporting many more special-status species of wildlife based on proximity of recorded occurrences. The site is far richer in special-status species than is characterized in Catalyst (2024) and the DEIR.

Catalyst (2024) fails to analyze occurrence likelihoods of special-status species, leaving the analysis to the author of the DEIR. The DEIR analyzes the occurrence likelihoods of only 13 (11%) of the species in Table 2, having omitted from the analysis 108 (89%) of the species in Table 2. Of the species omitted from the DEIR's analysis, five have been recorded on the project site, nine have been recorded within 1.5 miles of the site, 17 have been recorded within four miles of the site, and 63 have been recorded between 4 and 30 miles of the site. Of the 13 species analyzed for occurrence likelihood in the DEIR, only one is determined to have moderate potential to occur, and the rest are reported to have no potential to occur. The species assigned moderate potential is burrowing owl, and we confirmed that it does occur on the project site. (Catalyst (2024:4-1) determines burrowing owls have only a low likelihood of occurrence, but the DEIR upgrades the likelihood to moderate.) Of the 12 species in Table 2 that the DEIR gives no likelihood of occurrence, occurrence records place one within 1.5 miles, three between 1.5 and 4 miles of the site, and eight between 4 and 30 miles from the site. On the whole, the DEIR's analyses of occurrence likelihoods are too inaccurate to serve as a baseline for performing impacts analysis.

Particularly troubling is the DEIR's determination that bats have no potential to occur at the project site. Catalyst's CNDDDB query turned up occurrence records of big free-tailed bat, pocketed free-tailed bat, and western yellow bat, all three species of which the DEIR specifically determines to have no potential to occur. The DEIR determines that no bats have the potential to occur, which is readily refuted by Catalyst's reported occurrence records and by our survey of the project site. While it was still light and before we began our bat survey, a large bat flew right by us at eye-level. Not only did we detect three species of bats acoustically, but one of the species – Silver-haired bat – is rated as Moderate level of conservation concern by the Western Bat Working Group, and another – spotted bat – is a California Species of Special Concern and rated as High

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level of conservation concern by the Western Bat Working Group. It is very rare. As of 16 September 2024, iNaturalist includes only five records of spotted bats in California. We also detected 33 bat passes within 30 feet of our detector and within 90 minutes of survey, or one pass every 2 minutes and 43 seconds on average. The DEIR has no evidentiary basis for determining the absence of bats.

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**Table 2.** Occurrence likelihoods of special-status bird species at or near the proposed project site, according to eBird/iNaturalist records (<https://eBird.org>, <https://www.inaturalist.org>) and on-site survey findings, where 'Very close' indicates within 1.5 miles of the site, 'nearby' indicates within 1.5 and 4 miles, and 'in region' indicates within 4 and 30 miles, and 'in range' means the species' geographic range overlaps the site. Entries in bold font identify species we detected.

Common name	Species name	Status <sup>1</sup>	DEIR occurrence likelihood	Data base records, Site visits
Monarch	<i>Danaus plexippus</i>	FC	None	Nearby
Desert pupfish	<i>Cyprinodon macularius</i>	FE, CE		In region
Mojave desert tortoise	<i>Gopherus agassizii</i>	FT, CT		In region
Couch's spadefoot	<i>Scaphiopus couchii</i>	SSC		In region
Flat-tailed horned lizard	<i>Phrynosoma mcallii</i>	SSC	None	In region
Lowland leopard frog	<i>Lithobates yanapaisensis</i>	SSC		In range
Colorado Desert fringe-toed lizard	<i>Uma notata</i>	SSC		In region
Fulvous whistling-duck	<i>Dendrocygna bicolor</i>	SSC1		In region
Brant	<i>Branta bernicla</i>	SSC2		In region
Cackling goose (Aleutian)	<i>Branta hutchinsii leucopareia</i>	WL		In region
Redhead	<i>Aythya americana</i>	SSC2		In region
Barrow's goldeneye	<i>Bucephala islandica</i>	SSC		In region
Western grebe	<i>Aechmophorus occidentalis</i>	BCC	None	In region
Clark's grebe	<i>Aechmophorus clarkii</i>	BCC		In region
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	FT, CE, BCC		In region
Black swift	<i>Cypseloides niger</i>	SSC3, BCC		In region
Vaux's swift	<i>Chaetura vauxi</i>	SSC2, BCC	Nearby	Nearby
Costa's hummingbird	<i>Calypte costae</i>	BCC	None	Nearby
Rufous hummingbird	<i>Selasphorus rufus</i>	BCC		Nearby
Allen's hummingbird	<i>Selasphorus sasin</i>	BCC		In region
Yuma Ridgway's rail	<i>Rallus obsoletus yumanensis</i>	FE, CT, CFP	None	In region
Lesser sandhill crane	<i>Antigone canadensis canadensis</i>	SSC3		In region
American avocet	<i>Recurvirostra americana</i>	BCC		In region
Mountain plover	<i>Charadrius montanus</i>	SSC2, BCC		In region
Snowy plover	<i>Charadrius nivosus</i>	BCC		In region

Common name	Species name	Status <sup>a</sup>	DEIR occurrence likelihood	Data base records, Site visits
Whimbrel	<i>Numenius phaeopus</i>	BCC	Observed	Nearby
Long-billed curlew	<i>Numenius americanus</i>	WL		On site, Nearby
Marbled godwit	<i>Limosa fedoa</i>	BCC		In region
Red knot (Pacific)	<i>Calidris canutus</i>	BCC		In region
Short-billed dowitcher	<i>Limnodromus griseus</i>	BCC		In region
Willet	<i>Tringa semipalmata</i>	BCC		In region
Laughing gull	<i>Leucophaea atricilla</i>	WL		In region
Heermann's gull	<i>Larus heermanni</i>	BCC		In region
Western gull	<i>Larus occidentalis</i>	BCC		In region
California gull	<i>Larus californicus</i>	BCC, WL		Very close
California least tern	<i>Sterna antillarum browni</i>	FE, CE, FP		In region
Gull-billed tern	<i>Gelochelidon nilotica</i>	BCC, SSC3		In region
Black tern	<i>Chlidonias niger</i>	SSC2, BCC		In region
Elegant tern	<i>Thalasseus elegans</i>	BCC, WL		In region
Black skimmer	<i>Rynchops niger</i>	BCC, SSC3		In region
Common loon	<i>Gavia immer</i>	SSC		In region
Wood stork	<i>Mycteria americana</i>	SSC1		In region
Double-crested cormorant	<i>Phalacrocorax auritus</i>	WL		On site
American white pelican	<i>Pelecanus erythrorhynchos</i>	SSC1, BCC		Nearby
California brown pelican	<i>Pelecanus occidentalis californicus</i>	CFP		In region
Least bittern	<i>Ixobrychus exilis</i>	SSC2		In region
White-faced ibis	<i>Plegadis chihi</i>	WL	Observed	On site
Turkey vulture	<i>Cathartes aura</i>	BOP	Observed	On site
Osprey	<i>Pandion haliaetus</i>	WL, BOP		Nearby
White-tailed kite	<i>Elanus leucurus</i>	CFP, BOP	Observed	On site
Golden eagle	<i>Aquila chrysaetos</i>	BGEPA, CFP, BOP, WL		In region
Northern harrier	<i>Circus cyaneus</i>	BCC, SSC3, BOP	Observed	On site
Sharp-shinned hawk	<i>Accipiter striatus</i>	WL, BOP		Nearby
Cooper's hawk	<i>Accipiter cooperii</i>	WL, BOP		Very close



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Common name	Species name	Status <sup>1</sup>	DEIR occurrence likelihood	Data base records, Site visits
Bald eagle	<i>Haliaeetus leucocephalus</i>	CE, BGEPA, CFP		In region
Red-shouldered hawk	<i>Buteo lineatus</i>	BOP		Nearby
Swainson's hawk	<i>Buteo swainsoni</i>	CT, BOP		Very close
Red-tailed hawk	<i>Buteo jamaicensis</i>	BOP	Observed	On site
Ferruginous hawk	<i>Buteo regalis</i>	WL, BOP		Nearby
Zone-tailed hawk	<i>Buteo albonotatus</i>	BOP		Nearby
Harris' hawk	<i>Parabuteo unicinctus</i>	WL, BOP		In region
Rough-legged hawk	<i>Buteo lagopus</i>	BOP		In region
Barn owl	<i>Tyto alba</i>	BOP		Very close
Western screech-owl	<i>Megascops kennicottii</i>	BOP		In region
Great horned owl	<i>Bubo virginianus</i>	BOP	Nearby	Nearby
Burrowing owl	<i>Athene cunicularia</i>	BCC, SSC2, BOP	Moderate	On site
Long-eared owl	<i>Asio otus</i>	BCC, SSC3, BOP		In region
Short-eared owl	<i>Asia flammeus</i>	BCC, SSC3, BOP		In region
Lewis's woodpecker	<i>Melanerpes lewis</i>	BCC		In region
American kestrel	<i>Falco sparverius</i>	BOP	Observed	On site
Merlin	<i>Falco columbarius</i>	WL, BOP		In region
Gila woodpecker	<i>Melanerpes uropygialis</i>	CE, BCC	None	Nearby
Peregrine falcon	<i>Falco peregrinus</i>	BOP		Very close
Prairie falcon	<i>Falco mexicanus</i>	WL, BOP		Very close
Olive-sided flycatcher	<i>Contopus cooperi</i>	BCC, SSC2		Nearby
Willow flycatcher	<i>Empidonax traillii</i>	CE		Nearby
Southwestern willow flycatcher				In range
Vermillion flycatcher	<i>Pyrocephalus rubinus</i>	SSC2		Very close
Least Bell's vireo	<i>Vireo bellii pusillus</i>	FE, CE		In region
Gray vireo	<i>Vireo vicinior</i>	SSC2, BCC		In region
Loggerhead shrike	<i>Lanius ludovicianus</i>	SSC2		Very close
Verdin	<i>Auriparus flaviceps</i>	BCC		On site
Bank swallow	<i>Riparia riparia</i>	CT		In region

Common name	Species name	Status <sup>a</sup>	DEIR occurrence likelihood	Data base records, Site visits
Purple martin	<i>Progne subis</i>	SSC2		In region
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	WL		Nearby
Bendire's thrasher	<i>Toxostoma bendirei</i>	SSC3, BCC		In region
LeConte's thrasher	<i>Toxostoma lecontei</i>	SSC1, BCC		In region
Crissal thrasher	<i>Toxostoma crissale</i>	SSC3		In region
Cassin's finch	<i>Haemorhous cassinii</i>	BCC		In region
Lawrence's goldfinch	<i>Spinus lawrencei</i>	BCC		In region
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC2		In region
Black-chinned sparrow	<i>Spizella atrogularis</i>	BCC		In region
Gray-headed junco	<i>Junco hyemalis caniceps</i>	WL		In region
	<i>Passerculus sandwichensis</i>			In region
Large-billed savannah sparrow	<i>rostratus</i>	SSC2		
Yellow-breasted chat	<i>Icteria virens</i>	SSC3		In region
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC3		<b>Very close</b>
Bullock's oriole	<i>Icterus bullockii</i>	BCC		Nearby
Tricolored blackbird	<i>Agelaius tricolor</i>	CT, BCC, SSC1	None	In region
Lucy's warbler	<i>Leiothlypis luciae</i>	SSC3, BCC		Nearby
Virginia's warbler	<i>Leiothlypis virginiae</i>	WL, BCC		Nearby
Yellow warbler	<i>Setophaga petechia</i>	SSC2	None	Very close
Summer tanager	<i>Piranga rubra</i>	SSC1		Nearby
California leaf-nosed bat	<i>Macrotus californicus</i>	WBWG:H		In region
Pallid bat	<i>Antrozous pallidus</i>	SSC, WBWG:H		In region
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	SSC, WBWG:M		In range
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SSC, WBWG:H		In range
Silver-haired bat	<i>Lasionycteris noctivagans</i>	WBWG:M		<b>On site</b>
Spotted bat	<i>Eudernia maculatum</i>	SSC, WBWG:H		<b>On site</b>
Western red bat	<i>Lasiurus blossevillii</i>	SSC, WBWG:H		In region
Hairy bat	<i>Lasiurus cinereus</i>	WBWG:M		In region
Western yellow bat	<i>Lasiurus xanthinus</i>	SSC, WBWG:H	None	In region

Common name	Species name	Status <sup>a</sup>	DEIR occurrence likelihood	Data base records, Site visits
Western small-footed myotis	<i>Myotis ciliabrum</i>	WBWG:M		In range
Miller's myotis	<i>Myotis evotis</i>	WBWG:M		In range
Western mastiff bat	<i>Eumops perotis</i>	SSC, WBWG:H	None	In region
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>	SSC, WBWG:M	None	In region
Big free-tailed bat	<i>Nyctinomops macrotis</i>	SSC, WBWG:MH	None	In region
Palm Springs pocket mouse	<i>Perognathus longimembris bangsi</i>	SSC		In region
Los Angeles pocket mouse	<i>Perognathus longimembris breviusculus</i>	SSC		In region
American badger	<i>Taxidea taxus</i>	SSC		<b>On site</b>
Desert bighorn sheep	<i>Ovis canadensis nelsoni</i>	CFP		In region
Yuma hispid cotton rat	<i>Sigmodon hispidus eremicus</i>	SSC		In range

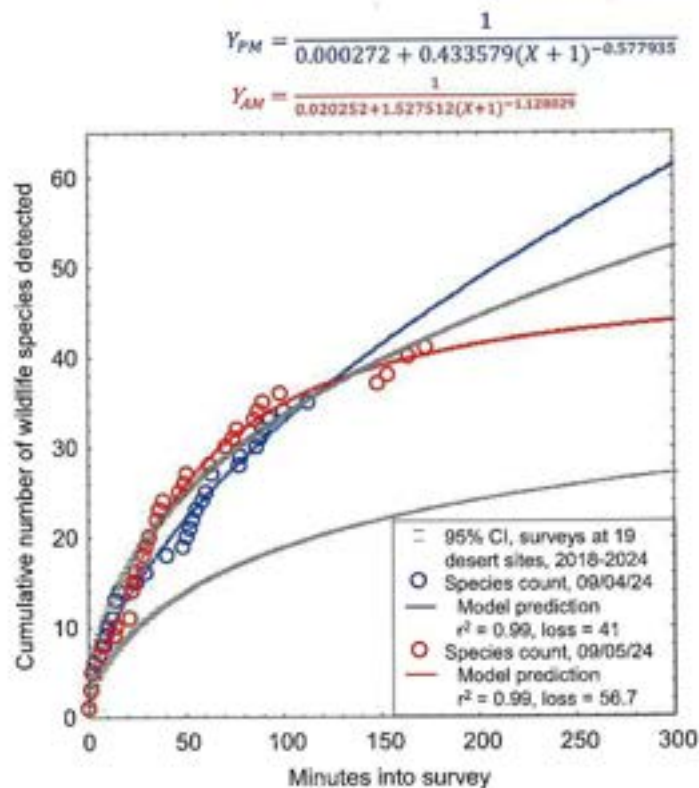
<sup>a</sup> Listed as FT or FE = federal threatened or endangered, FC = federal candidate for listing, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, CT or CE = California threatened or endangered, CCT or CCE = Candidate California threatened or endangered, CFP = California Fully Protected (California Fish and Game Code 3511), SSC = California Species of Special Concern (not threatened with extinction, but rare, very restricted in range, declining throughout range, peripheral portion of species' range, associated with habitat that is declining in extent), SSC1, SSC2 and SSC3 = California Bird Species of Special Concern priorities 1, 2 and 3, respectively (Shuford and Gardali 2008), WL = Taxa to Watch List (Shuford and Gardali 2008), and BOP = Birds of Prey (CFG Code 3503.5), and WBWG = Western Bat Working Group with priority rankings, of low (L), moderate (M), and high (H).

G C-10  
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### Modeling to Predict the Number of Species Available to be Detected

We saw evidence of a high abundance and diversity of wildlife at the project site. Considering that the site is located near the New River and that most of it is covered in alfalfa, which is known to support many species of wildlife (Smallwood and Geng 1993, Smallwood 1995, Smallwood et al. 1996), the many wild animals of many species we detected at the site should be of no surprise. However, I must point out that the species of wildlife we detected at the project site comprised only a sampling of the species that were present during our survey. I fit a nonlinear regression model to the cumulative numbers of vertebrate species detected with time into each of our surveys to predict the number of species that we would have detected with a longer survey or perhaps with additional biologists available to assist. The logistic growth model reaches an asymptote that corresponds with the theoretical maximum number of vertebrate wildlife species that could have been detected during the surveys. In this case, the model fit to our data predict that 49 species of vertebrate wildlife were available to be detected during the morning of the 5<sup>th</sup>, which numbered 7 more species than we actually detected (Figure 4).

**Figure 4.** Actual and predicted relationships between the number of vertebrate wildlife species detected and the elapsed survey time based on our visual-scan surveys on 4 (blue) and 5 (red) September 2024.





G C-11  
conf'd

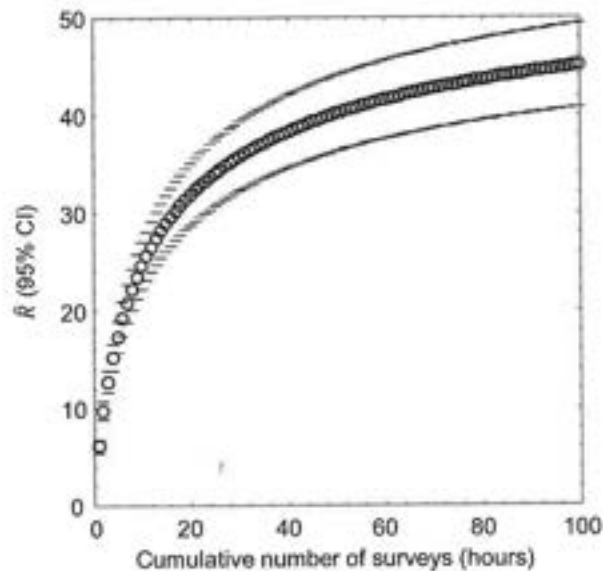
I do not know the identities of the undetected species, but the patterns in our data indicate relatively high use of the project site compared to 8 surveys at other sites we have completed in the Imperial Valley (Figure 4). Compared to models fit to data we collected from other sites in the Valley between 2019 and 2024, the data from our surveys on the project site follow along the upper bound of the 95% confidence interval of the rate of accumulated species detections with time into the survey (Figure 4). Importantly, however, the species that we did and did not detect on 4 and 5 September 2024 composed only a fraction of the species that would occur at the project site over the period of a year or longer. This is because many species are seasonal in their occurrence, and because most species that occur at a site are not always detectable, such as the seven species my model predicts we missed on the morning of the 5<sup>th</sup>.

At least a year's worth of surveys would be needed to more accurately report the number of vertebrate species that occur at the project site. However, by use of an analytical bridge, a modeling effort applied to a large, robust data set from a research site can predict the number of vertebrate wildlife species that likely make use of the site over the longer term using our survey. As part of my research, I completed a much larger survey effort across 167 km<sup>2</sup> of annual grasslands of the Altamont Pass Wind Resource Area, where from 2015 through 2019 I performed 721 1-hour visual-scan surveys, or 721 hours of surveys, at 46 stations. I used binoculars and otherwise the methods were the same as the methods I and other consulting biologists use for surveys at proposed project sites. At each of the 46 survey stations, I tallied new species detected with each sequential survey at that station, and then related the cumulative species detected to the hours (number of surveys, as each survey lasted 1 hour) used to accumulate my counts of species detected. I used combined quadratic and simplex methods of estimation in Statistica to estimate least-squares, best-fit nonlinear models of the number of cumulative species detected regressed on hours of survey (number of surveys) at the station:  $\hat{R} = \frac{1}{\sqrt{a + b \times (\text{Hours})^2}}$ , where  $\hat{R}$  represented cumulative species richness detected. The coefficients of determination,  $r^2$ , of the models ranged 0.88 to 1.00, with a mean of 0.97 (95% CI: 0.96, 0.98); or in other words, the models were excellent fits to the data.

I projected the predictions of each model to thousands of hours to find predicted asymptotes of wildlife species richness. At my research site, the mean model-predicted asymptote of species richness was 57 after 11,857 hours of visual-scan surveys among the 46 stations of my research site. I also averaged model predictions of species richness at each incremental increase of number of surveys, i.e., number of hours (Figure 5). On average I would have detected 19.5 species over my first 6.22 hours of surveys at my research site in the Altamont Pass (6.22 hours to match the 6.22 hours we surveyed at the project site on 28-29 April 2024), which composed 34.2% of the predicted total number of species we would detect with a much larger survey effort at the research site. Given the example illustrated in Figure 2, the 45 species we detected after 6.22 hours of survey at the project site on 28-29 April 2024 likely represented 34.2% of the species to be detected after many more visual-scan surveys over another year or longer. With many more repeat surveys through the year, we would likely detect  $43 / 0.342 = 126$  species of vertebrate wildlife at the site. Assuming our ratio of special-status to non-special-status species was to hold through the detections of all 126 predicted species,

then continued surveys would eventually detect 29 special-status species of vertebrate wildlife.

**Figure 5.** Mean (95% CI) predicted wildlife species richness,  $\hat{R}$ , as a nonlinear function of hour-long survey increments across 46 visual-scan survey stations across the Altamont Pass Wind Resource Area, Alameda and Contra Costa Counties, 2015–2019. Note that the location of the study is largely irrelevant to the utility of the graph to the interpretation of survey outcomes at the project site. It is the pattern in the data that is relevant, because the pattern is typical of the pattern seen elsewhere.



G C-11  
cont'd

Because my prediction of 126 species of vertebrate wildlife, including 29 special-status species of vertebrate wildlife, is derived from daytime visual-scan surveys, and would detect few nocturnal mammals such as bats, the true number of species composing the wildlife community of the site must be larger. In fact, our brief nocturnal survey for bats adds three more species to our total number of vertebrate species predicted to 129 species. Our reconnaissance survey should serve only as a starting point toward characterization of the site's wildlife community, but it certainly cannot alone inform of the inventory of species that use the site. More surveys are needed than hers to inventory use of the project site by wildlife.

#### POTENTIAL BIOLOGICAL IMPACTS

An impacts analysis should consider whether and how a proposed project would affect members of a species, larger demographic units of the species, the whole of a species, and ecological communities. The accuracy of this analysis depends on an accurate characterization of the existing environmental setting. In the case of the proposed project, the existing environmental setting has not been accurately characterized, and several important types of potential project impacts have been inadequately analyzed or not analyzed at all. These types of impacts include wetlands degradation from potential spills and loss of pollinator reservoir, habitat loss, interference with wildlife movement,

G C-12



and wildlife collision mortality with PV solar panels, electric distribution lines, and security fencing.

G C-12  
cont'd

## WETLANDS

Catalyst (2024) and the DEIR regard the only potential impacts to wetlands to be the crossing of Dogwood Canal and Beech Drain by the medium-voltage electric distribution lines. According to the DEIR (p. 3.5-18), "...none of the arrow weed thickets that occur within the BSA would be removed or disturbed by project activities. Therefore, the proposed project would not have substantial adverse effects on sensitive natural communities, and this is considered a less than significant impact." Arrow weed, which is a wetland-adapted plant species and a wetland indicator, is pollinated by *Schinia intrabilis*, everlasting bud moth (*Eublemma minima*), southern emerald (*Synchlora frondaria*) (Calscapes), and many species of butterflies and bees and likely also hummingbirds. Many pollinators visit alfalfa, stands of which located near arrow weed thickets can serve as pollinator reservoirs for arrow weed. The replacement of alfalfa with PV solar panels would eliminate the pollinator reservoir (i.e., capacity), as well as much of the food supply to wildlife that inhabit Beech Drain and Dogwood Canal.

G C-13

For example, 40,000 to 60,000 leafcutter bees are placed per acre to pollinate alfalfa in seed production, which blooms over the same period as arrow weed (<https://www.ars.usda.gov/pacific-west-area/logan-ut/pollinating-insect-biology-management-systematics-research/docs/alfalfa-leafcutting-bee-alch/#:-:text=Large%20numbers%20of%20leafcutting%20bees,bee%20management%20and%20alfalfa%20management.>) Alfalfa generally produces 416 to 1,933 pounds of nectar per acre ([https://www.apiservices.biz/html/pollination\\_handbook/chap\\_10000000002822327.html](https://www.apiservices.biz/html/pollination_handbook/chap_10000000002822327.html)), which is a huge draw to many types of pollinators right next to and over the same time period as arrow weed is blooming on Beech Drain and next to Dogwood Canal. And all of these pollinators are food to birds. Alfalfa is a reservoir of pollinators and food to the channelized wetlands of Dogwood Canal and Beech Drain. The function of these wetlands depends on the availability of the pollinator and food reservoirs on the uplands of the project site.

Another potential impact to wetlands is in the project's two double-walled 20,000-gallon above-ground isopentane storage tanks. Isopentane is a volatile flammable liquid that on contact can irritate and burn skin, eyes and lungs. Storing up to 40,000 gallons of isopentane near wetlands would potentially jeopardize the fauna of the wetlands. A release of isopentane could result in significantly decreased water quality and contamination of surface waters. Isopentane is acutely toxic to fish, invertebrates, with long term toxicity to fish, and aquatic vertebrates.<sup>2</sup> Isopentane could infiltrate soils, resulting in toxicity impairing root systems and vegetative health. Contamination from a release of isopentane could have lasting effects and result in long-term degradation of the wetland habitat. The DEIR should be revised to analyze this potential impact.

G C-14

<sup>2</sup> [https://baichem.com/performance-gases/wp-content/uploads/sites/5/2021/02/10289gb\\_CLP\\_II\\_124\\_ATP4\\_0000\\_isopentane\\_baichem.pdf](https://baichem.com/performance-gases/wp-content/uploads/sites/5/2021/02/10289gb_CLP_II_124_ATP4_0000_isopentane_baichem.pdf)

## CUMULATIVE HABITAT LOSS

G C-15

Vast areas of the Imperial Valley have recently been converted to utility-scale solar projects, and additional industrialization has also been developed. Geothermal projects have also been expanding, including the Heber 1 project only 0.5 miles east of the project site. Therefore, the habitat value of the site is especially high to species of wildlife that find breeding, refuge, and foraging opportunities there, as well as opportunities for stop-over during migration or dispersal. The loss of the habitat on the project site would result in substantial reductions in species richness and the number of wild animals in the area (Smallwood and Smallwood 2023).

To measure the impacts of habitat loss to wildlife caused by development projects, Noriko Smallwood and I revisited 80 sites of proposed projects that we had originally surveyed in support of comments on CEQA review documents (Smallwood and Smallwood 2023). We revisited the sites to repeat the survey methods at the same time of year, the same start time in the day, and the same methods and survey duration in order to measure the effects of mitigated development on wildlife. We structured the experiment in a before-after, control-impact experimental design, as some of the sites had been developed since our initial survey and some had remained undeveloped. All of the developed sites had included mitigation measures to avoid, minimize or compensate for impacts to wildlife. Nevertheless, we found that mitigated development resulted in a 66% loss of species on site, and 48% loss of species in the project area. Counts of vertebrate animals declined 90%. "Development impacts measured by the mean number of species detected per survey were greatest for amphibians (-100%), followed by mammals (-86%), grassland birds (-75%), raptors (-53%), special-status species (-49%), all birds as a group (-48%), non-native birds (-44%), and synanthropic birds (-28%). Our results indicated that urban development substantially reduced vertebrate species richness and numerical abundance, even after richness and abundance had likely already been depleted by the cumulative effects of loss, fragmentation, and degradation of habitat in the urbanizing environment," and despite all of the mitigation measures and existing policies and regulations.

Habitat loss not only results in the immediate numerical decline of wildlife, but it also results in permanent loss of productive capacity. Habitat fragmentation multiplies the negative effects of habitat loss on the productive capacities of biological species (Smallwood 2015). In the case of birds, two methods exist for estimating the loss of productive capacity that would be caused by the project. One method would involve surveys to count the number of bird nests and chicks produced. The alternative method would be to infer productive capacity from estimates of total nest density elsewhere.

Several studies have estimated total avian nest density at locations that had likewise been highly fragmented. Two study sites in grassland/wetland/woodland complexes within agricultural matrices had total bird nesting densities of 32.8 and 35.8 nests per acre (Young 1948, Yahner 1982) for an average 34.3 nests per acre. These densities, however, are probably too high for the project site, although the arrow weed thickets of Beech Drain provide nesting opportunities for many birds. To acquire a total nest density closer to conditions in southern California, Noriko surveyed various patches of

vegetation cover in southern California throughout the breeding seasons of 2023 and 2024. The most relevant study sites to the vegetation covers on the project site consisted of a 4.83-acre patch of grassland in Murrieta, CA, where Noriko estimated 0.62 nests/acre in 2024, and a 3.13-acre patch of grassland in Murrieta, CA, where she estimated 3.8 nests/acre. Assuming the mean of these estimates is applicable to the alfalfa stands of the project site, I estimate the 106.88 acres of alfalfa and disturbed ground surface the project site would support 236 nest sites on the project site. I assume only 1 brood per nest site on these cover types because nesting would mostly end by the time the alfalfa is first-cut.

G C-15  
cont'd

The DEIR (Figure 3.5-1) depicts arrow weed thickets in smaller patches than we observed. Neither Catalyst (2024) nor the DEIR report the acreage of arrow weed, but I saw about 1.16 acres of it. The total nest densities of Young (1948) and Yahner (1982) would more closely represent the total nest density in arrow weed thickets, as would my total nest density estimate from a riparian environment I surveyed through the 2023 breeding season in northern California, where I estimated 28.79 nest sites. The mean from these three studies is 32.5, and applied to 1.16 acres, I estimate the arrow weed thickets support at least 38 nest sites. Assuming 1.39 broods per nest site in the arrow weed thickets, which is the average among 322 North American bird species I asked Noriko to review, then I predict the arrow weed thickets would support 53 nest attempts/year. These nest attempts would rely on sufficient food to feed both adults and chicks, and much of the reservoir for this food supply is in the adjacent uplands. Assuming that the PV solar arrays would eliminate the upland reservoir of food to breeding birds, then it is reasonable to assume the project would cost California 274 nest sites and 289 nest attempts per year.

The loss of 274 nest sites and 289 nest attempts per year would qualify as significant impacts that have not been analyzed by the County. But the impacts would not end with the immediate loss of nest sites. The reproductive capacity of the site would be lost. The average number of fledglings per nest in Young's (1948) study was 2.9. Assuming Young's (1948) study site typifies bird productivity, the project would prevent the production of 838 fledglings per year. Assuming an average bird generation time of 5 years, the lost capacity of both breeders and annual fledgling production can be estimated from an equation in Smallwood (2022):  $\{(nests/year \times chicks/nest \times number\ of\ years) + (2\ adults/nest \times nests/year) \times (number\ of\ years \div years/generation)\} \div (number\ of\ years) = 945\ birds\ per\ year\ denied\ to\ California.$

Most if not all of the predicted 945 birds per year lost to the project are protected by the federal Migratory Bird Treaty Act and by California's Migratory Bird Protection Act, both of which most strongly protect breeding migratory birds. The DEIR should be revised and recirculated so that it more accurately discloses the potential loss of avian productivity that would result from the project.

## INTERFERENCE WITH WILDLIFE MOVEMENT

G C-16

One of CEQA's principal concerns regarding potential project impacts is whether a proposed project would interfere with wildlife movement in the region. Unfortunately, the DEIR's analysis of whether the project would interfere with wildlife movement in the region is flawed and misleading. In fact, there is no real analysis. Based on an unrealistically narrow definition of a migratory corridor, and based on no field observations directed to wildlife movement, the DEIR (p. 3-5-11) concludes "The project site does not contain nor is near any wildlife movement corridors, linkages, or Significant Ecological Areas / FWS Critical Habitat." This conclusion does not comport with what Noriko and I saw of wildlife movement to and from and across the project site. We observed near constant flight activity of birds crossing the alfalfa stands on their ways to Beech Drain, Dogwood Canal and other destinations, and we observed originating from these same destinations and flying back across the alfalfa.

Moreover, whether the site functions as a wildlife movement corridor or is located within a corridor is not the only consideration when it comes to the standard CEQA Checklist question of whether the project would interfere with wildlife movement in the region. The primary phrase of the CEQA standard goes to wildlife movement regardless of whether the movement is channeled by a corridor. Birds are obviously using the site, so they are able to travel to and from the site. Most of the birds recorded at the site are migratory birds, and because such expansive utility-scale solar projects have been developed in the region, the site is located within one of the last remaining patches of open space available to any of these and other birds that need to move through the region. The project site is important to wildlife movement in the region, all the more important due to substantial recent habitat fragmentation.

## INTERFERENCE FROM CONSTRUCTION LIGHTING

G C-17

According to the DEIR (p. 3.2-21), "Minimal lighting would be required for project operation and would be limited to safety and security functions." And, "If additional lighting should be required for nighttime maintenance, portable lighting equipment would be used." However, the DEIR provides no further explanation of what levels of lighting would qualify as minimal lighting, nor of maximum thresholds on the numbers of portable lights or their outputs in lumens. Elsewhere in the County, I have seen this type of mobile lighting, which I found not to be bright and highly intrusive (Photo 33).

The light from these lights would penetrate the arrow weed thickets along Dogwood Canal and Beech Drain, illuminating surface areas normally traversed by nocturnal wildlife that rely on darkness for stealth. Penetrating light would also generate stark light/shadow contrasts that can be confusing to wildlife. Artificial lighting causes a variety of substantial impacts on a variety of wildlife species (Rich and Longcore 2006), including interference with circadian rhythm, disruption of foraging activity, disruption of movement patterns, navigational interference and lethal attraction of flying birds, and altered development of eggs and juveniles/larvae. artificial light levels can interfere with dispersal movements of mammalian carnivores (Beier 1995), the mating-related singing behaviors of birds (Derrickson 1998, Bergen and Abs 1997), the behavior of



nocturnal frogs (Buchanan 1993), the activities and predation risk of moths (Frank, 1988, Rydell and Baagoe 1996), the congregatory behavior and distribution of certain species such as the American crow (Gorenzel and Salmon 1995), and the orientation and mobility of nocturnal, nonvolant animals such as ants (Klotz and Reid 1993). The project will increase light levels, and will therefore have these kinds of impacts on wildlife in the area. Added lighting could cause displacement or altered activity patterns of at least some species, resulting in habitat degradation and additional habitat loss. However, the DEIR did not analyze these potential impacts, nor did it propose mitigation to address them. The DEIR needs to be revised to address this suite of potential project impacts.

G C-17  
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**Photo 33.** Portable lights were set up to illuminate the northwest portion of the Elmore North Geothermal Project site, right next to the Salton Sea's Morton Bay.

## COLLISION MORTALITY

### Bird and bat collision mortality on PV panels

Birds and bats are known to collide with PV panels in utility-scale solar projects. A leading hypothesis for these collisions is known as the Lake Effect, which consists of birds misperceiving arrays of solar panels as bodies of water (Photos 34–37). However, other causal factors must also account for many of the collisions, because many of the birds that collide with PV panels are songbirds and raptors and other species in addition

G C-18

to water birds. I found collision mortality with solar panels to be highest for mourning doves, horned larks, western meadowlarks, American coots, soras, burrowing owls, American kestrels, and many small bird species including yellow warblers (Smallwood 2022). At the project site, we observed mourning doves, western meadowlarks, burrowing owls and American kestrel.

Based on fatality searches in utility-scale solar projects in California, Smallwood (2022) estimated a weighted mean 11.61 (95% CI = 8.37-17.56) birds and 0.06 (95% CI = 0.01-0.10) bats per MW per year. Applying this rate to the proposed 22 MW of solar panels would predict 255 (95% CI = 184-386) bird collision fatalities per year and 1.3 (0.2-2) bat collision fatalities per year.



**Photos 34 and 35.** Smudge marks on solar panel (left) where western grebe collided with the panel and fell to the ground where it was photographed (right) at the Desert Sunlight Solar Project.





G C-18  
cont'd

**Photos 36 and 37.** The location (left) where an endangered Yuma clapper rail was found dead (right) in the Desert Sunlight Solar Project.

#### **Bird and bat collision mortality with medium-voltage distribution lines**

G C-19

In my review of the impact to wildlife from utility-scale solar projects, I found that many species of volant wildlife had been discovered as fatalities under the generation tie-ins (gen-ties) of the solar projects. Many of these species were special-status species including burrowing owl (Photos 38 and 39). I found collision mortality with gen-ties (transmission lines) to be highest for Wilson's warblers, Brewer's sparrows, common yellowthroats, yellow warblers, loggerhead shrikes, American kestrels, and red-tailed hawks (Smallwood 2022). At the project site, we observed Brewer's sparrows, common yellowthroats and American kestrel.

Based on fatality searches along gen-ties of utility-scale solar projects in California, Smallwood (2022) estimated a weighted mean 113.16 (95% CI = 71.78-198.42) birds and 0 bats per km. Applying this rate to the 1.964 km of planned medium-voltage distribution lines would predict 222 (95% CI = 140-390) bird collision fatalities per year.

**Photo 38.** Photo of burrowing owl fatality at the Imperial Solar Energy Facility West (photo source: 18 June 2015 memo from Michael Robinson to Carrie Simmons (BLM), Magdalena Rodriguez (CDFW), Jody Fraser (USFWS) and David Black (Imperial County)).



G C-19  
cont'd

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

**Photo 39.** Photo of burrowing owl carcass under generation tie-in lines at the Imperial Solar Energy Facility West (photo source: 18 June 2015 memo from Michael Robinson to Carrie Simmons (BLM), Magdalena Rodriguez (CDFW), Jody Fraser (USFWS) and David Black (Imperial County)).



### Bird and bat collision mortality with perimeter security fences

The 3.855 km of fencing of the project would kill birds (Photos 40 and 41) and bats. Recent fatality monitoring along fences of utility-scale solar projects in California provides the basis for predicting avian mortality that would be caused by the project's fence. Greater road-runners experienced particularly high mortality along security fences. I also found collision mortality with fencing at solar projects to be highest for canyon bats, western meadowlarks, northern flickers, burrowing owls, yellow-headed blackbirds and northern harriers (Smallwood 2022). At the project site, we detected greater roadrunner, western meadowlarks, and burrowing owls.

Based on a weighted mean 14.435 (95% CI: 10.880–20.339) birds and 2.56 (95% CI: 0.17–6.54) bats per km per year along fences of California's solar projects, the project's 3.855 km of fencing would likely kill 56 (95% CI: 42–78) birds per year, and 10 (95% CI: 0.7–25) bats per year. This predicted level of mortality would easily qualify as an unmitigated significant impact



**Photo 40.** A great-horned owl died after becoming entangled on the razor wire placed on top of this cyclone fence surrounding a substation in Alameda County. Photo by Joanne Mount.

G C-20



**Photo 41.** Fledgling house finch that fatally collided with a security fence, 26 June 2022. Photo by Noriko Smallwood.



G C-20  
cont'd

#### **Traffic-caused wildlife mortality**

Project-generated traffic would endanger wildlife that must, for various reasons, cross roads used by the project's traffic to get to and from the project site (Photos 42–44), including along roads far from the project footprint. Vehicle collisions have accounted for the deaths of many thousands of amphibian, reptile, mammal, bird, and arthropod fauna, and the impacts have often been found to be significant at the population level (Forman et al. 2003). Across North America traffic impacts have taken devastating tolls on wildlife (Forman et al. 2003). In Canada, 3,562 birds were estimated killed per 100 km of road per year (Bishop and Brogan 2013), and the US estimate of avian mortality on roads is 2,200 to 8,405 deaths per 100 km per year, or 89 million to 340 million total per year (Loss et al. 2014). Local impacts can be more intense than nationally.

The nearest study of traffic-caused wildlife mortality was performed along a 2.5-mile stretch of Vasco Road in Contra Costa County, California. Fatality searches in this study found 1,275 carcasses of 49 species of mammals, birds, amphibians and reptiles over 15 months of searches (Mendelsohn et al. 2009). This fatality number needs to be adjusted for the proportion of fatalities that were not found due to scavenger removal and searcher error. This adjustment is typically made by placing carcasses for searchers to find (or not find) during their routine periodic fatality searches. This step was not taken at Vasco Road (Mendelsohn et al. 2009), but it was taken as part of another study next to Vasco Road (Brown et al. 2016). Brown et al.'s (2016) adjustment factors for carcass persistence resembled those of Santos et al. (2011). Also applying searcher detection rates from Brown et al. (2016), the adjusted total number of fatalities was estimated at 12,187 animals killed by traffic on the road. This fatality number over 1.25 years and 2.5 miles of road translates to 3,900 wild animals per mile per year. In terms comparable to

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the national estimates, the estimates from the Mendelsohn et al. (2009) study would translate to 243,740 animals killed per 100 km of road per year, or 29 times that of Loss et al.'s (2014) upper bound estimate and 68 times the Canadian estimate. An analysis is needed of whether increased traffic generated by the project site would similarly result in local impacts on wildlife.

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**Photo 42.** A Gambel's quail dashes across a road on 3 April 2021. Such road crossings are usually successful, but too often prove fatal to the animal. Photo by Noriko Smallwood.



**Photo 43.** Mourning dove killed by vehicle on a California road. Photo by Noriko Smallwood, 21 June 2020.



**Photo 44.** Raccoon killed on Road 31 just east of Highway 505 in Solano County. Photo taken on 10 November 2018.

For wildlife vulnerable to front-end collisions and crushing under tires, road mortality can be predicted from the study of Mendelsohn et al. (2009) as a basis, although it would be helpful to have the availability of more studies like that of Mendelsohn et al. (2009) at additional locations. My analysis of the Mendelsohn et al. (2009) data resulted in an estimated 3,900 animals killed per mile along a county road in Contra Costa County. Two percent of the estimated number of fatalities were birds, and the balance was composed of 34% mammals (many mice and pocket mice, but also ground squirrels, desert cottontails, striped skunks, American badgers, raccoons, and others), 52.3% amphibians (large numbers of California tiger salamanders and California red-

legged frogs, but also Sierran treefrogs, western toads, arboreal salamanders, slender salamanders and others), and 11.7% reptiles (many western fence lizards, but also skinks, alligator lizards, and snakes of various species). VMT is useful for predicting wildlife mortality because I was able to quantify miles traveled along the studied reach of Vasco Road during the time period of the Mendelsohn et al. (2009), hence enabling a rate of fatalities per VMT that can be projected to other sites, assuming similar collision fatality rates.

G C-21  
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The DEIR predicts 9,509 construction VMT and 85 daily operational VMT, the latter of which translates to 31,025 annual VMT. During the Mendelsohn et al. (2009) study, 19,500 cars traveled Vasco Road daily, so the vehicle miles that contributed to my estimate of non-volant fatalities was  $19,500 \text{ cars and trucks} \times 2.5 \text{ miles} \times 365 \text{ days/year} \times 1.25 \text{ years} = 22,242,187.5 \text{ vehicle miles}$  per 12,187 wildlife fatalities, or 1,825 vehicle miles per fatality. This rate divided into the predicted construction VMT would predict 5 vertebrate wildlife fatalities, and divided into the predicted annual VMT would predict 17 vertebrate wildlife fatalities per year.

Based on my analysis, the project-generated traffic would cause substantial, significant impacts to wildlife. Although the DEIR includes a Best Management Practice to require a speed limit of 5 mph "to minimize dust, avoid collision, and incidental mortality of local wildlife," this speed limit would apply to on-site access roads and not to the predicted annual VMT to and from the project site. The DEIR does not analyze the potential impact from annual VMT, nor does it propose to mitigate it. Mitigation measures to improve wildlife safety along roads are available and are feasible, and they need exploration for their suitability with the proposed project. Given the predicted level of project-generated, traffic-caused mortality, and the lack of any proposed binding mitigation, it is my opinion that the proposed project would result in potentially significant adverse biological impacts. The DEIR needs to be revised.

#### **INTERFERENCE WITH EXISTING HCP/NCCP**

The DEIR's analysis of potential impacts to the Desert Renewable Energy Conservation Plan and to the Imperial Irrigation District NCCP/HCP is too narrow. According to the DEIR (p. 3.5-11), "The project site is located within the designated boundaries of the Desert Renewable Energy Conservation Plan and the Imperial Irrigation District Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). However, the project site is not located within or adjacent to an Area of Critical Environmental Concern." Where this analysis falls short is in its failure to consider that (1) the project site could serve as a candidate mitigation site to achieve the objectives of the HCPs/NCCPs, and (2) the impacts caused by the project could impede the conservation objectives of the NCPs/NCCPs. For example, if the project takes burrowing owls without properly mitigating for the takings, then it will be that much more difficult for the HCPs/NCCPs to achieve the conservation objectives they have established for burrowing owls. Moreover, burrowing owl is a Covered Species within the HCP, so the DEIR's failure to "Provide for the conservation and management of Covered Species [burrowing owl]" results in an interference with the HCP.

G C-22



## CUMULATIVE IMPACTS

The DEIR's cumulative impacts analysis is grossly inadequate and misleading. Whereas it remains unknown how many wild animals would be lost to California due to the project's interference with wildlife movement in the region, habitat lost to the project would cost California a predicted 945 birds per year. Predicted annual collision mortality averages 255 birds and 1.3 bats with the project's PV solar panels, 222 birds with the medium-voltage distribution lines, 56 birds and 10 bats with the security fence, and 17 vertebrate animals with project-generated traffic for a combined annual mortality of 561 vertebrate animals. The total quantifiable deficit of vertebrate wildlife would be at least 1,506, and that is before attempting to quantify the numbers of small mammals and bats that would be lost. The project's contribution to cumulative impacts would be substantial and highly significant.

Table 5-1 of the DEIR lists renewable energy projects that are built, under construction, approved or pending entitlements in the project's area. These projects total 44,902 acres. Assuming the productive loss of birds I estimated under HABITAT LOSS applies to the cumulative 44,902 acres in the DEIR's Table 5-1 (the denial of 8.84 birds produced/acre), then I estimate 396,934 birds are being denied to California due to cumulative habitat loss to PV solar, geothermal and battery storage projects in the DEIR's cumulative impacts analysis area.

When I commented on the Desert Renewable Energy Conservation Plan (DRECP), I reviewed reports of burrowing surveys in the Imperial Valley (Table 3). The average density was 8.47 pairs per km<sup>2</sup>, which is 0.0343 pairs per acre. This density applied to the acreage of the projects listed in the DEIR's Table 5-1 estimates that 1,540 burrowing owl pairs, or 3,080 breeding-age burrowing owls, have lost their habitat and no longer exist within the portion of Imperial County that is covered by the projects in the Table.

**Table 3.** Nesting densities of burrowing owls at proposed project sites within Imperial County.

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

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The solar PV projects in the DEIR's Table 5-1 total 7,236 MW of rated capacity, which can be used to predict collision mortality. Based on my review of utility-scale solar projects and their collision mortality estimates, I found an average 0.011698 km of gen-tie and 0.022837 km of fencing per ha of solar project (Smallwood 2022). Multiplied against the cumulative number of hectares, I estimate the cumulative length of generation tie-ins (gen-ties) to be 212.58 km, and the cumulative length of security fencing to be 415 km. Mean collision fatality rates in Smallwood (2022) were 11.61 bird fatalities/MW and 0.06 bat fatalities/MW of PV solar panels, 113.16 bird fatalities/km of gen-tie, and 14.435 bird fatalities/km and 2.56 bat fatalities/km of securing fencing. Cumulative annual mortality estimates are then 84,010 birds and 434 bats at solar PV panels, 24,055 birds at gen-ties, and 5,990 birds and 1,062 bats at securing fencing. Cumulative annual bird collision fatalities are estimated to be 114,056 birds and 1,497 bats at solar projects among the list of projects in Table 5-1 of the DEIR. Smallwood (2022) reports a mean 0.182 burrowing owl collision fatalities/MW of PV solar panels, so cumulative annual burrowing owl collision fatalities based on the list of projects in Table 5-1 of the DEIR is estimated to be 1,317 – an excessive mortality that is likely helping to extirpate burrowing owls from Imperial County.

Despite the predictably large impacts to burrowing owls and other special-status species in the cumulative impacts analysis area, the DEIR (p. 5-11) claims, "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." However, as Smallwood and Smallwood (2023) discovered through experiment, significant impacts result despite the regulatory scheme established by CDFW and USFWS. According to CEQA Guidelines §15064(h)(3), "When relying on a plan, regulation or program, the lead agency should explain how implementing the particular requirements in the plan, regulation or program ensure that the project's incremental contribution to the cumulative effect is not cumulatively considerable." The DEIR does not do this.

The DEIR (p. 5-11) continues, "Burrowing Owls are protected by the CDFW mitigation guidelines for burrowing owl (CDFW 2012) and Consortium guidance (1993), which require a suite of mitigation measures to ensure direct effects to burrowing owls during construction activities are avoided and indirect effects through burrow destruction and loss of foraging habitat are mitigated at prescribed ratios. Mitigation measures identified in Section 3.5, Biological Resources, contain these requirements thereby minimizing potential impacts on these species to a less than significant level." Burrowing owls are not protected by CDFW (2012) and the Consortium Guidance of 1993 is no longer relevant because it has been replaced by CDFW (2012). CDFW (2012) does not *require* anything, as it is a guidance document. Moreover, the DEIR fails to implement survey or mitigation measures that are consistent with CDFW's (2012) guidelines, as no breeding-season detection surveys have been completed.

According to the DEIR (p. 5-11), "special-status bird species have a potential to be present. As a result of project-related construction activities, one or more of these

species could be impacted. However, with the implementation of mitigation as identified in Section 3.5, Biological Resources, these impacts would be reduced to a level of less than significant, primarily through avoidance of direct and indirect impacts to these species via pre-construction surveys and monitoring requirements during construction." In fact, special-status species of birds are present, and they would be adversely affected by the project. The DEIR's mitigation measures, however, do nothing to mitigate the loss of productive capacity of these species. Other than possibly avoiding direct take during construction, none of the measures avoid or minimize impacts to special-status species of wildlife during the operational phase of the project.

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The DEIR (p. 5-11 to 5-12) reuses the same argument that existing regulations will prevent impacts: "Similarly, the cumulative projects within the geographic scope of the project would be required to comply with the legal framework as described above, and similar avoidance and minimization measures. ... As with the proposed project, each of the cumulative projects would be required to provide mitigation for impacts on biological resources." The DEIR goes on to cite the Migratory Bird Treaty Act, and "The CWA and California's Porter-Cologne Water Quality Control Act," which are said to 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. Then the DEIR states "The proposed project would comply with these and other laws, regulations and guidelines and therefore would not contribute substantially to a cumulative biological resources impact. ... Therefore, the project would not contribute to a cumulatively considerable impact to biological resources, and cumulative impacts would be less than significant." This entire argument, however, is easily refuted by my review of habitat and collision mortality impacts measured at utility-scale solar projects (Smallwood 2022). The 14 projects in my review had all needed to comply with the same laws, regulations and guidelines, but nonetheless caused the measured impacts I reported in Smallwood (2022).

And again, CEQA Guidelines §15064(h)(3) state, "When relying on a plan, regulation or program, the lead agency should explain how implementing the particular requirements in the plan, regulation or program ensure that the project's incremental contribution to the cumulative effect is not cumulatively considerable." The DEIR does not explain how the project's implementation in the context of the existing regulatory framework would achieve a different result than what is reported in Smallwood (2022).

## INADEQUATE MITIGATION

### BIO-1 Worker Environmental Awareness Program.

I concur that a worker environmental awareness program can be helpful, but it must be understood that such a program would not prevent the long-term losses of productive capacities of wildlife caused by habitat loss, nor would it prevent collision mortality reported in Smallwood (2022).

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**BIO-2 Preconstruction Nesting Bird Survey:** *If construction or other project activities are scheduled to occur during the bird breeding season ..., a preconstruction*

G C-25

*nesting-bird survey shall be conducted by a qualified avian biologist to ensure that active bird nests, including those for the northern harrier, long-billed curlew, and burrowing owl, will not be disturbed or destroyed. ... The survey shall be completed no more than 3 days prior to initial ground disturbance. ... shall include the project area 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. ...*

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It is unrealistic to expect fewer than an army of biologists to complete a nest survey over such a large area within 3 days of construction, and to be capable of discovering all of the active nests. Preconstruction, take-avoidance surveys consist of two steps, both of which are very difficult because birds are highly adept at concealing their nests. First, the biologist(s) performing the survey must identify birds that are breeding. Second, the biologist(s) must locate the breeding birds' nests. The first step is typically completed by observing bird behaviors such as food deliveries and nest territory defense. These types of observations typically require many surveys on many dates spread throughout the breeding season, even to locate the nest sites of individually targeted species such as burrowing owl (Smallwood et al. 2013) or loggerhead shrike (Smallwood and Smallwood 2021). To identify the birds of all species nesting on a site requires a much greater survey effort than a single survey only days prior to the start of construction. The biologists conducting the preconstruction survey would be very lucky to find any of the bird nests that are available to be found at the time of the survey.

Even if nests are found in a preconstruction survey, the nests might be salvaged, but the nest sites cannot be protected. Many birds, including burrowing owls, demonstrate considerable fidelity to nest sites by returning to use them year after year. Whereas a nest might be salvaged, the nest site would not survive project construction. The impacts to nesting birds do not end with salvage.

Finally, the mitigation language allows a single individual to make a subjective decision, outside the public's view, to determine the buffer area for any given species. This measure lacks objective criteria, and is unenforceable.

**BIO-3 Biological Monitoring:** *If preconstruction surveys determine either the presence of special-status species or sensitive biological resources on the project site, a construction monitor may be needed during construction. ...*

G C-26

Biological monitoring should not be contingent on the outcome of a preconstruction survey. Preconstruction survey does not carry anywhere near the detection probabilities of protocol-level detection surveys, and anyway it is already known that the site supports special-status species of wildlife.

Should the project go forward, qualified biologists should be required to monitor construction impacts to wildlife. However, it should also be required that the monitor completes a report of the findings of construction monitoring. All cases of potential construction harm to wildlife should be reported to US Fish and Wildlife/California



Department of Fish and Wildlife, and to the City, along with what was done to prevent or minimize or rectify injuries. All injuries and fatalities should be reported to the same parties, along with the disposition of any remains. The report be made available to the public.

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**BIO-4 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 identified during the breeding season ..., then an appropriate buffer will be established by the biological monitor in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012). ....*

G C-27

As applied to burrowing owls, the preconstruction survey would not be consistent with the CDFW (2012) survey and mitigation guidelines. The language of the mitigation measure falsely implies that a preconstruction survey conducted without having first completed detection surveys could be consistent with the CDFW (2012) survey and mitigation guidelines. As I commented earlier, CDFW's (2012) recommended surveys are intended to be completed in a specific chronological sequence, each type of survey contributing to the efficacy of the next type of survey. These three types of survey are intended for different purposes and they carry different detection probabilities. Breeding-season detection surveys per CDFW (2012) are the most rigorous type of survey, and are intended to not only support an impacts analysis, but also to support the preconstruction survey. The breeding-season surveys carry the highest probability of detection of burrowing owls, and therefore are most suited to informing biologists where best to find burrowing owls during the preconstruction survey. Performing a preconstruction survey without the aid of a breeding-season survey leaves the biologists blind to where burrowing owls are located, and would not be consistent with CDFW (2012).

#### RECOMMENDED MEASURES

**Bird collisions with medium-voltage distribution lines:** Two methods are available to avoid or minimize collision mortality with power lines. The most effective method would be to underground the lines, thereby avoiding the potential impact altogether. The second method is to mark the lines. Commonly used markers include the FireFly HW Bird Diverter (<https://pr-tech.com/product/firefly-hw-bird-diverter/>) and the BirdMark Bird Diverter (<https://pr-tech.com/product/birdmark-bird-diverter/>), the latter of which I know from personal experience can reduce mortality (Yee 2007).<sup>3</sup> However, these markers often break, entangle and their colors fade within only a few years of installation (Photos 45 and 46). Markers less apt to tangle or break include dampers and swinging plates, both of which have been documented to reduce mortality (Brown and Drewien 1995). If markers were to be used, there would need to be commitments to their long-term maintenance and to their measurement of efficacy. If

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<sup>3</sup> I served on Yee's M.S. Thesis committee and assisted with study design.

measured efficacy is below a pre-defined threshold, then additional measures should be required.

**Figure 45.** Line marker deployed in experimental design to test whether line collisions could be reduced for sandhill crane and other birds (Yee 2007). Photo by Shawn Smallwood.



**Figure 46.** Several years after deployment the line markers used to experimentally test whether line collisions could be reduced for sandhill crane and other birds (Yee 2007) were broken, twisted and missing due to exposure to sun, rain and wind. Durability is an issue. Photo by Shawn Smallwood.



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**Road Mortality:** Compensatory mitigation is needed for the increased wildlife mortality that would be caused by project-generated road traffic in the region. I suggest that this mitigation be directed toward funding research to identify fatality patterns and effective impact reduction measures such as reduced speed limits and wildlife under-crossings or overcrossings of particularly dangerous road segments. Compensatory mitigation can also be provided in the form of donations to wildlife rehabilitation facilities (see below).

G C-29



**Fund Wildlife Rehabilitation Facilities:** Compensatory mitigation ought also to include funding contributions to wildlife rehabilitation facilities to cover the costs of injured animals that will be delivered to these facilities for care. Many animals would likely be injured by collisions with automobiles and project infrastructure.

G C-30

**Post-construction Measurement of Impacts:** The DEIR presents no measures to measure impacts caused by construction and operation of the project. This is a major shortfall because measurement of impacts can help to formulate appropriate mitigation measures, and it could contribute to our understanding of the impacts, how the impacts are caused, and how they can be minimized or reduced at this and other renewable energy projects. Wildlife surveys should be required pre- and post-construction to measure the impacts of habitat loss.

G C-31

To accurately estimate collision mortality and the effects of habitat loss, I suggest the following steps to first characterize the existing wildlife community as a baseline to be compared to the wildlife community post-construction:

1. Establish two or more reference sites in similar vegetation and terrain settings but located sufficiently far from the project footprint to minimize the effects of displaced wildlife from the project;
2. Duplicate all survey methods between the project site and the reference sites;
3. Select indicator species for survey focus, but enough of the species to robustly represent the wildlife community – representative species of lizards, snakes, kangaroo rats, ground squirrels, lagomorphs, mammalian carnivora, bats, and birds of different types;
4. Implement sampling and counting methods that are appropriate to the species and using personnel who are qualified on the species, e.g., use thermal-imaging and acoustic detectors to survey for bats, and live-trapping to survey for small mammals;
5. Sample to sufficiently represent the wildlife community in each season of the year;
6. Implement periodic early-morning reconnaissance surveys or at least 1-hour duration to record detections of vertebrate wildlife species, whereby each new species detection is recorded along with the time into the survey;
7. Deliver data to an analyst on a weekly basis to ensure that the data are understood and any questions about the data are quickly resolved;
8. Share data and reports publicly and require peer-review by independent party.

To accurately estimate collision mortality, I offer the following suggestions for fatality searches (also see Smallwood 2022), including best practices:

1. Keep it simple;
2. Have a plan and a budget for responding to the discoveries of injured wildlife;
3. Ask solar company employees to leave carcasses alone;
4. Search all of the solar arrays in the project, or a substantial randomized sample or a systematic sample with random starting points;

5. Delineate unsearchable areas due to hazards, dense vegetation or other factors;
6. Use scent-detection dogs with skilled handlers (Smallwood et al. 2020), either off-leash to achieve detection rates of available carcasses (i.e., those not removed by scavengers yet) of 50% to 60%, or on-leash to achieve detection rates >90%;
7. Implement no more than one search interval, i.e., number of days between searches, but the search interval should be a targeted average rather than a strict time to provide flexibility to the scent-detection dog team;
8. Minimum monitoring duration should be 3 years;
9. Refrain from performing 'clearing searches' because they're ineffective and unnecessary;
10. Upon discovery of feathers, stop and search increasingly larger circles to determine whether more feathers can lead to the carcass;
11. Integrate carcass detection trials into routine fatality monitoring by randomly placing just-thawed, fresh-frozen carcasses of appropriate bird and bat species onto the search areas at a rate of about 2.3 g/ha/year, where appropriate species means those likely to be killed by features of the project and include the full range of body sizes (Smallwood et al. 2018);
12. In carcass detection trials, place many more of the smallest birds and bats because detections of those trial carcasses are necessary but more rarely achieved;
13. Mark trial carcasses discreetly and safely with regard to scavengers – snipping toes and the ends of flight feathers works well, or one foot of each bat;
14. Weigh trial carcasses just prior to placement;
15. Keep searchers blind to the trial placements by using a disciplined trial administrator who places carcasses while searchers are not onsite and who leaves no obvious evidence of each visit other than the carcass itself;
16. Upon placement, drop each trial carcass from waist height, and then photograph and map the location with high-end GPS and take notes of the location, e.g., 10 cm east of white pebble and 2 m north of 1-m long north-south oriented stick, or 2 m west of PV panel number X;
17. Leave all fatality and trial carcasses in the field, thereafter monitoring subsequent detections of the same carcasses;
18. All carcasses in integrated trials are either found or not found, so do not attempt to separate trials for searcher detection and carcass persistence;
19. Count fatalities discovered incidentally to routine fatality monitoring, including those found beyond the maximum search radius of a sampled unit, but omit those found at units not selected for sampling (if sampling was used instead of census);
20. Map and photograph all fatalities and trial carcasses every time they are detected;
21. Enter data into electronic spreadsheet daily and share data with supervisor no less often than weekly to identify and resolve problems in a timely manner;
22. Identify all remains to species, so include sufficient budget for visiting museums or experts to achieve this objective (every species misidentification adds error to two species – to the species misidentified and to the species not identified);
23. See Smallwood et al. (2018) for details on how to use the data in a simple estimator;
24. Repeat the monitoring effort 10 years after the first monitoring effort;

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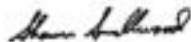
25. Share data and reports publicly and require peer-review by independent party.

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Finally, establish a policy of improving estimation accuracy whenever opportunities to do so arise. This policy would require that methods be adjusted or changed to accommodate greater accuracy, and it would disallow a pervasive approach of clinging to less accurate methods because they are industry-standard methods or said to be more comparable. Inaccurate estimates are not more comparable.

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Thank you for your consideration,



Shawn Smallwood, Ph.D.

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**Photo 47.** *A white-faced ibis flying late in the evening, 5 September 2024.*



**APPENDIX: ONSITE WILDLIFE PHOTOS**



**Photo 5.** One of many harvester ant mounds on the project site, 5 September 2024.



**Photo 6.** A round-tailed ground squirrel prepared to escape into its burrow on the project site, 5 September 2024.



**Photo 7.** One of many flocks of red-winged blackbirds that flew across the alfalfa fields to and from the water channels, 5 September 2024.



**Photo 8.** One of many flocks of great-tailed grackles that flew low across the alfalfa on their way to the water channels, 5 September 2024.



**Photos 9 and 10.** Many mourning doves flew low back and forth across the alfalfa fields to the water channels and roost sites on and around the project site, 5 September 2024.



**Photo 11.** A flock of mallards walked from Beech Drain to the alfalfa south of the Drain, 5 September 2024.



**Photo 12.** In one view of Beech Drain are snowy egrets, black-necked stilts, and red-winged blackbirds, 5 September 2024.





**Photos 13 and 14.** White-faced ibises flew back and forth across the project site (top), and so did mallards (bottom), 4-5 September 2024. These mallards were flying out of Beech Drain.



**Photos 15 and 16.** Black-necked stilts repeatedly flew to and from Dogwood Canal and Beech Drain, 5 September 2024.







**Photos 17 and 18.** Cattle egrets (top) and a snowy egret (bottom), 5 September 2024.



**Photos 19–21.** Great egret (top), double-crested cormorant (lower left) and killdeer (lower right) flying across the project site, 5 September 2024.



*Photos 22 and 23. Muskrat and blue grosbeak in Beech Drain, 5 September 2024.*

**Photos 24 and 25.**  
*Great-tailed grackle and  
orange-crowned  
warbler at Dogwood  
Canal and Beech Drain,  
respectively, 5  
September 2024.*





**Photos 26–27.**  
*Common yellowthroat in upper photo, and Brewer's sparrow and savannah sparrow at left and right sides of bottom photo, taken from Beech Drain, 5 September 2024.*



**Photos 28 and 29.**  
*Lazulu bunting (top) and  
black phoebe with a prey  
item (bottom) along  
Beech Drain, 4-5  
September 2024.*







*Photos 30 and 31. Red-winged blackbird juveniles crowding into Beech Drain, 5 September 2024.*



*Photo 32. Juvenile verdin in Beech Drain, 5 September 2024.*

**Kenneth Shawn Smallwood**  
**Curriculum Vitae**

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

**Ecologist**

**Expertise**

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

**Education**

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

**Experience**

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

### Projects

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

#### **Peer Reviewed Publications**

Smallwood, K. S. and M. L. Morrison. 2018. Nest-site selection in a high-density colony of burrowing owls. *Journal of Raptor Research* 52:454-470.

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

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

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

Smallwood, K. S. 2017. The challenges of addressing wildlife impacts when repowering wind energy projects. Pages 175-187 in Köppel, J., Editor, *Wind Energy and Wildlife Impacts: Proceedings from the CWW2015 Conference*. Springer. Cham, Switzerland.

May, R., Gill, A. B., Köppel, J., Langston, R. H.W., Reichenbach, M., Scheidat, M., Smallwood, S., Voigt, C. C., Hüppop, O., and Portman, M. 2017. Future research directions to reconcile wind turbine-wildlife interactions. Pages 255-276 in Köppel, J., Editor, *Wind Energy and Wildlife Impacts: Proceedings from the CWW2015 Conference*. Springer. Cham, Switzerland.

Smallwood, K. S. 2017. Monitoring birds. M. Perrow, Ed., *Wildlife and Wind Farms - Conflicts and Solutions*, Volume 2. Pelagic Publishing, Exeter, United Kingdom. [www.bit.ly/2v3cR9Q](http://www.bit.ly/2v3cR9Q)

Smallwood, K. S., L. Neher, and D. A. Bell. 2017. Siting to Minimize Raptor Collisions: an example from the Repowering Altamont Pass Wind Resource Area. M. Perrow, Ed., *Wildlife and Wind Farms - Conflicts and Solutions*, Volume 2. Pelagic Publishing, Exeter, United Kingdom. [www.bit.ly/2v3cR9Q](http://www.bit.ly/2v3cR9Q)

Johnson, D. H., S. R. Loss, K. S. Smallwood, W. P. Erickson. 2016. Avian fatalities at wind energy facilities in North America: A comparison of recent approaches. *Human-Wildlife Interactions* 10(1):7-18.

Sadar, M. J., D. S.-M. Guzman, A. Mete, J. Foley, N. Stephenson, K. H. Rogers, C. Grosset, K. S. Smallwood, J. Shipman, A. Wells, S. D. White, D. A. Bell, and M. G. Hawkins. 2015. Mange Caused by a novel *Micnemidocoptes* mite in a Golden Eagle (*Aquila chrysaetos*). *Journal of Avian Medicine and Surgery* 29(3):231-237.

Smallwood, K. S. 2015. Habitat fragmentation and corridors. Pages 84-101 in M. L. Morrison and H. A. Mathewson, Eds., *Wildlife habitat conservation: concepts, challenges, and solutions*. John Hopkins University Press, Baltimore, Maryland, USA.

Mete, A., N. Stephenson, K. Rogers, M. G. Hawkins, M. Sadar, D. Guzman, D. A. Bell, J. Shipman, A. Wells, K. S. Smallwood, and J. Foley. 2014. Emergence of *Knemidocoptic* mange in wild Golden Eagles (*Aquila chrysaetos*) in California. *Emerging Infectious Diseases* 20(10):1716-1718.

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

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

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

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- Smallwood, K. S., D. A. Bell, B. Karas, and S. A. Snyder. 2013. Response to Huso and Erickson Comments on Novel Scavenger Removal Trials. *Journal of Wildlife Management* 77: 216-225.
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- Zhang, M., K. S. Smallwood, and E. Anderson. 2002. Relating indicators of ecological health and integrity to assess risks to sustainable agriculture and native biota. Pages 757-768 in D.J. Rapport, W.L. Lasley, D.E. Rolston, N.O. Nielsen, C.O. Qualset, and A.B. Damania (eds.), *Managing for Healthy Ecosystems*, Lewis Publishers, Boca Raton, Florida USA.
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- Smallwood, K.S. 2001. The allometry of density within the space used by populations of Mammalian Carnivores. *Canadian Journal of Zoology* 79:1634-1640.
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- Smallwood, K.S. 1996. Second assessment of the BIOPORT model's parameter values for pocket gopher burrowing characteristics and other relevant wildlife observations. Report to Berger & Montague, P.C. and Roy S. Haber, P.C., Philadelphia.
- Smallwood, K.S., and R. Leidy. 1996. Wildlife and Their Management Under the Martell SYP. Report to Georgia Pacific, Corporation, Martel, CA. 30 pp.
- EIP Associates. 1995. Yolo County Habitat Conservation Plan Biological Resources Report. Yolo County Planning and Development Department, Woodland, California.
- Smallwood, K.S. and S. Geng. 1995. Analysis of the 1987 California Farm Cost Survey and recommendations for future survey. Program on Workable Energy Regulation, University-wide Energy Research Group, University of California.
- Smallwood, K.S., S. Geng, and W. Idzerda. 1992. Final report to PG&E: Analysis of the 1987 California Farm Cost Survey and recommendations for future survey. Pacific Gas & Electric Company, San Ramon, California. 24 pp.

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Fitzhugh, E.L. and K.S. Smallwood. 1987. Methods Manual – A statewide mountain lion population index technique. California Department of Fish and Game, Sacramento.

Salmon, T.P. and K.S. Smallwood. 1989. Final Report – Evaluating exotic vertebrates as pests to California agriculture. California Department of Food and Agriculture, Sacramento.

Smallwood, K.S. and W. A. Erickson (written under supervision of W.E. Howard, R.E. Marsh, and R.J. Laake). 1990. Environmental exposure and fate of multi-kill strychnine gopher baits. Final Report to USDA Forest Service –NAPIAP, Cooperative Agreement PSW-89-0010CA.

Fitzhugh, E.L., K.S. Smallwood, and R. Gross. 1985. Mountain lion track count, Marin County, 1985. Report on file at Wildlife Extension, University of California, Davis.

#### Comments on Environmental Documents

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

- The Villages of Lakeview EIR (2017; 28 pp);
- Notes on Proposed Study Options for Trail Impacts on Northern Spotted Owl (2017; 4 pp);
- San Geronio Crossings EIR (2017; 22 pp);
- Replies to responses on Jupiter Project IS and MND (2017; 12 pp);
- MacArthur Transit Village Project Modified 2016 CEQA Analysis (2017; 12 pp);
- Central SoMa Plan DEIR (2017; 14 pp);
- Colony Commerce Center Specific Plan DEIR (2016; 16 pp);
- Fairway Trails Improvements MND (2016; 13 pp);
- Review of Avian-Solar Science Plan (2016; 28 pp);
- Replies to responses on Initial Study for Pyramid Asphalt (2016; 5 pp);
- Initial Study for Pyramid Asphalt (2016; 4 pp);
- Agua Mansa Distribution Warehouse Project Initial Study (2016; 14 pp);
- Santa Anita Warehouse IS and MND (2016; 12 pp);
- CapRock Distribution Center III DEIR (2016; 12 pp);
- Orange Show Logistics Center Initial Study and MND (2016; 9 pp);
- City of Palmdale Oasis Medical Village Project IS and MND (2016; 7 pp);
- Comments on proposed rule for incidental eagle take (2016, 49 pp);
- Grapevine Specific and Community Plan FEIR (2016; 25 pp);
- Grapevine Specific and Community Plan DEIR (2016; 15 pp);
- Clinton County Zoning Ordinance for Wind Turbine siting (2016);
- Hallmark at Shenandoah Warehouse Project Initial Study (2016; 6 pp);
- Tri-City Industrial Complex Initial Study (2016; 5 pp);
- Hidden Canyon Industrial Park Plot Plan 16-PP-02 (2016; 12 pp);
- Kimball Business Park DEIR (2016; 10 pp);
- Jupiter Project IS and MND (2016; 9 pp);
- Revised Draft Giant Garter Snake Recovery Plan of 2015 (2016, 18 pp);
- Palo Verde Mesa Solar Project Draft Environmental Impact Report (2016; 27 pp);

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- Reply Witness Statement on Fairview Wind Project, Ontario, Canada (2016; 14 pp);
- Fairview Wind Project, Ontario, Canada (2016; 41 pp);
- Supplementary Reply Witness Statement Amherst Island Wind Farm, Ontario (2015, 38 pp);
- Witness Statement on Amherst Island Wind Farm, Ontario (2015, 31 pp);
- Second Reply Witness Statement on White Pines Wind Farm, Ontario (2015, 6 pp);
- Reply Witness Statement on White Pines Wind Farm, Ontario (2015, 10 pp);
- Witness Statement on White Pines Wind Farm, Ontario (2015, 9 pp);
- Proposed Section 24 Specific Plan Agua Caliente Band of Cahuilla Indians DEIS (2015, 9 pp);
- Replies to comments 24 Specific Plan Agua Caliente Band of Cahuilla Indians FEIS (2015, 6 pp);
- Willow Springs Solar Photovoltaic Project DEIR (2015; 28 pp);
- Sierra Lakes Commerce Center Project DEIR (2015, 9 pp);
- Columbia Business Center MND (2015; 8 pp);
- West Valley Logistics Center Specific Plan DEIR (2015, 10 pp);
- World Logistic Center Specific Plan FEIR (2015, 12 pp);
- Bay Delta Conservation Plan EIR/EIS (2014, 21 pp);
- Addison Wind Energy Project DEIR (2014, 32 pp);
- Response to Comments on the Addison Wind Energy Project DEIR (2014, 15 pp);
- Addison and Rising Tree Wind Energy Project FEIR (2014, 12 pp);
- Alta East Wind Energy Project FEIS (2013, 23 pp);
- Blythe Solar Power Project Staff Assessment, California Energy Commission (2013, 16 pp);
- Clearwater and Yakima Solar Projects DEIR (2013, 9 pp);
- Cuyama Solar Project DEIR (2014, 19 pp);
- Draft Desert Renewable Energy Conservation Plan (DRECP) EIR/EIS (2015, 49 pp);
- Kingbird Solar Photovoltaic Project EIR (2013, 19 pp);
- Lucerne Valley Solar Project Initial Study & Mitigated Negative Declaration (2013, 12 pp);
- Palen Solar Electric Generating System Final Staff Assessment of California Energy Commission, (2014, 20 pp);
- Rebuttal testimony on Palen Solar Energy Generating System (2014, 9 pp);
- Rising Tree Wind Energy Project DEIR (2014, 32 pp);
- Response to Comments on the Rising Tree Wind Energy Project DEIR (2014, 15 pp);
- Soitec Solar Development Project Draft PEIR (2014, 18 pp);
- Comment on the Biological Opinion (08ESMF-00-2012-F-0387) of Oakland Zoo expansion on Alameda whipsnake and California red-legged frog (2014; 3 pp);
- West Antelope Solar Energy Project Initial Study and Negative Declaration (2013, 18 pp);
- Willow Springs Solar Photovoltaic Project DEIR (2015, 28 pp);
- Alameda Creek Bridge Replacement Project DEIR (2015, 10 pp);
- Declaration on Tule Wind project FEIR/FEIS (2013; 24 pp);
- Sunlight Partners LANDPRO Solar Project Mitigated Negative Declaration (2013; 11 pp);
- Declaration in opposition to BLM fracking (2013; 5 pp);
- Rosamond Solar Project Addendum EIR (2013; 13 pp);
- Pioneer Green Solar Project EIR (2013; 13 pp);
- Reply to Staff Responses to Comments on Soccer Center Solar Project Mitigated Negative

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- Declaration (2013; 6 pp);
- Soccer Center Solar Project Mitigated Negative Declaration (2013; 10 pp);
- Plainview Solar Works Mitigated Negative Declaration (2013; 10 pp);
- Reply to the County Staff's Responses on comments to Imperial Valley Solar Company 2 Project (2013; 10 pp);
- Imperial Valley Solar Company 2 Project (2013; 13 pp);
- FRV Orion Solar Project DEIR (PP12232) (2013; 9 pp);
- Casa Diablo IV Geothermal Development Project (2013; 6 pp);
- Reply to Staff Responses to Comments on Casa Diablo IV Geothermal Development Project (2013; 8 pp);
- FEIS prepared for Alta East Wind Project (2013; 23 pp);
- Metropolitan Air Park DEIR, City of San Diego (2013; );
- Davidson Homes Tentative Subdivision Map and Rezoning Project DEIR (2013; 9 pp);
- Analysis of Biological Assessment of Oakland Zoo Expansion Impacts on Alameda Whipsnake (2013; 10 pp);
- Declaration on Campo Verde Solar project FEIR (2013; 11 pp);
- Neg Dec comments on Davis Sewer Trunk Rehabilitation (2013; 8 pp);
- Declaration on North Steens Transmission Line FEIS (2012; 62 pp);
- City of Lancaster Revised Initial Study for Conditional Use Permits 12-08 and 12-09, Summer Solar and Springtime Solar Projects (2012; 8 pp);
- J&J Ranch, 24 Adobe Lane Environmental Review (2012; 14 pp);
- Reply to the County Staff's Responses on comments to Hudson Ranch Power II Geothermal Project and the Simbol Calipatria Plant II (2012; 8 pp);
- Hudson Ranch Power II Geothermal Project and the Simbol Calipatria Plant II (2012; 9 pp);
- Desert Harvest Solar Project EIS (2012; 15 pp);
- Solar Gen 2 Array Project DEIR (2012; 16 pp);
- Ocotillo Sol Project EIS (2012; 4 pp);
- Beacon Photovoltaic Project DEIR (2012; 5 pp);
- Declaration on Initial Study and Proposed Negative Declaration for the Butte Water District 2012 Water Transfer Program (2012; 11 pp);
- Mount Signal and Calexico Solar Farm Projects DEIR (2011; 16 pp);
- City of Elk Grove Sphere of Influence EIR (2011; 28 pp);
- Comment on Sutter Landing Park Solar Photovoltaic Project MND (2011; 9 pp);
- Statement of Shawn Smallwood, Ph.D. Regarding Proposed Rabik/Gudath Project, 22611 Coleman Valley Road, Bodega Bay (CPN 10-0002) (2011; 4 pp);
- Declaration of K. Shawn Smallwood on Biological Impacts of the Ivanpah Solar Electric Generating System (ISEGS) (2011; 9 pp);
- Comments on Draft Eagle Conservation Plan Guidance (2011; 13 pp);
- Comments on Draft EIR/EA for Niles Canyon Safety Improvement Project (2011; 16 pp);
- Declaration of K. Shawn Smallwood, Ph.D., on Biological Impacts of the Route 84 Safety Improvement Project (2011; 7 pp);
- Rebuttal Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of Intervenor Friends of The Columbia Gorge & Save Our Scenic Area (2010; 6 pp);
- Prefiled Direct Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of



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- Intervenors Friends of the Columbia Gorge & Save Our Scenic Area. Comments on Whistling Ridge Wind Energy Power Project DEIS, Skamania County, Washington (2010; 41 pp);
- Evaluation of Klickitat County's Decisions on the Windy Flats West Wind Energy Project (2010; 17 pp);
- St. John's Church Project Draft Environmental Impact Report (2010; 14 pp.);
- Initial Study/Mitigated Negative Declaration for Results Radio Zone File #2009-001 (2010; 20 pp);
- Rio del Oro Specific Plan Project Final Environmental Impact Report (2010; 12 pp);
- Answers to Questions on 33% RPS Implementation Analysis Preliminary Results Report (2009; 9 pp);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington. Second Declaration to Friends of the Columbia Gorge, Inc. and Save Our Scenic Area (Dec 2008; 17 pp);
- Comments on Draft 1A Summary Report to CAISO (2008; 10 pp);
- County of Placer's Categorical Exemption of Hilton Manor Project (2009; 9 pp);
- Protest of CARE to Amendment to the Power Purchase and Sale Agreement for Procurement of Eligible Renewable Energy Resources Between Hatchet Ridge Wind LLC and PG&E (2009; 3 pp);
- Tehachapi Renewable Transmission Project EIR/EIS (2009; 142 pp);
- Delta Shores Project EIR, south Sacramento (2009; 11 pp + addendum 2 pp);
- Declaration of Shawn Smallwood in Support of Care's Petition to Modify D.07-09-040 (2008; 3 pp);
- The Public Utility Commission's Implementation Analysis December 16 Workshop for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 9 pp);
- The Public Utility Commission's Implementation Analysis Draft Work Plan for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 11 pp);
- Draft 1A Summary Report to California Independent System Operator for Planning Reserve Margins (PRM) Study (2008; 7 pp.);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington. Declaration to Friends of the Columbia Gorge, Inc. and Save Our Scenic Area (Sep 2008; 16 pp);
- California Energy Commission's Preliminary Staff Assessment of the Colusa Generating Station (2007; 24 pp);
- Rio del Oro Specific Plan Project Recirculated Draft Environmental Impact Report (2008; 66 pp);
- Replies to Response to Comments Re: Regional University Specific Plan Environmental Impact Report (2008; 20 pp);
- Regional University Specific Plan Environmental Impact Report (2008; 33 pp.);
- Clark Precast, LLC's "Sugarland" project, Negative Declaration (2008; 15 pp.);
- Cape Wind Project Draft Environmental Impact Statement (2008; 157 pp.);
- Yuba Highlands Specific Plan (or Area Plan) Environmental Impact Report (2006; 37 pp.);
- Replies to responses to comments on Mitigated Negative Declaration of the proposed

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- Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 5 pp);
- Mitigated Negative Declaration of the proposed Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 15 pp);
- Windy Point Wind Farm Environmental Review and EIS (2006; 14 pp and 36 Powerpoint slides in reply to responses to comments);
- Shiloh 1 Wind Power Project EIR (2005; 18 pp);
- Buena Vista Wind Energy Project Notice of Preparation of EIR (2004; 15 pp);
- Negative Declaration of the proposed Callahan Estates Subdivision (2004; 11 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 9 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 13 pp);
- Negative Declaration of the proposed Creekside Highlands Project, Tract 7270 (2004; 21 pp);
- On the petition California Fish and Game Commission to list the Burrowing Owl as threatened or endangered (2003; 10 pp);
- Conditional Use Permit renewals from Alameda County for wind turbine operations in the Altamont Pass Wind Resource Area (2003; 41 pp);
- UC Davis Long Range Development Plan of 2003, particularly with regard to the Neighborhood Master Plan (2003; 23 pp);
- Anderson Marketplace Draft Environmental Impact Report (2003: 18 pp + 3 plates of photos);
- Negative Declaration of the proposed expansion of Temple B'nai Tikyah (2003; 6 pp);
- Antonio Mountain Ranch Specific Plan Public Draft EIR (2002: 23 pp);
- Response to testimony of experts at the East Altamont Energy Center evidentiary hearing on biological resources (2002: 9 pp);
- Revised Draft Environmental Impact Report, The Promenade (2002: 7 pp);
- Recirculated Initial Study for Calpine's proposed Pajaro Valley Energy Center (2002: 3 pp);
- UC Merced -- Declaration of Dr. Shawn Smallwood in support of petitioner's application for temporary restraining order and preliminary injunction (2002: 5 pp);
- Replies to response to comments in Final Environmental Impact Report, Atwood Ranch Unit III Subdivision (2003: 22 pp);
- Draft Environmental Impact Report, Atwood Ranch Unit III Subdivision (2002: 19 pp + 8 photos on 4 plates);
- California Energy Commission Staff Report on GWF Tracy Peaker Project (2002: 17 pp + 3 photos; follow-up report of 3 pp);
- Initial Study and Negative Declaration, Silver Bend Apartments, Placer County (2002: 13 pp);
- UC Merced Long-range Development Plan DEIR and UC Merced Community Plan DEIR (2001: 26 pp);
- Initial Study, Colusa County Power Plant (2001: 6 pp);
- Comments on Proposed Dog Park at Catlin Park, Folsom, California (2001: 5 pp + 4 photos);
- Pacific Lumber Co. (Headwaters) Habitat Conservation Plan and Environmental Impact Report (1998: 28 pp);
- Final Environmental Impact Report/Statement for Issuance of Take authorization for listed



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

**Comments on other Environmental Review Documents:**

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

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

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

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

#### **Posters at Professional Meetings**

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

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

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

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

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

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

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

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

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

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

#### **Presentations at Professional Meetings and Seminars**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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Barbara, 27 October 2006.

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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Sacramento, California, August 18, 2004.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

#### **Other forms of Participation at Professional Meetings**

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

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- Chair of Technical Session: Human communities and ecosystem health: Comparing perspectives and making connection. Managing for Ecosystem Health, International Congress on Ecosystem Health, Sacramento, CA August 15-20, 1999.
- Student Awards Committee, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.
- Student Mentor, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

#### **Printed Mass Media**

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

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

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

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

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

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

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

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

#### **Radio/Television**

PBS News Hour,

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Committees**

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

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#### **Other Professional Activities or Products**

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

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

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

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

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

#### **Memberships in Professional Societies**

The Wildlife Society  
Raptor Research Foundation

#### **Honors and Awards**

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

#### **Community Activities**

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

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**Representative Clients/Funders**

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

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**Representative special-status species experience**

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

## **EXHIBIT D**



**WILSON IHRIG**  
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA  
WASHINGTON  
NEW YORK

WI #24-001.45

October 9<sup>th</sup>, 2024

Ms. Kelilah D. Federman  
Adams Broadwell Joseph & Cardozo  
601 Gateway Boulevard, Suite 1000  
South San Francisco, California 94080

**SUBJECT: Dogwood Geothermal Project DEIR  
Imperial County, California  
Comments on Noise Analysis**

Dear Ms. Federman,

As requested, we have reviewed the information and noise impact analysis for the Draft Environmental Impact Report (DEIR) for the Dogwood Geothermal Project in Imperial County, CA. The proposed project is located on approximately 125 acres. The project includes a geothermal plant with associated ancillary and auxiliary facilities, a new substation, a 7 megawatt (MW) solar facility, and a medium voltage distribution cable from the proposed solar facility to the geothermal plant.

G D-1

Currently, the project site is undeveloped. Existing land uses in the vicinity of the site include single-family houses to the east, south, and southeast of the project. The closest sensitive receiver is located at 104 Jasper Rd, at 540 feet from the project. This letter is based on Appendix K, the Noise Technical Report, prepared by Catalyst Environmental Solutions and dated March 15, 2024.

Wilson Ihrig is an acoustical consulting firm that has practiced exclusively in the field of acoustics since 1966. During our 58 years of operation, we have prepared hundreds of noise studies for Environmental Impact Reports and Statements. We have one of the largest technical laboratories in the acoustical consulting industry. We also utilize industry-standard acoustical programs such as Roadway Construction Noise Model (RCNM), SoundPLAN, and CadnaA. In short, we are well qualified to prepare environmental noise studies and review studies prepared by others.

**Baseline Levels are Improperly Established**

The manner in which the DEIR has determined the existing noise environment is poorly supported. The DEIR obtains the noise threshold level by referencing Community Noise Equivalent Level (CNEL) reference levels from Table 3 of the Imperial County's Noise Element<sup>1</sup> (Noise Element). However, the DEIR does not consider any measurements that reflect current conditions near the sensitive receivers.

G D-2

CEQA requires evaluation of whether a project would cause a "substantial temporary or permanent increase in ambient noise levels." Without knowing how loud the environment is, it is impossible to

<sup>1</sup> <https://www.lcpds.com/assets/planning/noise-element-2015.pdf>

determine if the new project will increase noise in the surrounding community. Baseline noise measurements are the preferred way to determine background noise sources. These measurements serve as a crucial reference point for evaluating the potential noise impacts of proposed projects or activities. Without establishing the baseline noise conditions before any new development occurs, decision-makers cannot effectively determine whether the project complies with noise regulations nor identify any potential adverse effects on the surrounding environment and communities.

G D-2  
cont'd

The cited levels only consider traffic noise. However, that is not the only ambient noise source near sensitive receivers. There is noise from freight train horns/operations, noise from agricultural use, and noise from nearby power plants and industrial uses. Noise levels should be physically measured to be accurately determined. Additionally, the Noise Element specifically mentions "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" (page 22).

Since the County of Imperial Codified Ordinances<sup>2</sup> (Codified Ordinance, Title 9, Division 7) establishes a 50 dB daytime and 45 dB nighttime noise limit, full 24-hour measurements are recommended to determine ambient noise for residential receivers of interest. At the very least, the Federal Transit Administration's 2018 Transit Noise and Vibration Impact Assessment Manual<sup>3</sup> (FTA Manual) Appendix E recommends a minimum of three one-hour Equivalent Sound Level (Leq) noise measurements (peak-hour roadway traffic, typical midday conditions, and typical nighttime conditions) to estimate the Day-Night Sound Level (Ldn) at site, which can be used to establish baseline noise conditions for the project, including the CNEL. **The Project should conduct properly documented ambient measurements near sensitive receptors, that capture the worst case (quietest) baseline conditions, to determine impact.**

### DEIR Omits Potentially Significant Construction Noise Impacts

The DEIR ignores potentially significant impacts for sensitive receivers based on Imperial County drilling standards. Section 91702.01(B) in the Codified Ordinance states that each "operator shall limit drilling noise to a sound level equivalent to CNEL sixty (60) dB(A)" and that "the level shown may be exceeded by ten percent (10%) if the noise is intermittent and during daylight hours." Table 3 of Appendix K in the DEIR states that a drill rig will be used for 15 daytime hours and 9 nighttime hours for 180 days. This represents 24-hour operation for roughly half a year.

G D-3

"Intermittent" is not clearly defined. However, the idea that pieces of construction equipment are used only partially within a set period of time is integral to the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM)<sup>4</sup>. RCNM uses something called 'Usage Factors' to approximate this. For example, if a drill was used 20% of the time within an hour, a usage factor of 20% would be used in the calculation to convert the Lmax level to an Leq. 20% was used in this analysis, since that is the default RCNM usage factor for a drill rig truck.

We have interpreted the code to have two criteria. One is a daytime criterion of 66 dBA. The other is a CNEL of 60 dBA. For the CNEL, it was assumed that the noise from the drill was constant, and the

<sup>2</sup> [https://library.municode.com/ca/imperial\\_county/codes/code\\_of\\_ordinances](https://library.municode.com/ca/imperial_county/codes/code_of_ordinances)

<sup>3</sup> [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf)

<sup>4</sup> [https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction\\_noise/rcnm/rcnm.cfm](https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction_noise/rcnm/rcnm.cfm)



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Dogwood Geothermal Project DEIR  
Comments on Noise Analysis

appropriate nighttime penalties were applied, as required by the definition of the metric<sup>5</sup>. Results of this analysis are shown in Table 1.

**Table 1: Modeled Construction Noise for two Common Pieces of Equipment with Default Usage Factors**

Equipment	Typical L <sub>max</sub> at 50 ft	Usage Factor	Distance to Sensitive Receiver	Predicted Sound Level (dBA)	Noise Criteria (dBA)	Exceeds Criteria?
Drill	84 dBA	20%	540 ft	56 (1-hr Leq)	66 (1-hr Leq)	No
Drill	84 dBA	20%	540 ft	63 CNEL	60 CNEL	Yes

24-hour CNEL levels are over the Imperial County Codified Ordinance drilling standard threshold. This represents an unreported impact, and thus should be studied in an updated EIR, with mitigation considered, such as a temporary sound wall.

### DEIR Omits Potentially Significant Operational Noise Impacts

On page 4-2 of Appendix K, The DEIR mentions that "existing geothermal facilities and geothermal wells" have a sound power level "in the range of 113 dBA" and that "operational noise levels of an existing geothermal facility in Imperial County were recorded at 70 dBA Leq at approximately 100 feet." If those levels are consistent with the new facility, Table 2 calculates the predicted levels at the distance from the receiver. The criteria was set by the Imperial County Noise Ordinance which states that noise "received at the property line of a residence is limited to 50 dBA Leq in the daytime and 45 dBA Leq at night" (Appendix K, DEIR Page 3-4).

**Table 2: Modeled Operational Noise using Source Levels and Distances Cited on DEIR**

Noise Source	Cited Sound Level (dBA)	Predicted Level at 540 ft [dBA]	Exceeds criteria? 50/45 (Day/night)
Geothermal Facility	70 Sound Pressure at 100 feet	55	Yes/Yes
Geothermal Facility	113 Sound Power	61	Yes/Yes

However, this calculation does not represent the ambient level. Elevated ambient levels may be above the noise thresholds, and thus these levels may not increase noise levels. The reverse may be true, and the impact could be even greater compared to ambient levels. This is why establishing baseline noise is important for the project applicant to disclose. As it stands, the DEIR should be updated to include potential mitigation for operational noise, such as a sound wall.

### Conclusion

The DEIR's analysis includes several omissions and errors, such as an incomplete survey of the existing noise environment, improper thresholds of construction noise, and a potential undisclosed significant impact. As such, the DEIR should be updated, with discussions of potential mitigation

<sup>5</sup> [https://www.iawa.org/-/media/iawa-web/noise-management/files/aircraft\\_noise\\_lax.ashx](https://www.iawa.org/-/media/iawa-web/noise-management/files/aircraft_noise_lax.ashx)

G D-3  
cont'd

G D-4

G D-5

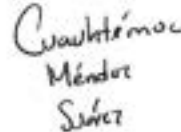
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Dogwood Geothermal Project DEIR  
Comments on Noise Analysis

measures and their effectiveness. Please feel free to contact us with any questions on this information.  
Very truly yours,  
WILSON IHRIG

G D-5  
cont'd



Jack Meighan  
Associate



Cuauhtémoc Méndez Suárez  
Associate





## JACK MEIGHAN

Associate

Jack joined Wilson Ihrig in 2021 and is an experienced acoustics engineer with expertise in projects involving rail transit systems, highways, CEQA analysis, environmental noise reduction, mechanical drawing reviews, and construction noise and vibration mitigation. He has hands-on experience with project management, including client coordination and presentations, as well as in designing, developing, and testing MATLAB code used in acoustics applications. Additionally, his expertise includes taking field measurements, developing test plans and specifying, purchasing, setting up and repairing acoustic measurement equipment. He has experience in using Traffic Noise Model (TNM), CadnaA, EASE, Visual Basic, LabView, and CAD software.

### Education

- B.S. in Mechanical Engineering, University of Southern California, Los Angeles, CA

### Project Experience

#### ***Metro Regional Connector, Los Angeles CA***

Planned, took, and processed measurements as part of a team to determine the effectiveness of floating slab trackwork for a new subway in downtown Los Angeles that travels below the Walt Disney Concert Hall and the Colburn School of Music.

#### ***Rodeo Credit Enterprise CEQA Analysis for New Construction, Palmdale, CA***

Wrote an accepted proposal and executed it for a noise study project to determine noise mitigation requirements on a new housing development. Led all aspects of the project and managed the budget during all phases of project completion. Completed 5 separate projects of this type for this developer.

#### ***Blackhall Studios, Santa Clarita, CA***

Led the vibration measurement effort for a new soundstage directly adjacent to an existing freight and commuter rail line. Tested equipment, processed data, and analyzed results to determine the vibration propagation through the soil to the proposed soundstage locations, and was part of the team that developed mitigation techniques for the office spaces directly next to the rail line.

#### ***Octavia Residential Condos CEQA Study, San Francisco, CA***

Calculated the STC ratings for the proposed windows to meet Title 24 requirements, modeled the acoustic performance of floor and ceiling structures, researched noise codes, helped with a mechanical design review, and wrote a report summarizing the results for a new Condominium project being developed in San Francisco.

#### ***San Diego International Airport Terminal I Replacement, CA***

Conducted interior noise and vibration measurements, analyzed measurement data to help determine project criteria, modeled the existing and future terminals in CadnaA, and was part of a team that did a complete HVAC analysis of the entire terminal, as part of a CEQA analysis where a new terminal for the airport is being designed.

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***Five Points Apartments Noise Study, Whittier, CA***

Took measurements, researched sound data and solutions, and recommended mitigation for a new apartment complex that was located next to an existing car wash, as part of a CEQA review.

***USC Ellison Vibration Survey, Los Angeles, CA***

Conducted vibration measurements as part of a survey to determine the effectiveness of vibration isolation platforms that are used to insulate cell growth in a cancer research facility. Determined the effectiveness and presented this information to the client. Researched and recommended a permanent monitoring system so the client could view data in real time.

***TEN50 Condos 'Popping' Noise Investigation, Los Angeles, CA***

Was part of a team that investigated the noise source of an unwanted popping noise in luxury condos in Downtown Los Angeles. Helped isolate the noise source location with accelerometers to determine where vibrations were occurring first and used an acoustic camera to determine where in the condo the noise was coming from.

***2000 University Project, Berkely, CA***

Wrote a construction noise monitoring plan based on environmental noise calculations, wrote a report summarizing the results, and attending a meeting with the client to discuss options.

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***Bay Area Rapid Transit (BART) On-Track, CA, San Francisco Bay Area, CA\****

Day to day project manager, responsible for meetings, presentations, and coordination with the client for an ongoing noise study on the BART system. Developed MATLAB code to process measurements and determine areas where high corrugation was present, contributing to excessively high in-car noise levels. Performed noise measurements inside both the right of way and the vehicle cabin, in addition to rail corrugation measurements.

***California I-605/SR-60 Interchange Improvement, Los Angeles, CA\****

Developed a noise model of the area that predicted sound levels for abatement design, in addition to conducting noise measurements and analysis. Led the Team in use of the FHWA Traffic Noise Model Software for the project, involving three major highways and two busy interchanges extending over 17 miles in southern California.

***Sound Transit On-Track, Seattle, WA\****

Took measurements, fixed equipment, and developed software in MATLAB to process Corrugation Analysis Trolley measurements as part of an ongoing noise study on the Sound Transit Link system. Tested vibration data to determine the best measurement and processing techniques to store the data in an online database for in-car measurements.

***LA Metro CRRC Railcar Testing, Los Angeles, CA\****

Led the effort to plan the measurements, determine measurement locations and finalize the test plan. Formulated a method to capture speed data directly from legacy train vehicles. Executed noise and vibration specification measurements for new rail cars delivered by CRRC.

***City of Los Angeles, Pershing Square Station Rehabilitation Noise Monitoring, CA\****

Built noise models, wrote a construction noise plan, and assisted in on-site construction noise issues as they arose for a renovation of the Pershing Square metro station in downtown Los

\* Work done prior to working for Wilson Ihrig

WILSON IHRIG  
Jack Meighan - Page 3

Angeles. Trained construction personnel in techniques for noise reduction and how to conduct noise monitoring measurements to meet project specifications.

***City of Orange Metrolink Parking Garage Construction Monitoring, CA\****

Wrote an adaptive management vibration monitoring plan, set up equipment to monitor live vibration levels, and generated weekly reports as part of an effort to build a new parking garage. Designed, planned, and completed measurements to predict and mitigate pile driving construction impacts at three historic building locations adjacent to the construction site. Coordinated with the client whenever an on-site problem arose.

***LA Metro Westside Subway Construction, Los Angeles, CA\****

Planned, organized, and processed noise measurements for the Purple Line extension construction. Implemented both long term microphones to measure noise levels and accelerometers to measure vibration levels in existing subway tunnels. Oversaw noise monitoring at sensitive construction sites for the project and worked with the contractor to find ways to reduce construction noise levels by approximately 10dB.

***Montreal Réseau Express Métropolitain, Canada\****

Conducted vibration propagation measurements used to create models to predict operational vibration levels for an under-construction transit line. Managed equipment, solved problems in the field, and wrote parts of the report summarizing the findings of the acoustic study.

***NHCRP Barrier\****

Took on-highway measurements and wrote, designed, developed, and tested MATLAB code to identify specific spectrograms to use for analyses for a project evaluating barrier reflected highway traffic noise differences in the presence of a single absorptive or reflective noise barrier.

***Siemens Railcar Testing for Sound Transit, Seattle, WA\****

Measured in-car noise and vibration for new rail cars delivered by Siemens. Developed new internal techniques for measurements based on the written specifications. Contributed to the team that helped identify issues that new cars had in meeting the Sound Transit specifications for noise and vibration. Participated in developing the test plan and specified then acquired new equipment for the measurement.

***Toronto/Ontario Eglinton Crosstown Light Rail, Final Design, Canada\****

Assisted in vibration propagation measurements, analysis, and recommendations for mitigation for a 12-mile light-rail line both on and under Eglinton Avenue. Set up and ran equipment for at-grade measurements with an impact hammer for underground measurements with an impact load cell that was used during pre-construction borehole drilling.

\* Work done prior to working for Wilson Ihrig

**Adams Broadwell Joseph & Cardozo**

**November 14, 2024**

- G-1** This is an introductory comment and provides a general summary of the project and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- G-2** Comment acknowledged.
- G-3** Please refer to responses to comments G A-3, G A-4, G A-10, G A-12, G A-13, G A-18, G A-27 and G A-33 below.
- G-4** The Draft EIR includes a detailed assessment of existing agricultural resources in the Project area and potential impacts to these resources in Section 3.3. Please refer to Responses G-41, G-48, and G-49 below.
- G-5** Please refer to responses to comments A-4, A-5, A-6, A-7, and A-8. Section 3.5.1 has been clarified with discussions of species with a low probability of occurrence in addition to those with a medium or high likelihood of occurrence that were included in the Draft EIR. No new impacts would occur from this clarification on species with low potential to occur in the greater vicinity of the Project, and potential impacts to biological resources would remain less than significant. See response to comment 7H for discussion of bats, response to comment 1E for discussion on burrowing owls, and Section 3.5.1 for discussions on special status species occurring in the project vicinity.
- G-6** Please refer to responses to comments G D-2, G D-3, and G D-4 below.
- G-7** This comment states the mission and interest of the commenter and California Unions for Reliable Energy (CURE). This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- G-8** Draft EIR Chapter 2 Project Description meets the provisions of the CEQA Guideline 15124 regarding information that should be provided in an EIR project description and provides an adequate level of detail for the supporting analysis and conclusions provided in the Draft EIR.

15124(a). EIR Figures 2-1, 2-2, and 2-3 provide the precise location and boundaries of the proposed project, including the project site's location in a regional context.

15124 (b). The project objectives are provided in EIR Section 2.2 Project Objectives (see EIR page 2-6).

15124 (c). See EIR Section 2.3 Project Facilities, pages 2-7 through 2-29, which provides details regarding the project components, including supporting figures and tables.

15124 (d). See EIR Section 2.8 Required Project Approvals (EIR pages 2-29 through 2-30), which provides the required project approvals by the County of Imperial and other agencies.

The comment states that the Draft EIR omitted design details that have implications on determining the scope of the project's impacts. CEQA requires a general description of the "main features" of the project and does not require "all of the details or particulars." *Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20, 26. A project description is adequate if it provides information sufficient to inform the public and the decision-makers of

the full scope of the project. Chapter 2.0, Project Description, of the Draft EIR provides an adequate description of the project and main features of the project. There is sufficient information in Chapter 2.0, Project Description, of the Draft EIR to inform the public and decision-makers concerning the scope of the project and is therefore adequate since it describes the main features of the project.

Please refer to responses to comments G-9 and G-10.

**G-9** Please refer to responses to comments G A-3 and G A-4 below.

**G-10** The Draft EIR fully addresses all reasonably foreseeable and related developments. As provided in the Draft EIR, the Project proposes to develop an on-site substation to serve as the point of interconnection with the IID grid. Extensive transmission towers/poles/facilities are present on Dogwood Road from the existing Heber 2 Geothermal Energy Facility and the Dogwood project would utilize this infrastructure to send power to the IID grid. Therefore, no new off-site transmission poles or facilities are foreseeably needed for the Project to operate, and no off-site impacts would occur. The Project proposes to develop a dedicated substation to step-up the power and send it to the grid.

**G-11** Comment acknowledged. This comment describes the requirement of providing the existing environmental setting for the purposes of CEQA and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required.

Please refer to responses to comments G-12 through G-18.

**G-12** Please refer to responses to comments A-4, A-5, A-6, A-7, and A-8 above. Please also refer to response to comment G C-9.

Section 3.5.1 has been clarified with discussions of species with a low likelihood of occurrence in addition to those with a medium or high likelihood of occurrence that were included in the Draft EIR. No new impacts would occur from this clarification on species with low potential to occur in the greater vicinity of the Project, and impacts to biological resources would remain less than significant. Please refer to response to comment G-13 for discussion of bats, response to comment A-8 for discussion on burrowing owls, and Section 3.5.1 for discussions on special status species occurring in the project vicinity.

**G-13** Section 3.5.1 has been clarified with discussions of species with a low likelihood of occurrence, including special-status bats, in addition to those with a medium or high likelihood of occurrence that were included in the Draft EIR. The Project site does not provide roosting habitat for any species of bat as it lacks permanent buildings, trees, caves, or cliffs. A discussion of potential impacts to bats that could be incidentally present is provided. Minimization and mitigation measures applicable to bats are discussed in Section 3.5.3. Furthermore, additional measures have been added to Mitigation Measure BIO-11 to protect wildlife, including collision deterrents such as fence markers. These measures will further reduce the potential impacts any species of bats incidentally present in the vicinity of the project site. Impacts to special-status species would remain less than significant.

**G-14** Please refer to response to comment A-8 above.

**G-15** No in-water work or modifications to aquatic habitat for desert pupfish or any other aquatic species are proposed as a part of this project. Further, the closest pupfish population is approximately 5 miles to the north of the Project site at the Imperial Irrigation District ponds (CDFW Staff Summary for February 16-17, 2022). The nearby IID canals to the Project site are not directly hydrologically connected to these ponds. Further, as explained in response to



comment B-5, reductions in irrigation flows to IID canals resulting from conversion of agricultural lands to solar energy use will be negligible.

- G-16** Please refer to response to comment A-6 above. Catalyst biologists mapped 1.17 acres of arrow weed in the BSA, representing 0.2 percent of the BSA. This acreage is accurately described in the Draft EIR, the Biological Resources and Burrowing Owl Survey Report, and the PJD based on their respective survey area sizes. The EIR has been revised to include the acreage in Section 3.5.1.

Appendix F (Preliminary Jurisdictional Determination) accurately describes the riparian vegetation present in the IID canals, including arrow weed as well as the lack of riparian vegetation present in agricultural v-ditches. The shallow v-ditches on the Project Site do not support arrow weed and no other riparian vegetation communities are present within these v-ditches. Representative photos of v-ditches are included in Appendix F (see photos 9, 10, and 11).

- G-17** The Draft EIR acknowledges the presence of 0.11 acres of jurisdictional waters in the form of the canals/drains (Appendix F) and addresses potential hazardous materials spills through a hazardous material management program (HMMP) (Draft EIR at 3.10-7 to 3.10-8). Mitigation Measure HAZ-1 provides extensive protections to prevent and address potential isopentane storage leakage, which will also prevent harm to the canals. (Draft EIR at 3.10-11).

Impacts to jurisdictional non-wetland waters of the United States (WoUS) and Waters of the State (WoS) were delineated based on the limits of the Ordinary High Water Mark (OHWM) are described in the USACE Field Guide to the Identification of the Ordinary High Water Mark in the Arid West. These are standardized methods to identify the limits of jurisdiction. Impacts to WoUS and WoS are therefore calculated for potentially jurisdictional areas. Both the WoUS and WoS consist of IID drains and canals and fall below the OHWM. No wetlands were identified above the OHWM in the survey area. Riparian vegetation is likewise restricted to below the OHWM.

No temporary or permanent modifications would be made to WoUS or WoS for this project. Impacts to waters from activities near but not in the waters are not within jurisdictional areas. Avoidance and mitigation for such impacts are accounted for as part of the Clean Water Act Section 401 and NPDES permitting processes. Further, Section 2.7 includes Applicant Proposed Measures and Best Management Practices for surface and Ground Water Resources including:

- A Water Quality Management Plan (WQMP) was prepared for both the construction and operations phases of the Project (Appendix A). The WQMP includes numerous “good housekeeping” and preventative maintenance, employee training, safe handling/storage, and spill response measures to prevent and minimize any unintended releases.
- The site will be designed and prepared to provide adequate stormwater conveyance and/or infiltration.
- Any spills or unintended releases of chemicals used during Project construction and/or operation will be cleaned up with the appropriate materials (i.e., absorbent pads, foams/gels) and the affected area remediated to prevent contact with groundwater resources.
- No vehicle fueling or maintenance will take place on exposed soil.



- G-18** Please refer to responses to comments G A-7, G A-9, and G C-11 below.
- G-19** Please refer to responses to comments G A-19, G A-20, and G A-21 below.
- G-20** Please refer to responses to comments G A-18 and G A-19 below.
- G-21** Please refer to responses to comments G A-6, G A-18, and G A-24 below.
- G-22** Please refer to responses to comments G A-6, G A-15, G A-26, and G A-31 below.
- G-23** Please refer to responses to comments G A-5, G A-6, and G A-5 below.
- G-24** Please refer to responses to comments G A-18 and G A-31 below.
- G-25** Please refer to responses to comments G A-8 and G A-16 below.
- G-26** Please refer to responses to comments G A-8, G A-16, and G A-30 below. The Heber Elementary School is over a mile away from the Project site and H<sub>2</sub>S emissions will attenuate over this distance; therefore, no long-term exposure or health hazards to the Heber Elementary School would occur.
- G-27** Please refer to responses to comments G A-10, G A-11, G A-12, and G A-13below.
- G-28** Please refer to responses to comments G A-10, G A-11, G A-12, and G A-13below.
- G-29** Comment acknowledged. This comment is a general statement regarding the evaluation of greenhouse gas emissions and identification of impacts; however, the comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required.
- Please also refer to comments G-30.
- G-30** Please refer to responses to comments G A-16, G A-23, G A-31, and G A-36 below.
- G-31** Comment acknowledged. This comment is a general statement regarding the evaluation of biological resources; however, the comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required.
- Please refer to responses G-31 through G-38.
- G-32** The Final EIR has been revised to clarify that the project is located within a landscape crossed by paved roads and bordered by existing utility infrastructure, commercial enterprises, and residences. All wildlife moving between the project site and adjacent similar habitats must already cross paved roads and navigate vehicle traffic and existing facilities and operations. Additionally, the project area agricultural fields are routinely harvested, disked, and replanted.
- The project area is identified as having “limited connectivity opportunity” and is not located in a documented “essential connectivity area”, within a “natural landscape block”, or within a linkage for the California Desert Linkage Network mapped in the Interstate Connections – California Essential Habitat Connectivity (CEHC) Viewer in BIOS. Accordingly, the Project will have a less than significant impact on habitat connectivity and wildlife movement.
- G-33** Please refer to response comment A-8 above.
- G-34** The Draft EIR acknowledges that impacts to special status wildlife, including birds, could occur, including injury, mortality, nest failures, and loss of young. Section 3.5 Biological Resources

of the EIR has been updated to include a discussion of the state of scientific knowledge regarding the “lake effect” hypothesis. At present, there are no state or federal guidelines for addressing hypothetical effects from the lake effect. Nevertheless, the Applicant would implement Mitigation Measure BIO-6 to reduce glint and glare from PV solar panels to minimize the likelihood that birds may mistake panels for surface water.

Additional protection measures have been added including Mitigation Measure BIO-6, Mitigation Measure BIO-9, Mitigation Measure BIO-10, and Mitigation Measure BIO-11 to further minimize potential impacts to wildlife.

**MM BIO-6 – Non-reflective Coatings on Solar Panels** – The Applicant will use non-reflective materials and finishes to the solar panels to reduce potential glare as described in the Glint and Glare Analysis (Appendix C of the EIR). These coatings will create a matte surface that is less likely to resemble the reflective properties of water to birds flying overhead.

**MM BIO-9 Avian/Power Line Collision Avoidance and Minimization** – Install bird flight diverters in accordance with the Avian Power Line Interaction Committee (APLIC) guidelines for reducing avian collisions with power lines (Reducing Avian Collisions with Power Lines; APLIC 2012). Details of design components shall be indicated on all construction plans. Ormat shall monitor for new versions of the APLIC collision guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures. All bird flight diverters shall be maintained for the duration of construction and operation.

**MM BIO-10 Avian Electrocution Avoidance and Minimization** - Implement Project-specific design measures in accordance with the APLIC guidelines for minimizing avian electrocutions. Ormat shall construct and maintain all transmission facilities, towers, poles, and lines in accordance with applicable policies set forth in the most recent APLIC guidelines for minimizing avian electrocutions (Avian Protection Plan Guidelines; APLIC and USFWS 2005). Specific APLIC guidelines to be incorporated into the design of the transmission lines to minimize avian electrocutions shall include the following:

- a) Design the tops of structures to be safe for perching raptors.
- b) Provide 60 inches separation between energized conductors and:
  - i. energized conductors,
  - ii. grounded or neutral conductors,
  - iii. pole line hardware that could provide a perch or nesting place, and
  - iv. overhead shield wires, including optical ground wire shield wire.
- c) Ensure that all exposed jumper cables are completely covered with a cover of a qualified insulation rating.
- d) Ensure insulation of all energized arresters with covers and insulated cables.
- e) Details of design components shall be indicated on all construction plans. Ormat shall monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during Project construction, provided these

actions do not require the purchase of previously ordered transmission line structures.

**MM BIO-11 Biological Protection Measures**

- Fence markers shall be installed to deter or prevent birds and bats from colliding with perimeter/security fencing, and maintenance or replacement of these markers will be completed per the manufacturer instruction.
- If encountered, wildlife within the Project Site shall be allowed to escape unimpeded, relocated by a qualified biologist and placed in a designated safe area away from construction activities, or left in place when required by regulations, policies, permits, and/or conditions of approval. If wildlife relocation of common species is required, the qualified biologist approved by CDFW prior to the start of construction shall [approve the method of relocation OR oversee the relocation]. Any relocation of special status species would require additional coverage under an Incidental Take Permit or Biological Opinion.
- Construction personnel trained by the qualified biologist during the WEAP, shall inspect under vehicles and equipment every time the vehicles or equipment are moved to make sure no special status or common wildlife species are present, which could be injured. If an animal is present, site workers shall wait for the individual to move to a safe location. If a special-status species is discovered under equipment or vehicles and does not move on its own, the Applicant shall contact Imperial County, CDFW, and/or USFWS to determine the appropriate action.
- All excavations (e.g., steep-walled holes, or trenches) more than 6 inches deep shall be covered with plywood or similar materials when not in use or fitted with at least one escape ramp constructed of earth dirt fill, wooden planks, or another material that wildlife could ascend to prevent entrapment. All excavations more than 6 inches deep shall be inspected daily for entrapped wildlife before construction activities begin and once immediately before being covered with plywood. Before excavations are filled, they shall be thoroughly inspected for entrapped wildlife. Any wildlife discovered shall be allowed to escape unimpeded before field activities resume or shall be removed from excavated areas by a qualified biologist and released at a safe nearby location.
- Where habitat will be temporarily disturbed, restore the disturbed area to pre-project condition, including decompacting soil and revegetating.
- All open ends of pipes, culverts, and conduits temporarily installed in open trenches or stored in staging/laydown areas shall be covered/capped at the end of each workday. Any such materials that have not been capped shall be inspected by construction personnel for wildlife before being moved, buried, or handled. Should wildlife become trapped, a qualified biologist shall be notified by construction personnel to remove and relocate the individual(s). If a listed species is discovered inside a pipe, that section of pipe shall not be moved. The Project shall contact CDFW and/or USFWS to determine the appropriate action.

- All food-related trash items (wrappers, cans, bottles, food scraps, cigarettes, etc.), general trash, micro trash (nails, bits of metal and plastic, small construction debris, etc.), and other human-generated debris scheduled to be removed shall be stored in animal-proof containers and removed from the site on a regular basis (weekly during construction, and at least monthly during operations). No deliberate feeding of wildlife or domestic animals shall be allowed.
- New light sources shall be minimized, and lighting shall be designed (e.g., using shielding and/or downcast lights) to limit the lighted area to the minimum necessary.
- Use of chemicals, fuels, lubricants, or biocides shall be in compliance with all local, state, and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation.
- To prevent harassment and mortality of listed, special status, and common wildlife species and destruction of their habitats, no domesticated animals shall be permitted on the site.
- No firearms shall be allowed on the Project Site, unless otherwise approved for security personnel.
- Use only native, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit harmful pesticide residues.
- Protect pollinators and their habitats from pesticides, including insecticides, fungicides, and herbicides. If pesticides are used in areas with flowering plants, lessen their potential harm by adhering to the following guidance:
  - Avoid the use of neonicotinoids or other systemic insecticides, including coated seeds due to their ecosystem persistence, systemic nature, and toxicity to pollinators (Xerces Systemic Insecticides List [Xerces Society 2025]).
  - Avoid the use of insecticides that target lepidopterans (e.g., moths and butterflies), including biological pesticides (IRAC 2011).
  - Use targeted application methods, avoid large-scale broadcast applications, and take precautions to limit off-site movement (e.g., wind drift, discharge from surface water flows).
  - If pesticides are used for vector control treatments (e.g., mosquitoes), avoid treatment unless monitoring indicates that the species and numbers exceed a public health threshold. For any mosquito treatments, first employ prevention steps such as reducing standing water. Where possible, draw mosquitoes away from sensitive sites (e.g., using dry ice traps) to limit treatment effects in sensitive habitat areas.

**G-35** Please refer to response to comment G-34 (MM BIO-9 and MM BIO-10). As discussed in response to comment G-34, MM BIO-9 and MM BIO-10 state that installation of flight diverters and project-specific design features will be done in accordance with applicable policies of the

APLIC guidelines related to bird collision and electrocution. Therefore, impacts to birds and bats from potential collision with distribution lines will be less than significant.

- G-36** Please refer to response to comment G-34 regarding implementation of MM BIO-9, MM BIO-10 and MM BIO-11 which provide mitigation measures to minimize potential impacts from avian strikes with Project facilities, which would reduce impacts to avian and bat species to less than significant levels.
- G-37** Please refer to response to comment G-34 (including text of MM BIO-11 (Biological Protection Measures) and Section 2.7 in the Draft EIR for a list of Applicant Proposed Measures. A speed limit of 5 mph would be observed on the site in order to minimize dust, avoid collision, and incidental mortality of local wildlife. The measures in Section 2.7 are volunteered by the Applicant as a demonstration of good-faith to develop an environmentally-friendly Project. These measures are proposed as part of the overall Project, would be accepted as conditions of Project approval in its Conditional Use Permit, and, therefore, would be binding to the proposed action.
- G-38** Please refer to response to comment G-34. The Final EIR incorporates additional recommendations to clarify and amplify the Project's commitments to avoid significant impacts. These measures would not change any impact/significance determinations. The updated mitigation measures in the Final EIR do not constitute significant new information and therefore does not trigger an obligation to recirculate.

With the measures discussed above, impacts to wildlife from collisions will be reduced to less than significant levels, making additional mitigation unnecessary. Undergrounding of distribution lines is technically and economically infeasible for the Project and not required under the circumstances. Likewise, compensatory mitigation for vehicle traffic is infeasible to implement given the unpredictable nature of vehicle strikes and unnecessary given the measures included in MM BIO-6, MM BIO-9, MM BIO-10 and MM BIO-11 to reduce vehicle speeds on the Project site. (Please refer to response to comment G-37.)

Additional wildlife surveys will be conducted per recommendations by CDFW. (Please refer to responses to comments A-4, A-5, and A-8.)

- G-39** Please refer to response to comments G-41 through G-49.
- G-40** Please refer to responses to comments G-41 and G-42.
- G-41** As provided in Section 1.1.1 and Section 4.2, pursuant to the terms of the CUP, the Project is proposed to operate for a 15-year period with a possible 15-year extension. This is the standard length of a CUP issued by Imperial County for developing/operating a geothermal power plant. As provided in Section 2.6 and Section 4.2, reclamation would occur with the expiration of the CUP, either in 15 years or 30 years.

As provided in Mitigation Measure AG-1b, the Project would submit a final Reclamation Plan to the County for approval prior to the issuance of a grading permit. This is also captured as a discretionary approval under Imperial County in Section 2.8 (Required Project Approvals). A bond for the amount equal to the reclamation cost estimate (prepared by a professional engineer or contractor) would be held for the duration of the Project and would be released upon the County's satisfaction with the returned state of the temporarily converted lands. This mechanism will ensure that the agricultural lands temporarily converted by the Project are returned to the agriculturally productive/farmable condition prior to the development of the Project before the bond is released. This will become an enforceable Condition of Approval

(COA) in the Conditional Use Permit (CUP) and Mitigation Monitoring and Reporting Plan (MMRP), which will be added to the Final EIR.

As provided in Section 2.6, a Draft Reclamation Plan Application and Revegetation Plan (Attachment M in Final EIR) was submitted with each CUP Application and relies on the standardized form provided by Imperial County to identify existing conditions, proposed reclamation activities, and a preliminary cost estimate. These Applications serve as the basis for future site reclamation and will be refined and finalized in consultation with the County prior to the issuance of a grading permit. While the County's Reclamation Plan Application is a standardized form, the Draft Applications provide details on the proposed reclamation activities and their potential costs to: 1) establish the standard/conditions that the site must be returned to; 2) the amount to put in bond/trust to ensure that the reclamation activities are performed to the established standards; and 3) identify potential environmental impacts from the reclamation process, as captured in the Draft EIR. To provide clarification in the Final EIR, the Draft Reclamation Plan Applications and Revegetation Plans (Attachment M in Final EIR) for each CUP Application have been included as Attachment M and the following clarification was included in Section 2.6 (Site Restoration):

The general objective of the final reclamation phase is to return the site as close as possible to the conditions prior to geothermal and solar development. A Preliminary Reclamation Plan Application and Cost Estimate was provided by the Applicant with each CUP Application to the County to 1) confirm feasibility of reclamation; 2) document existing site conditions; 3) provide a cost estimate of reclamation activities; and 4) provide a framework to assess potential impacts of reclamation activities. Attachment M includes the Preliminary Reclamation Plan Applications for each CUP Application. Reclamation activities would be planned and conducted in accordance with County requirements to measure baseline soil conditions and ensure the land will be returned to its current agricultural quality. An agronomic-baseline report (prepared by a professional agronomist) will document baseline conditions of the agricultural portions of the Project site. A schedule of current agricultural operations will also be submitted and include: (1) a land releveling survey with topsoil yardage needs; (2) planned machinery operations, such as removal of rubble and buried pipes and cables, grading, ripping, and other operations to re-establish soil tilth; (3) soil amendments; and (4) revegetation and re-establishment of soil microbiology. In addition, the Applicant will monitor for pests, including insects, vertebrates, weeds, and pathogens, notify the Agricultural Commissioner's office regarding any suspected pest species, maintain records of pests found and treatments used, and obey all pesticide use laws, regulations, and permit conditions.

The commenter has not established that the project in Davis is comparable to this Project, which has as a condition of approval preparation of a reclamation plan to ensure the project site is returned to farmable condition. With the reclamation plan as a condition of approval, the EIR properly concluded that the Project would not cause permanent conversion of Important Farmland.

- G-42** The Project is consistent with the Imperial County General Plan Agricultural and Land Use Elements where "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." Whereas the Project is located within the County Geothermal Overlay Area (see Draft EIR Section 3.3.3 and Section 3.12.3), the County has



accounted for the potential conversion of these agricultural lands in its long-range planning (i.e., General Plan), including potential land use impacts, such as leap-frogging patterns.

The Draft EIR considers potential cumulative impacts from the conversion of agricultural lands to non-agricultural lands (i.e., solar energy) in Imperial County in Section 5.3.2. This section assesses the Project's potential additive effects on agricultural resources when considered with the other past, present, and reasonably foreseeable projects in the vicinity of the Project. As observed in Figure 5-1 in the Draft EIR, potentially cumulative projects are located over a mile to the west of the Project site and the conversion of the proposed agricultural lands would not isolate or limit access to surrounding/adjacent agricultural lands. Therefore, the Project would not cause or lead to a "leap-frogging" land use agricultural pattern in the vicinity of the Project.

- G-43** The project would not result in a permanent conversion of agricultural land. As indicated on EIR page 3.3-9, "Implementation of the project would result in the temporary conversion of approximately 106.88 acres of land currently under or available for agricultural production to non-agricultural uses, ...".

Further, as provided in Draft EIR Section 3.12.1 and Figure 3.12-2 (Zoning Designations), the entire project site is located within the Geothermal Overlay Zone, which represent areas determined by Imperial County to be the most suitable for the geothermal energy development while minimizing the impact to other established uses. Therefore, as discussed in Section 3.12.3, the Project is consistent with the County General Plan. This is further established in Table 3.12-3 (Project Consistency with Applicable General Plan Policies) by the breakdown of applicable General Plan land use policies and Project consistency/analysis. It should also be recognized that the project would result in a temporary conversion of agricultural land, and therefore, the impact to agricultural land is considered temporary, and mitigation measures required as part of the Final EIR would reduce the temporary conversion of agricultural land to a level less than significant.

- G-44** Please refer to responses to comments G-41, G-43, and G-60.

- G-45** As discussed in Draft EIR Section 3.12.3, the Project is consistent with the County General Plan. While the Project would temporarily convert agricultural lands to non-agricultural use, the proposed behind-the-meter parasitic solar facilities are located in close proximity to the Heber 2 and Dogwood geothermal power units (OECs) and would utilize existing infrastructure (geothermal pipeline alignments; see Figure 2-4) to the greatest extent possible to send the parasitic load to the OECs. Further, the County's adoption of the Renewable Energy and Geothermal Energy Overlay Zone (in 2016) is a de facto acknowledgment that the proposed Project site represents a suitable area for the conversion of agricultural lands to the proposed energy facilities. Therefore, an alternative site study is not required.

- G-46** Please refer to responses to comments G-42 and G-43 above.

- G-47** Please refer to responses to comments G-41, G-46, G-48 and G-51.

- G-48** As provided in Mitigation Measure AG-1a, an agricultural conservation easement (ACE) would comply with DOC regulations. While already enforceable as state regulations, if Mitigation Measure AG-1a Option 1 is selected for mitigation, the ACE requirements would become Conditions of Approval (COAs) in the Conditional Use Permit (CUP) for the Project. Further, as stated in Mitigation Measure AG-1a Option 1, the Project would not be issued a grading or building permit by the County until the ACE meets the regulatory conditions. To highlight these

provisions, Mitigation Measure AG-1a Option 1 for Non-Prime and Prime Farmland has been revised in the Final EIR as follows:

#### 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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits . . .”

#### Mitigation for Prime Farmland

“Option 1: Provide Agricultural Conservation Easements. 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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits . . .”

Pursuant to California Civil Code §§815-816 (Conservation Easements), a conservation easement, including an ACE, shall be perpetual in duration (§815.2). This definition provides a permanent mitigation framework to offset the project’s impacts to agricultural resources for the term of the CUP. As discussed in Draft EIR Sections 2.6 and 3.3 and response to comment G-41 above, any temporarily converted agricultural lands would be reclaimed to similar/same conditions as present currently. Therefore, the Project will undergo abandonment and reclamation while the ACE exists in perpetuity. The perpetual nature of the conservation easements ensures they provide the substitute resources required for adequate mitigation pursuant to CEQA Guidelines Section 15370(e) and *V Lions Farming, LLC v. County of Kern*.

The Project would abide by the standard DOC process for establishing a conservation easement. If this mitigation option is selected, the Applicant and Imperial County would work together to identify potentially suitable agricultural lands for an ACE. It is recognized that LESA is an available DOC tool to help identify potentially suitable and similar agricultural lands and may be employed for this project. However, pursuant to DOC’s response to frequently asked questions, an applicant does not have to submit an ACE application with a formal appraisal “if agricultural conservation easement values in the project area have been well established by other, similar easement purchases” (<https://www.conservation.ca.gov/dlrp/grant-programs/Pages/FAQ/aboutACE.aspx>). The Applicant and County will review any recent ACEs and determine if they offer a representative comparison to the subject project site. If not, a formal appraisal will be prepared. Regardless, the County and Applicant will closely coordinate with DOC throughout this process.

The EIR concludes that the project would result in a temporary conversion of agricultural use, and with implementation of proposed mitigation measures, the temporary conversion of agricultural use would be less than significant. Because the conversion of the agricultural use is only temporary, the conservation easement is not the sole basis for determining that the impact will be less than significant.

- G-49** Imperial County administers a robust Agricultural Benefit Program that’s objective is to “mitigate losses to agricultural production, jobs, and our local economy resulting from renewable energy development on farmland in Imperial County.” Approved uses of Agricultural Benefit funds include “stewardship, protection, and enhancement of agricultural lands within

Imperial County.” (<https://agcom.imperialcounty.org/agricultural-benefits-program/>). This program would receive the in-lieu fees and is representative of how mitigation would occur on a program-level to protect sensitive agricultural lands/resources in Imperial County. The fees collected will be reasonably related to this mitigation program to ensure that impacts of temporarily converted agricultural land will be offset through stewardship, protection, and enhancement of other agricultural lands within the County. The County originally adopted the program on January 24, 2012 and subsequently amended it on May 9, 2023 to adjust fees as considered appropriate and adequate by the Board of Supervisors to mitigate the temporary loss of agricultural farmland. The requirement that applicants adhere to this program is considered appropriate by the County, and reduces potential impacts to temporary agricultural conversion to a level less than significant.

To clarify the requirements of Mitigation Measure AG-1a, the following revisions have been made in the Final EIR:

#### Mitigation for Non-Prime Farmland

“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. This appraisal will be performed in accordance with California Department of General Services guidelines and by a qualified, licensed professional. 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,”

#### Mitigation for Prime Farmland

“Option 2: 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. This appraisal will be performed in accordance with California Department of General Services guidelines and by a qualified, licensed professional. 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,”

Lastly, if Mitigation Measure AG-1a Option 2 is selected, the requirement for in-lieu mitigation fees would become a Condition of Approval (COA) in the Conditional Use Permit (CUP) for the Project, and is also included in the Mitigation Monitoring and Reporting Program (MMRP) for the project.

- G-50** Please refer to response to comment G-49 above.
- G-51** Comment noted. Mitigation Measure AG-1a ensures less than significant impacts to farmland that would be temporarily converted from agricultural use.
- G-52** Please refer to response to comment G-41 above.

**G-53** Comment acknowledged. This comment is a general statement regarding the evaluation of potential noise impacts; however, the comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required.

Please refer to response to comment G-54.

**G-54** Please refer to response to comment G D-2 below.

**G-55** Please refer to responses to comments G-54, G-56 and G-57.

**G-56** Please refer to response to comment G D-3 below.

**G-57** Please refer to response to comment G D-4 below.

**G-58** Comment acknowledged. This comment is a general statement regarding the evaluation of cumulative impacts; however, the comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required.

Please refer to response to comment G-59.

**G-59** Appendix G of the CEQA Guidelines specifies that the evaluation of the significance of biological resource impacts requires consideration of any substantial adverse effect to special status species, sensitive habitat, protected areas, wildlife migration, or conflict with plans or policies for protecting biological resources. Therefore, CEQA focuses on identifiable harms to particular special-status species, not generalized impacts to all wildlife. The Final EIR is not improper for doing the same.

Furthermore, the estimates of mortality provided by Dr. Smallwood are not species-specific and are speculative and lacking in any sense of proportion or perspective within the context of the current land uses of the area, which consist of non-native habitats and regularly disturbed and cultivated agricultural croplands, developed areas including roadways, utilities and other development. Given the prevalence of developed land including land that has been converted from its original natural condition to developed, active agricultural lands that are regularly disturbed, as well as the presence of paved roads and energy infrastructure in the area, the habitat quality of the site is overstated and Dr. Smallwood's estimates of impacts resulting from habitat loss associated with development of the project site are unsubstantiated as there is very limited native habitats within or surrounding the project area, and the majority of the project site consists of lands that have been converted from their natural condition.

Finally, the Draft EIR does address habitat and wildlife impacts more generally in Sections 3.5.1, 3.5.3, and 5.3.4. Section 3.5.1 describes the environmental conditions as having extensive developed lands with lack of suitable habitat for several species. Section 3.5.3 explains the lack of significant impacts to habitat and wildlife. Section 5.3.4 explains how compliance with applicable laws and regulations will ensure less than significant cumulative impacts on biological resources.

As required under CEQA, Draft EIR Section 5.3.4 includes a thorough discussion on potential cumulative impacts to sensitive/special status avian species and burrowing owl. Additionally, please refer to response to comment A-8 for additional information on how burrowing owl will be addressed via the CEQA process in the context of its recent status change to a Candidate for listing under the California Endangered Species Act.

The EIR appropriately concludes that cumulative biological resource impacts will be less than significant as mitigated.

- G-60** Draft EIR Section 3.12.3 includes an assessment of the Project's consistency with all applicable land use plans, including the Imperial County General Plan. As noted correctly in the comment, the Project is entirely within the renewable energy/geothermal overlay zone and would require the issuance of a CUP by Imperial County (see Draft EIR Section 2.8).
- G-61** As provided in Draft EIR Section 2.3.3.1, Section 2.4, and Figure 2-9 (Typical Well Pad Layout to Drill a Geothermal Production Well), the Project proposes to develop three geothermal production wells and one injection well. The construction area for a well pad for a production well would be approximately 40,000 square feet (.9 acres). As the Project proposes to develop three well pads, a total of 2.7 acres for the geothermal wells would occur, which is under the five-acre guideline. The injection well would be developed within the Heber 2 Geothermal Complex and adjacent to the to-be Dogwood OEC; therefore, the injection well would not convert any farmland.
- G-62** Draft EIR Section 2.7 includes a detailed list of Applicant Proposed Measures (APMs) and Best Management Practices (BMPs) which were volunteered by the Applicant to develop a low-impact project. Section 2.7.1 included APMs/BMPs for surface and ground water quality; Section 2.7.2 includes measures for wildlife; and Section 2.7.8 include measures for noise. These measures seek to preempt potential impacts to the surrounding environment and serve as the basis for "good neighbor" operations.

Additionally, the mitigation measures included in the EIR provide safeguards to impacts to any sensitive resources in surrounding ecological systems, as follows.

- BIO-1 Worker Environmental Awareness Program
- BIO-2 Pre-Construction Plant Surveys
- BIO-3 Avoidance of Sensitive Natural Communities
- BIO-4 Preconstruction Nesting Bird Survey
- BIO-5 Biological Monitoring
- BIO-6 Non-reflective Coatings on Solar Panels
- BIO-7 Burrowing Owl Avoidance, Minimization, and Mitigation
- BIO-8 American Badger Avoidance and Minimization
- BIO-9 Avian/Power Line Collision Avoidance and Minimization
- BIO-10 Avian Electrocution Avoidance and Minimization
- BIO-11 Biological Protection Measures

- G-63** As provided in Draft EIR Figure 2-9 (Typical Well Pad Layout to Drill a Geothermal Production Well), the proposed well pads are less than 40,000 square feet (.9 acres), which are relatively small for full-size production well pads which can span up to 5 acres. As discussed in Draft EIR Section 3.11.3, the Project would not significantly alter the irrigation or drainage patterns of the site(s) and would comply with all applicable IID requirements/regulations.
- G-64** The County Code extends to "geothermal drilling sites", as stated. The 446.61 acres referenced by the commenter refers to the full project footprint, not the well drilling component. As discussed in Draft EIR Section 2.4, Figure 2-9, and response to comment G-61 above, the proposed well pads would convert a maximum of 2.7 acres of farmland. Therefore, an exception for the well pads is not required.
- G-65** Please refer to preceding responses to comments G-1 through G-64 and responses to attachments provided in the comment letter. Based on the information provided in the Draft EIR, and as responded to in these responses to comments as part of this Final EIR, the project

has been adequately described in the Draft EIR, existing environmental setting has been adequately characterized, and potential impacts are adequately and corresponding mitigation are adequately assessed and prescribed, respectively.

**G-66** Comment acknowledged. This comment letter will be included in the record of proceedings for the Project.

**G A-1** This comment is an introductory comment and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

**G A-2** This comment provides a general summary of the project and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

**G A-3** All Project operational stationary equipment with a potential to emit are identified on page 3.4-17 of the Draft EIR as follows: *“Specifically, isopentane emissions will occur due to maintenance, purging, and fugitive leaks. Operation of auxiliary engines including the emergency diesel generator and emergency diesel fire pump will also result in emissions of criteria pollutants.”* In addition, Draft EIR Table 3.4-12 provided on page 3.4-18 provides a summary of area, stationary (including isopentane), mobile source emissions associated with Project operations. Note that all Project components are clearly identified on page 1-1 through 1-3 of the Draft EIR. The Dogwood Project would operate in isolation from existing facilities at the Heber Geothermal Energy Complex, thus existing components at the site are not included as part of the Project.

Calculation of isopentane emissions were conducted consistent with the maintenance, purging, and fugitive emissions calculations included in the existing ICAPCD ATC/PTO Permit 2217 for OEC units at the Heber 2 facility. The OEC units at the Heber 2 facility are substantially similar to those proposed for the Dogwood Project. As such, isopentane emissions calculations provided in the Draft EIR are consistent with ICAPCD-approved methods and have been verified for accuracy by the ICAPCD as part of their review and permit process. Note also that the ICAPCD has reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The emissions estimates were verified for accuracy by the ICAPCD as part of their review and the findings of their review indicate that they are satisfied that the proposed mitigation will ensure emissions are less than significant according to their statement *“given the permitting requirements of the project in conjunction with the implementation of mitigation measures AQ-1 - AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation...”*

**G A-4** As stated on Draft EIR page 3.4-24, the geothermal fluid would be contained within a closed-loop heat exchanger system and reinjected back into the geothermal reservoir. In closed-loop systems, gases removed from the well are not exposed to the atmosphere and are injected back into the ground after giving up their heat, so air emissions of pollutants within are negligible. Fugitive isopentane emissions have been estimated in accordance with ICAPCD-approved calculation methods and have been verified for accuracy by the ICAPCD as part of their review and permit process. Note also that the ICAPCD has reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The emissions estimates were verified for accuracy by the ICAPCD as part of their review and the



findings of their review indicate that they are satisfied that the proposed mitigation will ensure emissions are less than significant.

**G A-5** Table 2-3 provided on page 2-22 of the Draft EIR details the construction equipment and usage associated with well drilling and testing, including the diesel drill rig and rig generator, specifying 24-hour operations over the 12-month construction phase. Construction-related emissions were estimated using CalEEMod as required by the ICAPCD. CalEEMod results for Well Drilling and Pipeline are provided in Sections 3.7 through 3.10 of the CalEEMod report provided in Appendix D of the Draft EIR with Testing and Operational Emissions provided in Sections 3.13 and 3.14 of the CalEEMod report. As detailed on page 61/80 of the CalEEMod report (included in Appendix D of the Draft EIR), use of the 500 hp drill rig was accurately accounted for in the emissions estimates with NOX emissions inclusive of drill rig operation.

**G A-6** As stated on Draft EIR page 3.4-24, the geothermal fluid would be contained within a closed-loop heat exchanger system and reinjected back into the geothermal reservoir. In closed-loop systems, gases removed from the well are not exposed to the atmosphere and are injected back into the ground after giving up their heat, so air emissions of pollutants (including ammonia) within are contained by the closed loop system. Fugitive isopentane emissions have been estimated in accordance with ICAPCD-approved calculation methods and have been verified for accuracy by the ICAPCD as part of their review and permit process. Note also that the ICAPCD has reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The emissions estimates were verified for accuracy by the ICAPCD as part of their review and the findings of their review indicate that they are satisfied that the proposed mitigation will ensure emissions are less than significant.

The Project would not emit ozone as ozone is a secondary pollutant. However, the analysis discloses emissions of ozone precursors (i.e., VOCs and NOX) as a result of construction and operation activities as provided in Tables 3.4-9, 3.4-10, and 3.4-12 of the Draft EIR. As noted in the analysis on Draft EIR page 3.4-16, mitigated construction emissions of ROG and NOX are below the ICAPCD thresholds. According to the ICAPCD CEQA Air Quality Handbook (2017), a project that emits less than the screening thresholds for construction and operations is compliant with the most current ozone and PM<sub>10</sub> attainment plans.

**G A-7** As noted on Draft EIR page 3.4-3, the USEPA and CARB designate air basins or portions of air basins in counties as being in “attainment” or “nonattainment” for each of the criteria pollutants which accounts for local air quality data. Draft EIR Table 3.4-2 identifies the attainment status of the Project area for both federal and state standards. Compliance with ICAPCD Rule 207 (New and Modified Stationary Source Review) and Rule 208 (Permit to Operate) would be verified by the ICAPCD in accordance with the modification to the existing permit ICAPCD Authority to Construct and Permit to Operate 2217 as detailed on page 3.4-14 of the Draft EIR. Note also that the ICAPCD has reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The emissions estimates were verified for accuracy by the ICAPCD as part of their review, and the findings of their review indicate that they are satisfied that the proposed mitigation will ensure emissions are less than significant according to their statement: *“given the permitting requirements of the project in conjunction with the implementation of mitigation measures AQ-1 - AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation”*.

Note that emissions estimates were calculated using CalEEMod which generates default inputs for the windspeed and precipitation frequency based on the project location. CalEEMod includes average annual windspeeds based on hourly data from 1996 to 2006 for various monitoring stations throughout California from the Western Regional Climate Center (2021). CalEEMod selects the nearest applicable monitoring station to the project location and reports the associated windspeed as the default for the model run. Similarly, precipitation frequency represents the average annual days with precipitation greater than 0.1 inch based on data from 2015 to 2019 for various monitoring stations throughout California (NOAA 2021). CalEEMod selects the nearest monitoring station to the project location and reports the associated number of “wet days” as the default for the model run. (as described in the CalEEMod User Guide available here: [https://www.caleemod.com/documents/user-guide/01\\_User%20Guide.pdf](https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf)). The analysis of air quality impacts does not rely on air quality monitoring data but rather relies on comparison of the Project emissions to the screening thresholds established by the ICAPCD. According to the ICAPCD CEQA Air Quality Handbook (2017), a project that emits less than the screening thresholds for construction and operations is compliant with the most current attainment plans and would not result in significant air quality impacts.

The assessment of hazards related to the isopentane storage tanks provided in Appendix I to the Draft EIR utilizes a wind speed of 1.5 meters per second and F atmospheric stability class, consistent with 40 CFR §68.22(b) for the purpose of “worst-case” release analysis. Similarly, the ambient temperature of 77 degrees Fahrenheit (i.e., 25 degrees Celsius) and humidity of 50% was selected per 40 CFR §68.22(c). As such, these meteorological parameters used for the hazards assessment do not rely on local meteorological conditions but are specified for a “worst-case” release analysis. In addition, as noted on page 10 of Appendix I to the Draft EIR, the wind direction from the west is based on the Wind Rose Plot for Imperial, California which is the closest city with a wind rose plot available. The closer stations at El Centro or Calexico do not provide wind rose plots.

- G A-8** The analysis provided in the Draft EIR beginning on page 3.4-24 addresses emissions of H<sub>2</sub>S from a health risk and odor standpoint. As detailed in the analysis, the nearest receptor is a residence located off Jasper Road, approximately 540 feet from the proposed solar facility and 1,000 feet from the nearest producing well site. As stated on page 3.11-17 of the Draft EIR, drilling of geothermal wells would comply with California Department of Conservation – Geologic Energy Management Division (CalGEM) Regulations. Further, geothermal fluids at the Project site have relatively low concentrations of H<sub>2</sub>S that would not have the potential to result in acute or intermediate health risks to humans or animals. As such, any release of H<sub>2</sub>S during well drilling activities would be limited to odor nuisance impacts.
- G A-9** CEQA does not require consideration of potential implications to environmental justice or socioeconomics as a specific resource area. Regardless, potential air quality impacts associated with the project are less than significant and/or mitigated to a level less than significant, such that there would be no impact to disadvantaged communities. The analysis of air quality impacts relies on comparison of the Project emissions to the screening thresholds established by the ICAPCD. Impacts related to hazards and hazardous materials on nearby sensitive receptors are addressed in Draft EIR Section 3.10, impacts related to hydrology and water quality are addressed in Draft EIR Section 3.11, and impacts related to air quality with respect to nearby sensitive receptors are addressed in Draft EIR Section 3.4. According to the ICAPCD CEQA Air Quality Handbook (2017), a project that emits less than the screening

thresholds for construction and operations is compliant with the most current attainment plans and would not result in significant air quality impacts.

**G A-10** With respect to Valley Fever in the Project area, according to the California Department of Public Health (<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2022.pdf>), for the years 2016 to 2022, the average rate of incidence *Coccidioidomycosis* is reported at roughly 7 cases of per 100,000 jurisdiction population per year. The relatively low number of cases in the County indicate that Valley Fever would not pose a significant health risk during Project earth moving operations. In addition, implementation of Draft EIR Mitigation Measure AQ-1 (Fugitive Dust Control), Mitigation Measure AQ-3 (Dust Suppression), Mitigation Measure AQ-4 (Dust Suppression Management Plan), Mitigation Measure AQ-5 (Operational Dust Control Plan), and Mitigation Measure AQ-6 (Speed Limit) as required during all construction activities by the ICAPCD would effectively control fugitive dust and thereby minimize any potential risk associated with Valley Fever. In addition, BMPs proposed by the Applicant include providing Valley Fever awareness training for workers; providing respirators to workers when requested, including the provision of necessary training; use of closed-cab earth-moving vehicles equipped with HEPA-filtered air systems; employee testing for Valley Fever as needed; and conducting earth-moving activities downwind of workers when possible.

**G A-11** According to the California Department of Public Health (<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2022.pdf>), for the years 2016 to 2022, the average rate of incidence *Coccidioidomycosis* is reported at roughly 7 cases of per 100,000 jurisdiction population per year. The relatively low number of cases in the County indicate that Valley Fever would not pose a significant health risk during Project earth moving operations, including potential impacts to sensitive receptors that may be located in proximity to the project site. In addition, mitigation measures are proposed that would reduce this potential impact, including to sensitive receptors in proximity to the site to a level less than significant. Specifically, implementation of Draft EIR Mitigation Measure AQ-1 (Fugitive Dust Control), Mitigation Measure AQ-3 (Dust Suppression), Mitigation Measure AQ-4 (Dust Suppression Management Plan), Mitigation Measure AQ-5 (Operational Dust Control Plan), and Mitigation Measure AQ-6 (Speed Limit) as required during all construction activities by the ICAPCD would effectively control fugitive dust and thereby minimize any potential risk associated with Valley Fever to sensitive receptors. In addition, BMPs proposed by the Applicant include providing Valley Fever awareness training for workers; providing respirators to workers when requested, including the provision of necessary training; use of closed-cab earth-moving vehicles equipped with HEPA-filtered air systems; employee testing for Valley Fever as needed; and conducting earth-moving activities downwind of workers when possible. The EIR provides an analysis of potential impacts to sensitive receptors. As stated, “As summarized in Table 3.4-3, there are numerous sensitive receptors in proximity to the project components. The nearest sensitive land use to the project site is a single-family residence located approximately 540 feet from the proposed Heber 2 solar facility.” The EIR concludes that, “Project construction would not result in a significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.” (EIR page 3.4-22).

**G A-12** Note that PM<sub>10</sub> emissions associated with Project construction activities are primarily attributed fugitive PM emission estimates for worker, vendor, and haul trips as presented in the CalEEMod report provided in Appendix D to the Draft EIR. Consistent with the requirements identified in the ICAPCD CEQA Air Quality Handbook (2017) and emission calculation equations provided in ICAPCD Rule 214.2 (Paving Unpaved Public Roads Emission Reduction Credits [PERCs]), CalEEMod calculates fugitive dust from travel of construction vehicles on paved and unpaved roads using the methodology of Section 13.2.1 of USEPA's AP-42 (2011). Per ICAPCD Rule 214.2, the annual quantity of fugitive dust emissions emitted from roadway segments are calculated relative to the annual vehicle miles traveled. As noted on page 4-2 of Appendix D to the Draft EIR, an input value of 85% paved roads is utilized in the CalEEMod emissions model in accordance with guidance provided by the ICAPCD to account for additional fugitive dust generated on paved surfaces throughout Imperial County. However, for the Project, 99% of worker, vendor, and hauling trips would occur on paved public roadways (i.e., not within the project construction boundary). As such, Project VMT would be 99% on paved roads. Thus, the fugitive dust values presented in the Draft EIR are highly conservative. Actual fugitive PM emissions are expected to be much lower than are presented in the Draft EIR.

**G A-13** As stated on Draft EIR page 2-25, applicant proposed measures and best management practices include the following measures:

- providing Valley Fever awareness training for workers;
- providing respirators to workers when requested, including the provision of necessary training;
- use of closed-cab earth-moving vehicles equipped with HEPA-filtered air systems; employee testing for Valley Fever as needed; and conducting earth-moving activities downwind of workers when possible.

In addition, implementation of Mitigation Measure AQ-1 (Fugitive Dust Control), Mitigation Measure AQ-3 (Dust Suppression), Mitigation Measure AQ-4 (Dust Suppression Management Plan), Mitigation Measure AQ-5 (Operational Dust Control Plan), and Mitigation Measure AQ-6 (Speed Limit) as required during all construction activities by the ICAPCD would effectively control fugitive dust and thereby minimize any potential risk associated with Valley Fever.

According to the California Department of Public Health (<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2022.pdf>), for the years 2016 to 2022, the average rate of incidence Coccidioidomycosis is reported at roughly 7 cases of per 100,000 jurisdiction population per year. The relatively low number of cases in the County indicate that Valley Fever would not pose a significant health risk during Project earth moving operations and the proposed measures in addition to the specified mitigation measures addressing fugitive dust are expected to minimize exposure to Valley Fever to less than significant levels.

**G A-14** Please refer to response to comment G A-13 above.

**G A-15** Note that Rule 409A referenced by the commenter is applicable to incinerators and burning combustible refuse which is not applicable to the Project. Tables 3.4-9, 3.4-10, and 3.4-12 included in the Draft EIR (pages 3.4-16 and 3.4-18) provide estimates of total VOCs, ROG, and NOX (ozone precursors) for Project construction and operation activities (including isopentane emissions) in accordance with ICAPCD Air Quality Handbook (Guidelines for the

Implementation of the California Environmental Quality Act of 1970, as amended) (2017). Note also that the Draft EIR specifically addresses the reaction of NOX emissions with ROG (e.g., VOCs) on page 3.4-4 stating “Ozone is a secondary pollutant, nitrogen oxides (NOX) and volatile organic compounds (VOC) are of particular interest as they are precursors to ozone formation.” According to the ICAPCD CEQA Air Quality Handbook (2017), a project that emits less than the screening thresholds for construction and operations is compliant with the most current attainment plans. Because modeling of ozone precursor emissions are below thresholds with mitigation in place, the EIR’s conclusion that ozone impacts will be less than significant is supported by substantial evidence.

Note also that the ICAPCD has reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The emission estimates were verified for accuracy by the ICAPCD as part of their review, and the findings of their review indicate that they are satisfied that the proposed mitigation will ensure emissions are less than significant according to their statement: “given the permitting requirements of the project in conjunction with the implementation of mitigation measures AQ-1 - AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation”.

**G A-16** As stated on Draft EIR page 3.4-23, well drilling and testing activities may result in local H<sub>2</sub>S emissions that could exceed the ICAPCD sulfur compound emission standard (Rule 405) of 0.2 percent by volume (calculated as SO<sub>2</sub> and measured at a point of discharge). However, H<sub>2</sub>S is regulated as a nuisance based on its odor detection level. The H<sub>2</sub>S standard of 0.03 ppm (or 42 µg/m<sup>3</sup>) for a one-hour average was adopted in 1969 for the purpose of odor control. However, additional health effects of H<sub>2</sub>S have only been reported with exposures greater than 50 ppm (eye irritation), considerably higher than the odor threshold-based standard. If the standard were based on adverse health effects, it would be set at a much higher level (CARB 2024: <https://ww2.arb.ca.gov/resources/hydrogen-sulfide-and-health>). For example, the Occupational Safety and Health Administration (OSHA) set an acceptable ceiling limit of 20 ppm (or 28,000 µg/m<sup>3</sup>) for H<sub>2</sub>S in workplace air. The ceiling limit is a 15-minute timeweighted average that cannot be exceeded at any time during the working day. The National Institute for Occupational Safety and Health (NIOSH) recommends a 10-minute ceiling limit of 10 ppm (or 14,000 µg/m<sup>3</sup>). NIOSH also determined that 100 ppm (or 140,000 µg/m<sup>3</sup>) is immediately dangerous to life or health of workers (ATSDR 2024: <https://www.atsdr.cdc.gov/toxfaqs/tfacts114.pdf>). From a geothermal resource standpoint, the fluid contains low concentrations of H<sub>2</sub>S due to the nature of the reservoir rock. Measured H<sub>2</sub>S values for this resource (as measured at the Heber Geothermal Complex) is <10 ppm in the total fluid. Based on this, emissions would be temporary in nature and emissions would not exceed thresholds. Further, the project would be required to comply with the requirements of the CalGEM geothermal well drilling permit. As part of compliance with this permit, H<sub>2</sub>S is monitored continuously with sensors placed at the cellar, rig floor, and mud pits so that project emission levels can be monitored for compliance with the permit requirements to ensure that emissions would be less than significant.

**G A-17** PM<sub>2.5</sub> emissions for construction and operation are provided in Tables 3.4-9, 3.4-10, and 3.4-12 in the Draft EIR. As noted in the analysis on page 3.4-17, mitigated construction emissions are below the ICAPCD thresholds as are operational emissions. According to the ICAPCD CEQA Air Quality Handbook (2017), a project that emits less than the screening thresholds for

construction and operations is compliant with the most current attainment plans. Note also that the ICAPCD has reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The emission estimates were verified for accuracy by the ICAPCD as part of their review, and the findings of their review indicate that they are satisfied that the proposed mitigation will ensure emissions are less than significant according to their statement: *“given the permitting requirements of the project in conjunction with the implementation of mitigation measures AQ-1 - AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation”*.

The Draft EIR discloses unmitigated and mitigated maximum daily PM<sub>2.5</sub> emission rates associated with construction activities in Tables 3.4-9 and 3.4-10, respectively. As shown, maximum daily mitigated PM<sub>2.5</sub> during construction activities 238.04 lbs/day – although the ICAPCD does not have a threshold for PM<sub>2.5</sub> during construction, these emissions would be below the operational threshold of 550 lb/day, indicating that temporary construction-related PM<sub>2.5</sub> would not result in significant air quality impacts, even temporarily.

With respect to PM<sub>2.5</sub> emitted during operations, these emissions would be minimal and primarily attributed to minimal usage of onroad vehicles, landscaping equipment, and emergency engines – no earthmoving activities would be conducted during Project operations (refer to Table 3.4-12 which details operational emissions by sector). Operational emissions are below the ICAPCD screening thresholds (the commenter’s statement that there is no PM<sub>2.5</sub> threshold is incorrect – the ICAPCD operational threshold for PM<sub>2.5</sub> threshold is 550 lbs/day) and thus the determination of less than significant impacts does not rely on offset requirements per Rule 207 – further note that the analysis on page 3.4-18 specifically states that impacts are less than significant and compliance with applicable regulations would further reduce emissions.

Note that as stated on page 3.11-14 of the Draft EIR, the Project site is completely devoid of any existing facilities that would require relocation or demolition, thus there would be no fugitive dust generated as a result of demolition activities or debris clearance. In addition, the project site is at or near final grade and the Project grading plan is designed to balance any minor earthwork on site, which would avoid truck trips that would have been required to haul-in fill materials to the site and haul-off of materials to be exported off-site. Further, most construction equipment needed for the Project is already onsite (see page 3.7-7 of the Draft EIR). Fugitive dust emissions associated with vehicle movement onsite is accounted for in worker, vendor, and hauling mobile sources based on an input value of 85% paved roads in the CalEEMod emissions model (refer to page 4-2 of Appendix D to the Draft EIR). However, for the Project, 99% of worker, vendor, and hauling trips would actually occur on paved public roadways (i.e., not within the project construction boundary).

**G A-18** Particulate matter emissions estimates were modeled using conservative parameters. Accordingly, actual emissions will likely be lower than presented in the Draft EIR. As provided in Section 3.4.3 of the Draft EIR, emissions estimates are below the regulatory thresholds and, therefore, the Project would not be subject to BACT under ICAPCD rules.

Consistent with the requirements identified in the ICAPCD CEQA Air Quality Handbook (2017) and emission calculation equations provided in ICAPCD Rule 214.2 (Paving Unpaved Public Roads Emission Reduction Credits [PERCs]), CalEEMod calculates fugitive dust from travel



of construction vehicles on paved and unpaved roads using the methodology of Section 13.2.1 of USEPA's AP-42 (2011). Per ICAPCD Rule 214.2, the annual quantity of fugitive dust emissions emitted from roadway segments are calculated relative to the annual vehicle miles traveled. As noted on page 4-2 of Appendix D to the Draft EIR, an input value of 85% paved roads is utilized in the CalEEMod emissions model in accordance with guidance provided by the ICAPCD to account for additional fugitive dust generated on paved surfaces throughout Imperial County. However, for the Project, 99% of worker, vendor, and hauling trips would occur on paved public roadways (i.e., not within the project construction boundary). As such, Project VMT would be 99% on paved roads. Thus, the fugitive dust values presented in the Draft EIR are highly conservative. Actual fugitive PM emissions are expected to be much lower than are presented in the Draft EIR. The ICAPCD reviews all Air Quality Analyses to ensure enforceability and consistency of air analysis methodology to the ICAPCD CEQA Air Quality Handbook, Air District Rules & Regulations, and Air District Guidelines. Accordingly, ICAPCD reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The emission estimates were verified for accuracy by the ICAPCD as part of their review, and the findings of their review indicate that they are satisfied that the proposed mitigation will ensure emissions are less than significant according to their statement: *"given the permitting requirements of the project in conjunction with the implementation of mitigation measures AQ-1 - AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation..."*

As noted by the commenter, the data provided in Section 3.1 of Appendix D, Attachment A shows 0 emissions for onsite truck activity – this is because there would be no onsite haul trucks associated with site preparation as the Project grading plan is designed to balance all earthwork onsite (i.e., no import/export of cut/fill material is required). Any fugitive emissions associated with trucks entering/leaving the site are accounted for in the conservative onroad fugitive dust emission estimates using the default value of 85% unpaved roads as described above.

CalEEMod estimates of diesel particulate matter (i.e., PM<sub>2.5e</sub>) are based on construction equipment, daily use, and duration of each construction phase provided in Table 2-3 on page 2-22 of the Draft EIR. As discussed in the Draft EIR starting on page 3.4-15, Project PM emissions are below the ICAPCD thresholds and thus would not result in significant air quality impacts.

PM<sub>2.5</sub> emissions from the emergency generator and fire pump are based on CalEEMod emission factors for the rated horsepower of each respective engine and estimated use. The commenter is incorrect in the statement "both of which are claimed to be mitigated 100%" – the analysis does not in fact claim that these emissions are mitigated 100% but rather discloses the unmitigated emissions as calculated using CalEEMod. Emissions estimates are based on the expected usage to comply with maintenance regulations (see assumptions provided on 3.4-18 of the Draft EIR).

Note that as stated on page 3.11-14 of the Draft EIR, the Project site is completely devoid of any existing facilities that would require relocation or demolition, thus there would be no fugitive dust generated as a result of demolition activities or debris clearance. In addition, the project site is at or near final grade and the Project grading plan is designed to balance any minor earthwork on site, which would avoid truck trips that would have been required to haul-in fill materials to the site and haul-off of materials to be exported off-site. Fugitive dust emissions

associated with vehicle movement onsite is accounted for in worker, vendor, and hauling mobile sources based on an input value of 85% paved roads in the CalEEMod emissions model (refer to page 4-2 of Appendix D to the Draft EIR). However, for the Project, 99% of worker, vendor, and hauling trips would actually occur on paved public roadways (i.e., not within the project construction boundary). Note that the ICAPCD does not have thresholds for PM<sub>2.5</sub> for construction activities but 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 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. Note also that only drilling would occur during nighttime hours, all other construction activities would occur during daytime hours only with expected daily hours of operation for each piece of equipment identified in Table 2-3 of the Draft EIR, consistent with similar projects completed by ORMAT. Therefore, it would be inaccurate to apply a 20-hour duration for all equipment for the entire construction period as suggested by the commenter.

Note that the total PM emissions estimates provided in the Morton Bay Geothermal Project Preliminary Staff Assessment cited by the commenter (as included in Table 5.1-6 of that report) are 23.1 lbs/day for PM<sub>10</sub> and 17.2 lbs/day for PM<sub>2.5</sub> which are orders of magnitude below the estimates of 2,356.6 lb/day for PM<sub>10</sub> and 242.47 lbs/day for PM<sub>2.5</sub> for the Dogwood Project (refer to Table 3.4-9 of the Draft EIR). As such, substantial evidence demonstrates the estimates of PM provided in the Draft EIR are highly conservative overall.

**G A-19** Isopentane storage and associated equipment will comply with all Imperial County APCD permit requirements to ensure that leakage is minimized and ROG emissions levels are less than significant.

The vapor recovery unit (VRU) is required to achieve a minimum isopentane vapor recovery efficiency during the purging process of an OEC per the existing ICAPCD Authority to Construct and Permit to Operate 2217. Actual efficiency of the VRU units to be installed onsite has been demonstrated and verified to be at least 99.9% efficient as indicated by annual performance source testing of the VRU units as required by the existing ICAPCD Authority to Construct and Permit to Operate 2217.

In addition, the commenter's understanding of the VRU unit operation and methodology for calculating Isopentane emissions based on the efficiency of the VRU unit is fundamentally incorrect and incorrectly uses the total Isopentane volume in the entire system and tanks as opposed to the volume of isopentane vapor captured by the VRU when clearing a zone which is only conducted during purging and maintenance events. Specifically, the VRMU to be installed would be used to remove hydrocarbons from the air/vapor mixture during evacuation of OEMs during maintenance events only. When an OEM is taken out of service for maintenance, the evacuation skid is used to de-gas the system. The vapors going to the carbon adsorption unit are passed through a knockout drum, and compressor/condenser, and then to the two carbon beds in series, where the hydrocarbon constituents are adsorbed on the carbon and the nonhydrocarbon fraction is vented to the atmosphere. When the carbon

adsorption vessels are spent, they are sent back to the supplier for regeneration. Thus, the captured vapor is much less than the total volume of isopentane in the system as the commenter states, and the VRU unit would not be in use 365 days/year as calculated by the commenter. Accordingly, site-specific emission factors based on actual historic worst-case emissions have been developed as provided in Table 3.4-8 on page 3.4-14 of the Draft EIR.

Per the existing ICAPCD Authority to Construct and Permit to Operate 2217, source testing of VRU units is required at least once on a yearly basis to verify the isopentane vapor recovery efficiency. Compliance with BACT requirements and emissions management would be determined and enforced by the ICAPCD in compliance with ICAPCD Rule 207 (New and Modified Stationary Source Review) and Rule 208 (Permit to Operate) in accordance with the modification to the existing permit ICAPCD Authority to Construct and Permit to Operate 2217 as detailed on page 3.4-14 of the Draft EIR. However, as provided in Section 3.4.3 of the Draft EIR, emissions estimates are below the regulatory thresholds and, therefore, the Project would not be subject to BACT under ICAPCD rules.

**G A-20** Please refer to response to comment G A-21. The EIR evaluates the potential hazards associated with Isopentane (see EIR page 3.10-8). As discussed, A Hazard Assessment (HA) was prepared to assess the potential effects and risks of the additional isopentane storage/use by the proposed Dogwood geothermal plant (Appendix I of this EIR). The HA was conducted to fulfill the Hazard Assessment Offsite Consequence Analysis (OCA) requirements of the following regulations:

- 40 CFR §68.65 – Environmental Protection Agency (EPA) “Risk Management Plan (RMP)”
- 19 CCR 2750.1 to 2750.9 – California Code of Regulation “California Accidental Release Prevention (CalARP) Program”

The HA analyzed the isopentane storage/use by identifying the worst-case scenario and endpoints of concern (as defined by EPA RMP and 40 CFR 68.22) including the following:

1. Explosion (an overpressure of 1 pound per square inch [psi])
2. Radiant heat/Exposure Time (a radiant heat of 5 kW/m<sup>2</sup> for 40 seconds)
3. Lower Flammability Limit (as provided by NFPA)

The HA assessed the worst-case scenario of a catastrophic failure of one of the two new 20,000-gallon isopentane tanks. The storage vessel is capable of storing a maximum of 18,000 gallons of isopentane, taking into account administrative controls. According to the Chevron Philips Chemical Company safety data sheet, the density of isopentane is 5.14 lbs./gal, which yields a total mass of 92,520 pounds of isopentane held in the storage vessel. The worst-case scenario considers the catastrophic failure of the 20,000-gallon isopentane storage vessel, which would result in a release of the entire contents of the vessel, into the secondary containment area. As modeled in the HA, the worst-case scenario event would have an impact up to 0.068 miles, or 357 feet (EIR Table 3.10-1). There are zero residents and zero housing units within 357 feet. Further, MM HAZ-1 is required which requires Isopentane Management Measures including fire suppression measures, fire access, containment, water suppression systems, blast wall and diking.

**G A-21** Isopentane storage and associated equipment will comply with all Imperial County APCD permit requirements to ensure that leakage is minimized and VOC/ROG emissions levels are less than significant.

As noted on page 3.4-13 of the Draft EIR, fugitive isopentane emissions occur from leaks in seals, flanges, pumps, valves, and other components. It is not feasible to measure fugitive emissions directly, but these emissions can be quantified based on the addition of isopentane to the system. ORMAT tracks fluid additions and additions that are not attributed to non-fugitive causes are counted as fugitive emissions. Estimated isopentane emissions based on historic loss rate data and site-specific emission factors (refer to Table 3.4-8 on page 3.4-14) are provided in Table 3.4-11 on page 3.4-17 of the Draft EIR. Similarly, engine emissions associated with routine maintenance were estimated using a combination of CalEEMod default and site-specific inputs as provided in the CalEEMod report attached to Appendix D of the Draft EIR (for operations, refer to Section 2.5 [Operations Emissions by Section, Unmitigated] of the CalEEMod report [page 16/80], notes on operational assumptions and changes made to CalEEMod default values are documented in Section 8 (User Changes to Default Data) of the CalEEMod report (starting on page 79/80). All operational inputs in the CalEEMod model are identified in Sections 5.9 through 5.18 of the CalEEMod report [pages 68/80 through 72/80]).

**G A-22** Isopentane storage and associated equipment will comply with all Imperial County APCD permit requirements to ensure that leakage is minimized and VOC/ROG emissions levels are less than significant.

As noted on page 3.4-13 of the Draft EIR, fugitive isopentane emissions occur from leaks in seals, flanges, pumps, valves, and other components. It's not feasible to measure fugitive emissions directly, but these emissions can be quantified based on the addition of isopentane to the system. ORMAT tracks fluid additions and additions that are not attributed to non-fugitive causes are counted as fugitive emissions. Estimated isopentane emissions based on historic loss rate data and site-specific emission factors (refer to Table 3.4-8 on page 3.4-14) are provided in Table 3.4-11 on page 3.4-17 of the Draft EIR. Storage and transfer of isopentane is subject to ICAPCD Rule 414 as applicable which requires use of vapor recovery devices including during filling. With compliance with applicable regulations, VOCs associated with isopentane transfers regardless of number of deliveries would be negligible.

**G A-23** As provided on page 4-16 of Appendix D of the Draft EIR (Air Quality and Greenhouse Gas Technical Report), calculation of CO<sub>2</sub>e for SF<sub>6</sub> emissions were based on a GWP of 23,300 – this value is greater than the 100-year GWP from the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report (AR4) of 22,800, based on the intensity of the infrared adsorption by each GHG and how long emissions remain in the atmosphere. Therefore, the calculated emissions presented in the Draft EIR are conservative. Note that the GWP value of 23,900 presented by the commenter is an outdated value from the second assessment report (see values here: <https://ww2.arb.ca.gov/ghg-gwps>). Values from the fourth assessment report are used for the current California GHG emissions inventory (<https://ww2.arb.ca.gov/ghg-gwps>). As presented by the USEPA (<https://www.epa.gov/ghgemissions/understanding-global-warming-potentials#changingGWPs>), the USEPA and other organizations will update the GWP values they use occasionally. This change can be due to updated scientific estimates of the energy absorption or lifetime of the gases or to changing atmospheric concentrations of GHGs that result in a change in the energy absorption of 1 additional ton of a gas relative to another.

However, as stated on page 1-8 of Appendix D of the Draft EIR, CARB amended the Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV, January 1, 2029 for voltage between 145 and 245 kV, and January 1, 2031 for voltage greater than 245 kV). The Draft EIR assumes use of SF6 gas for conservative GHG estimates for the remote potential scenario that SF6 alternatives were not available at the time of construction. However, the Project proposes circuit breakers less than 145 kV, with installation not proposed until after January 1, 2025. There are currently numerous alternatives to SF6 gas available on the market. As such, no SF6 gas will be utilized in Project equipment with compliance with the applicable regulation. Thus, the estimates of GHG associated with SF6 gas are not applicable for actual Project operations.

Refer to Section 2.5 (Operations Emissions by Section, Unmitigated) of the CalEEMod report (page 16/80) included as an attachment to Appendix D of the Draft EIR. This table presents the calculated operational GHGs associated with mobile, area, energy use, water use, and stationary sources, with total annual emissions estimated at 96.7 MTCO2e (rounded up to 97 MTCO2e in Draft EIR analysis). Notes on operational assumptions and changes made to CalEEMod default values are documented in Section 8 (User Changes to Default Data) of the CalEEMod report (starting on page 79/80). All operational inputs in the CalEEMod model are identified in Sections 5.9 through 5.18 of the CalEEMod report (pages 68/80 through 72/80).

**G A-24** As stated on Draft EIR page 3.4-24, the geothermal fluid would be contained within a closed-loop heat exchanger system and reinjected back into the geothermal reservoir. In closed-loop systems, gases removed from the well are not exposed to the atmosphere and are injected back into the ground after giving up their heat, so air emissions of pollutants (including ammonia,) within are negligible, and no emissions are emitted from the facility to the outside environment.

**G A-25** Table 2-3 provided on page 2-22 of the Draft EIR details the construction equipment and usage associated with well drilling and testing, including the diesel drill rig and rig generator, specifying 24-hour operations over the 12-month construction phase. Construction-related emissions were estimated using CalEEMod as required by the ICAPCD. CalEEMod results for Well Drilling and Pipeline are provided in Sections 3.7 through 3.10 of the CalEEMod report provided in Appendix D of the Draft EIR with Testing and Operational Emissions provided in Sections 3.13 and 3.14 of the CalEEMod report. As detailed on page 61/80 of the CalEEMod report (included in Appendix D of the Draft EIR), use of the 500 hp drill rig was accurately accounted for in the emissions estimates with NOX emissions inclusive of drill rig operation.

**G A-26** The Project would not emit ozone as ozone is a secondary pollutant. However, the analysis discloses emissions of ozone precursors (i.e., VOCs and NOX) as a result of construction and operation activities (including Isopentane emissions) as provided in Tables 3.4-9, 3.4-10, and 3.4-12 of the Draft EIR. As noted in the analysis on page 3.4-16, mitigated construction emissions of ROG and NOX are below the ICAPCD thresholds as are operational emissions (including isopentane emissions). According to the ICAPCD CEQA Air Quality Handbook (2017), a project that emits less than the screening thresholds for construction and operations is compliant with the most current ozone and PM10 attainment plans.

**G A-27** Note that emissions estimates were calculated using CalEEMod which generates default inputs for the windspeed and precipitation frequency based on the project location. Area sources of PM are estimated by the CalEEMod based on an input value of 85% paved roads in the CalEEMod emissions model (refer to page 4-2 of Appendix D to the Draft EIR). However, for the Project, 99% of worker, vendor, and hauling trips would occur on paved public roadways (i.e., not within the project construction boundary). The ICAPCD reviews all Air Quality Analyses to ensure enforceability and consistency of air analysis methodology to the ICAPCD CEQA Air Quality Handbook, Air District Rules & Regulations, and Air District Guidelines. Accordingly, ICAPCD reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The emissions estimates were verified for accuracy by the ICAPCD as part of their review, and the findings of their review indicate that they are satisfied that the proposed mitigation will ensure emission are less than significant according to their statement: *“given the permitting requirements of the project in conjunction with the implementation of mitigation measures AQ-1 - AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation...”* Note that Tables 3.4-9, 3.4-10, and 3.4-12 included in the Draft EIR (pages 3.4-16 and 3.4-18) provide estimates of for all criteria pollutants for Project construction and operation activities (including isopentane emissions, and including the operation of other equipment such as sand separators) in accordance with ICAPCD Air Quality Handbook (Guidelines for the Implementation of the California Environmental Quality Act of 1970, as amended) (2017). According to the ICAPCD CEQA Air Quality Handbook (2017), a project that emits less than the screening thresholds for construction and operations is compliant with the most current attainment plans and would not result in significant air quality impacts.

**G A-28** Potential impacts to human health from the use/storage of isopentane are thoroughly discussed in Section 3.10.3 and the Hazard Assessment (Appendix I of the Draft EIR).

As provided in Draft EIR Section 3.4.3 and the Air Quality Technical Memorandum (Appendix D of the Draft EIR), the analysis of air quality impacts does not rely on air quality monitoring data but rather relies on comparison of the Project emissions to the screening thresholds established by the ICAPCD. According to the ICAPCD CEQA Air Quality Handbook (2017), a project that emits less than the screening thresholds for construction and operations is compliant with the most current attainment plans and would not result in significant air quality impacts.

Table 3.4-3 provided on page 3.4-4 of the Draft EIR specifically identifies the Heber Elementary School and all nearby residences (i.e., ranches with residential structures) as sensitive receptors. As noted on page 3.4-3 of the Draft EIR, the USEPA and CARB designate air basins or portions of air basins in counties as being in “attainment” or “nonattainment” for each of the criteria pollutants which accounts for local air quality data. Table 3.4-2 identifies the attainment status of the Project area for both federal and state standards. Compliance with ICAPCD Rule 207 (New and Modified Stationary Source Review) and Rule 208 (Permit to Operate) would be verified by the ICAPCD in accordance with the modification to the existing permit ICAPCD Authority to Construct and Permit to Operate 2217 as detailed on page 3.4-14 of the Draft EIR. Note also that the ICAPCD has reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The findings of their review of the analyses indicate that they are satisfied with the adequacy of the emissions estimates as noted in their statement: *“given the permitting requirements of the project in conjunction with the*



*implementation of mitigation measures AQ-1 - AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation”.*

Please also refer to response to comment G A-7 regarding meteorological data.

**G A-29** Cumulative impacts on air quality are evaluated in Section 5.3.3 of the Draft EIR. The Heber Geothermal complex (which also includes the Second Imperial unit) is specifically identified as a cumulative project in Table 5-1 and on page 5-9. As stated on page 5-2 of the Draft EIR, the geographic scope of each analysis is based on the topography surrounding the project sites 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. Furthermore, per CEQA Guidelines section 15064(h)(3), the “lead agency may determine that a project’s incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program,” such as ICAPCD’s CEQA Air Quality Handbook (2017). The Project’s emissions fall below ICAPCD’s significance thresholds, which ensures air quality impacts will be less than cumulatively considerable in Imperial County in accordance with ICAPCD’s plans for air quality control and development in the County.

In addition, CEQA Guidelines section 15130(b)(1) provides an agency the option of either listing out nearby past, present, and probable future projects or explaining compliance with an applicable “local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect.” The EIR opts for the latter in the context of cumulative air quality impacts, relying on ICAPCD’s significance thresholds as described above.

As noted on page 3.4-3 of the Draft EIR, the Imperial County portion of the SSAB is currently designated as nonattainment for O<sub>3</sub> and PM<sub>10</sub> under State standards. Under federal standards, the Imperial County portion of the SSAB is in nonattainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The Draft EIR specifically addresses cumulative impacts with respect to PM<sub>10</sub>, PM<sub>2.5</sub>, ROG, CO, SO<sub>2</sub>, and NO<sub>x</sub> and discloses that the Project and discloses that the impacts could be cumulatively considerable because the Imperial County portion of the SSAB is nonattainment already for O<sub>3</sub> and PM<sub>10</sub> under state standards and for O<sub>3</sub> and PM<sub>2.5</sub> federal standards (see page 5-10 of the Draft EIR). Because the proposed Project will be required to implement measures consistent with ICAPCD regulations designed to alleviate the cumulative impact associated with fugitive dust and NO<sub>x</sub>, the Project’s contribution would be rendered less than cumulatively considerable per ICAPCD CEQA Air Quality Handbook (2017) that states that a project that emits less than the screening thresholds for construction and operations is compliant with the most current ozone and PM<sub>10</sub> attainment plans.

**G A-30** Cumulative impacts on air quality are evaluated in Section 5.3.3 of the Draft EIR. Note that the Heber Geothermal complex is specifically identified as a cumulative project in Table 5-1 and on page 5-9. As stated on page 5-2 of the Draft EIR, the geographic scope of each analysis is based on the topography surrounding the project sites 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. As noted on page 3.4-3 of the Draft EIR,

the Imperial County portion of the SSAB is currently designated as nonattainment for O<sub>3</sub> and PM<sub>10</sub> under State standards. Under federal standards, the Imperial County portion of the SSAB is in nonattainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The Draft EIR specifically addresses cumulative impacts with respect to PM<sub>10</sub>, PM<sub>2.5</sub>, ROG, CO, SO<sub>2</sub>, and NO<sub>x</sub> and discloses that the Project and discloses that the impacts could be cumulatively considerable because the Imperial County portion of the SSAB is nonattainment already for O<sub>3</sub> and PM<sub>10</sub> under state standards and for O<sub>3</sub> and PM<sub>2.5</sub> federal standards (see page 5-10 of the Draft EIR). Because the proposed Project will be required to implement measures consistent with ICAPCD regulations designed to alleviate the cumulative impact associated with fugitive dust and NO<sub>x</sub>, the Project's contribution would be rendered less than cumulatively considerable per ICAPCD CEQA Air Quality Handbook (2017) that states that a project that emits less than the screening thresholds for construction and operations is compliant with the most current ozone and PM<sub>10</sub> attainment plans. Health and odor impacts related to H<sub>2</sub>S are more localized and would not result in emissions at concentrations that would pose a health hazard as noted on page 3.4-23 of the Draft EIR. Note that at this time, hydrogen sulfide is not measured at any monitoring stations in the SSAB because it is not considered to be a regional air quality problem (see air quality monitoring data availability table here: [https://www.arb.ca.gov/aqmis2/display.php?param=H2S&units=007&year=2024&county\\_name=--COUNTY--&basin=SS-Salton+Sea&latitude=--PART+OF+STATE--&report=AQBYR&order=basin%2Ccounty\\_name%2Cs.name&submit=Retrieve+Data&ptype=aqd&std15=](https://www.arb.ca.gov/aqmis2/display.php?param=H2S&units=007&year=2024&county_name=--COUNTY--&basin=SS-Salton+Sea&latitude=--PART+OF+STATE--&report=AQBYR&order=basin%2Ccounty_name%2Cs.name&submit=Retrieve+Data&ptype=aqd&std15=))).

**G A-31** The ICAPCD reviews all Air Quality Analyses to ensure enforceability and consistency of air analysis methodology to the ICAPCD CEQA Air Quality Handbook, Air District Rules & Regulations, and Air District Guidelines. Accordingly, ICAPCD reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The findings of their review of the analyses indicate that they are satisfied with the adequacy of the emissions estimates according to their statement *“given the permitting requirements of the project in conjunction with the implementation of mitigation measures AQ-1 - AQ-6, it is likely the project will remain below significant impact, as the mitigation measures are consistent with mitigation measures used to maintain this type of project at less than significant impact levels given historical implementation...”* Note that Tables 3.4-9, 3.4-10, and 3.4-12 included in the Draft EIR (pages 3.4-16 and 3.4-18) provide estimates of total PM<sub>2.5</sub> and ozone precursors (VOCs, ROG, and NO<sub>x</sub>) for Project construction and operation activities (including isopentane emissions) in accordance with ICAPCD Air Quality Handbook (Guidelines for the Implementation of the California Environmental Quality Act of 1970, as amended) (2017). Note also, that the Draft EIR specifically addresses the reaction of NO<sub>x</sub> emissions with ROGs (e.g., VOCs) on page 3.4-4 stating *“Ozone is a secondary pollutant, nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC) are of particular interest as they are precursors to ozone formation.”*

As stated on page 3.4-24, the geothermal fluid would be contained within a closed-loop heat exchanger system and reinjected back into the geothermal reservoir. In closed-loop systems, gases removed from the well are not exposed to the atmosphere and are injected back into the ground after giving up their heat. As such, the Project is not a source of ammonia emissions.

Compliance with BACT requirements and emissions management would be determined and enforced by the ICAPCD in compliance with ICAPCD Rule 207 (New and Modified Stationary

Source Review) and Rule 208 (Permit to Operate) in accordance with the modification to the existing permit ICAPCD Authority to Construct and Permit to Operate 2217 as detailed on page 3.4-14 of the Draft EIR.

**G A-32** As provided in Draft EIR Section 2.7.6, the Project would abide by all applicable waste management regulations. Further, as discussed in Section 3.10.3, the Project would not generate any significant impacts from waste management and would not require any mitigation.

**G A-33** As noted on pages ES-2, 1-2, 2-7, and 2-27 of the Draft EIR, gas detectors will be installed on the isopentane storage tanks to immediately detect any isopentane leak and notify the control room (manned 24/7). In addition, Mitigation Measure HAZ-1: Isopentane Management Measures would further ensure that isopentane leaks are immediately detected and an operator in the control room (manned 24/7) is immediately notified to mobilize to fix the leak. Compliance with BACT requirements and emissions management would be determined and enforced by the ICAPCD in compliance with ICAPCD Rule 207 (New and Modified Stationary Source Review) and Rule 208 (Permit to Operate) in accordance with the modification to the existing permit ICAPCD Authority to Construct and Permit to Operate 2217 as detailed on page 3.4-14 of the Draft EIR.

**G A-34** The ICAPCD reviews all Air Quality Analyses to ensure enforceability and consistency of air analysis methodology to the ICAPCD CEQA Air Quality Handbook, Air District Rules & Regulations, and Air District Guidelines. Accordingly, ICAPCD reviewed and provided comments on the Draft EIR and associated air quality analysis on October 2, 2024. The findings of their review of the analyses indicate that they are satisfied with the adequacy of the Mitigation Measure AQ-3 and Mitigation Measure AQ-4 to adequately mitigate project impacts to below the applicable thresholds under the provision that Mitigation Measure AQ-4 be revised on page 3.4-20 of the Final EIR to specify “Enhanced Dust Control Plan” as follows:

Mitigation Measure AQ-4 Dust Suppression Management Plan. Prior to any earthmoving activity, the applicant shall submit a ~~construction~~ Enhanced Dust Control Plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

As noted on page 3.4-9 of the Draft EIR, the Project is subject to ICAPCD Regulation VIII – Rules 800-805 which outline the requirements for the dust control plan which includes identification Project contacts and responsibilities, Project dust generating activities, minimum requirements and enhanced requirements for limiting visible dust emissions, and other dust control methods and treatments, as well as monitoring and record keeping requirements. All actions required per ICAPCD Rule VIII are subject to enforcement per ICAPCD regulations and potential air quality impacts are addressed through enforcement of these regulation and proposed mitigation measures as discussed in preceding responses.

**G A-35** As noted on page 3.4-8 of the Draft EIR, the Project is subject to ICAPCD Rule 207 (New and Modified Stationary Source Review) and Rule 208 (Permit to Operate). Rule 207 applies to all new stationary sources and all modifications to existing stationary sources that emit or have the potential to emit one or more “affected pollutants” and includes the requirement that BACT be applied to any new or modified emissions unit with a potential to emit equal or greater than specified rates. Further Rule 208 includes inspection and approval by the Air Pollution Control Officer for the purpose of ensuring that all emissions from the Project will be subject to the Permit to Operate and finding that such equipment or facility is in compliance with all required

provisions of the permit. In addition, as noted on page ES-1 of the Draft EIR, the Project is located within the existing Heber 2 Geothermal Energy Complex that is subject to ICAPCD Authority to Construct and Permit to Operate 2217 as detailed on page 3.4-14. The Project would constitute a modification of the existing permit which includes requirements for BACT, monitoring, testing, and analyses, recordkeeping, and reporting as enforced by the ICAPCD. The ICAPCD has reviewed and approved preliminary emissions calculations provided in the Draft EIR and will confirm the emissions estimates as part of the permit application process to ensure that emissions are below the applicable thresholds and all regulatory requirements are met.

**G A-36** Note that Sulfur Hexafluoride is identified as SF<sub>6</sub>, rather than SF<sub>5</sub> noted in this comment. As stated on page 1-8 of Appendix D of the Draft EIR, CARB amended the Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV, January 1, 2029 for voltage between 145 and 245 kV, and January 1, 2031 for voltage greater than 245 kV). The Draft EIR assumes use of SF<sub>6</sub> gas for conservative GHG estimates for the remote potential scenario that SF<sub>6</sub> alternatives were not available at the time of construction. However, the Project proposes circuit breakers less than 145 kV, with installation not proposed until after January 1, 2025. There are currently numerous alternatives to SF<sub>6</sub> gas available on the market. As such, no SF<sub>6</sub> gas will be utilized in Project equipment with compliance with the applicable regulation.

**G A-37** Please refer to preceding responses to comments G A-1 through G A-37.

**G B-1** This comment is an introductory comment and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

**G B-2** Please refer to responses to comments G-39 through G-52.

**G B-3** This comment provides a general summary of the project and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

**G B-4** Please refer to response to comments G B-5 and G B-8.

**G B-5** Please refer to responses to comments G-48 and G-41.

**G B-6** Please refer to response to comment G-48.

**G B-7** Greater policy development in Imperial County is outside the purview of this EIR.

**G B-8** The entire project site falls within the Geothermal Overlay Zone, which allows for the conversion of agricultural land for geothermal energy production with an approved CUP. Despite this, the permanent conversion of agricultural land classified as Prime Farmland and Farmland of Statewide Importance is considered a significant impact under CEQA. However, with respect to the proposed project, the conversion is identified as temporary in nature. As such replacement of agricultural lands is not required in order to mitigate the temporary conversion of agricultural land. Implementation of Mitigation Measure AG-1a would reduce the impact associated with the temporary conversion of important farmlands to non-agricultural uses to a level less than significant.

Specifically, as identified in the EIR, 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.

The project would temporarily convert land designated as Prime Farmland and Farmland of Statewide Importance to non-agricultural uses, however, the project will be required to provide a “clear long-term economic benefit to the County” as required, by contributing to the County’s established public benefit agreement.

On March 1, 2011, the County Board of Supervisors adopted the Public Benefit Program. On January 24, 2012, the County Board of Supervisors adopted “Establishing Guidelines for the Public Benefit Program for use with Solar Power Plants in Imperial County.” As identified in these guidelines, “the County should receive an agricultural benefit when the solar project is being located on farmland within the County, which will be used for offsetting temporary negative effects to the community, local economy and agriculture industry. Such uses may include, but are not limited to, stewardship, protection, and enhancement of agricultural lands within Imperial County; tools, technology, and techniques for protection of agriculture commodities or increase of crop yields, and support of programs or projects that increase agriculture industry employment opportunities.” As stated, these are guidelines for negotiating specific agreements with developers of utility-scale solar projects. Further, these guidelines are periodically reviewed and updated, including the monetary assessments associated with the conversion of agricultural acreage. The Public Benefit Program has been in operation for over 10 years, and it has been successful in providing the intended benefits to both agricultural and community projects.

In summary, although the proposed project is a geothermal project, and the photovoltaic solar component is a parasitic solar system (i.e., it serves the geothermal plant), it has never the less been required to mitigate impacts as were determined appropriate by the County for utility-scale solar uses.

Please also refer to response to comment G-49.

**G B-9** Please refer to response to comment G-49.

**G B-10** Please refer to response to comment G-51.

**G B-11** Please refer to response to comment G-41.

**G B-12** Please refer to response to comment G-41. Draft EIR Section 2.6, Section 3, the Draft Reclamation Plan Applications and Revegetation Plans (Attachment M in Final EIR) document the existing conditions of the site. The site is presently used for alfalfa cultivation and the objective of the reclamation will be to return the site to a state of same/similar arable condition.

**G B-13** See Draft EIR Section 2.6 and response to comment G-41. The Project will comply with Imperial County's requirements and process for site reclamation, whereas County Code 91702.01.H (Geothermal Project Drilling Standards) specify that "Prior to abandonment, it shall be the responsibility of the operator to comply with all regulations of the county and the State Division of Oil and Gas regarding surface and subsurface activities. In agricultural or potential agricultural areas, any brine holding ponds shall be purged of brine, the salts shall be removed from the dikes and bottom, and the berms leveled to the satisfaction of the landowners and the planning director."

With respect to the time period, as indicated on EIR page 4-3, "Project approvals would include 15-year CUPs, each with a single 15-year renewal."

**G B-14** See Draft EIR Section 2.6, Responses G-41 and G B-13.

**G B-15** Please refer to Response G-42.

**G B-16** See Draft EIR Section 2.6 and Response G-41.

**G B-17** See Draft EIR Section 2.6 and Response G-41.

**G B-18** Please refer to responses G-39 through G-52.

**G B-19** Please refer to responses G-39 through G-52.

**G B-20** Please refer to responses G-39 through G-52.

**G B-21** Conclusion statement is acknowledged.

**G C-1** This is an introductory comment and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is necessary.

**G C-2** This comment summarizes the qualifications of the commenter. This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is necessary.

**G C-3** The site visit and conditions observed, as indicated in this comment are acknowledged. As they relate to the findings of the Draft EIR, please refer to responses G-7 through G-17.

**G C-4** Please refer to response G-12.

**G C-5** Please refer to response G-12.

**G C-6** Please refer to response G-12.

**G C-7** Please refer to response to comment A-8. The 2023 Biological Resources Report included a reconnaissance-level habitat survey for general wildlife and plants present on the Project Site as well as preliminary identification of burrows that could be suitable for burrowing owls. The information on burrowing owl habitat in the 2023 report is superseded by the 2025 non-breeding and breeding season surveys and reports which were conducted utilizing the methods presented in CDFG 2012 and in response to CDFW comments. Section 3.5.1 of the EIR has been revised to include the results of those surveys. Additionally, MM BIO-8 addresses the potential impacts to American badger on the Project Site.

**G C-8** Please refer to response to comment A-5. Additionally, the biological reconnaissance survey was conducted February 21, 2023 beginning at 10:00 am after the survey team checked in at the Ormat Heber Geothermal Complex to access to the fenced-in area. Surveys were conducted throughout the day and concluded at 5:40 pm (dusk). The biological survey team



was also present on the project site on February 22, 2023 at 8:00 am to conduct jurisdictional waters delineations.

**G C-9** As explained in Section 3.5.1 of the Draft EIR and Appendix E, Catalyst biologists reviewed data from multiple governmental sources, including the U.S. Fish & Wildlife (USFWS) Information for Planning and Consultation (IPaC 2023), California Department of Fish & Wildlife (CDFW) California Natural Diversity Database (CNDDDB 2023), USFWS National Wetlands Inventory (2023), and U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil profile (2023). In addition, Catalyst biologists conducted habitat surveys to evaluate presence of wildlife at the Project site. Species occurrence determinations were based on an assortment of factors evaluated by biologists, including occurrence data, site visits, type and quality of habitat, and environmental conditions. Therefore, the Draft EIR accurately represents the biological baseline for the site.

The comment expresses a preference for use of data from eBird and iNaturalist for species occurrences. The data from these sources are based on crowdsourced entries by hobby birders and naturalists as opposed to data reported to CNDDDB, which is obtained by biological consultants, CDFW and other agency biologists, academics, researchers, and conservation groups such as CNPS and others. While eBird and iNaturalist records can be useful to provide an overview of species in a general area, it is important for results to be interpreted by a qualified biologist familiar with the conditions on site and who is assessing whether significant life history events would take place at a particular site for a particular species. As such, the comment does not present significant new information regarding biological resources that are already disclosed and analyzed in the Draft EIR.

Section 3.5.1 has been clarified with discussions of species with a low probability of occurrence in addition to those with a medium or high likelihood of occurrence that were included in the Draft EIR. No new impacts would occur from this clarification on species with low potential to occur in the greater vicinity of the Project, and potential impacts to biological resources would remain less than significant. See Response 7H for discussion of bats, Response 1E for discussion on burrowing owls, and Section 3.5.1 for discussions on special status species occurring in the project vicinity.

**G C-10** Please refer to Response G-13.

**G C-11** Modeling to predict the number of wildlife species is outside of the purview of this EIR. A detailed biological survey, including focused species surveys were conducted for the project and those species that were observed or otherwise have the potential to be present on the site based on database information has been identified, and appropriate mitigation measures have been identified based on the potential presence of biological resources on the project site.

**G C-12** Please refer to response to comment G-34.

**G C-13** Please refer to responses to comments A-6, G-16, and G-17.

No special status pollinators were identified as potentially occurring on the project site and alfalfa is not a protected plant community. Nevertheless, MM BIO-11 includes measures to reduce impacts to pollinators.

**G C-14** Please refer to response to comment G-17.

**G C-15** Please refer to responses to comments G-16, G-32, and G-42. Cumulative biological impacts are addressed in EIR Section 5 Cumulative Impacts.

**G C-16** Please refer to response to comment G-32.

**G C-17** Please refer to response to comment G-34. As provided in Section 3.2.2 of the Draft EIR, the Project would abide by Imperial County Land Use Ordinance, Title 9 which provides the County's specific direction for lighting requirements. Specifically, Project lighting would be directed or shielded to confine direct rays to the project site and muted to the maximum extent consistent with safety and operational necessity (Division 17: Section 91702.00 (Renewable Energy Resources – Specific Standards for all Renewable Energy Projects). Further, pursuant to the County's Noise Element, construction activities may only occur between 7:00 a.m. and 7:00 p.m. Monday through Friday, and 9:00 a.m. to 5:00 p.m. on Saturday. Therefore, nighttime construction activities would not occur and thus, nighttime construction lighting would not be required.

**G C-18** Please refer to response to comment G-34.

**G C-19** Please refer to responses to comments G-34 and G-35.

**G C-20** Please refer to responses to comments G-34 and G-35.

**G C-21** Please refer to responses to comments G-34, G-37, and G-38.

OPR's Technical Advisory on Evaluating Transportation Impacts on CEQA (December 2018) recommends the use of VMT metrics when analyzing land use projects and plans. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less than significant transportation impact including those related to "Other Impacts to Health and Environment" such as collisions with wildlife (refer to page 2 and page 10 of OPR's Technical Advisory available here: [https://lci.ca.gov/docs/20180416-743\\_technical\\_advisory\\_4.16.18.pdf](https://lci.ca.gov/docs/20180416-743_technical_advisory_4.16.18.pdf)).

**G C-22** Please refer to responses to comments A-8 and B-5.

**G C-23** Please refer to response to comment A-8 regarding burrowing owl mitigation and response to comment G-42 regarding land use conversion in Imperial County. As indicated in these responses, burrowing owl mitigation has been revised based on review and comment by CDFW, which has been deemed adequate to reduce potential burrowing owl impacts to a level less than significant. Other mitigation measures proposed include requirements for pre-construction nesting bird surveys (MM BIO-4), use of non-reflective materials and finishes on the solar panels (MM BIO-6), avian/power line collision avoidance and minimization (MM BIO-9), avian electrocution avoidance and minimization (MM BIO-10), and numerous other operational biological protection measures (MM BIO-11). Operational impacts have been determined to be less than significant with implementation of proposed mitigation measures. Similarly, other cumulative projects would be required to implement mitigation measures appropriate to the site specific conditions and project type for each project.

**G C-24** Comment acknowledged.

**G C-25** The requirement that pre-construction surveys be conducted no more than 3 days prior to the start of construction is so that pre-construction surveys would not otherwise be conducted well in advance of construction, therefore, allowing areas cleared by surveys (negative results) to be reoccupied by any nesting birds. Further, there is very limited nesting bird habitat on the site, and 3 survey days is ample time for a biology monitoring team to survey the entire project site, but more

importantly the specific area proposed for construction at that particular phase of construction. Biology monitors routinely survey and monitor sites of similar size as part of preconstruction monitoring requirements for solar projects within the County. Please refer to response to comment A-5.

**G C-26** Please refer to responses to comments A-5, A-8, and G-34. Proposed mitigation measures will reduce potentially significant impacts to a less than significant level and no additional mitigation is required.

**G C-27** Please refer to response to comment A-8.

**G C-28** Please refer to response to comment G-34. Proposed mitigation measures will reduce potentially significant impacts to a less than significant level and no additional mitigation is required.

**G C-29** Please refer to response to comment G-37. Proposed mitigation measures will reduce potentially significant impacts to a less-than-significant level and no additional mitigation is required.

**G C-30** Please refer to responses to comments G-34 and A-8. Proposed mitigation measures will reduce potentially significant impacts to a less-than-significant level and no additional mitigation is required.

**G C-31** Please refer to response to comment G-34. Proposed mitigation measures will reduce potentially significant impacts to a less-than-significant level and no additional mitigation is required.

**G C-32** This comment does not address the adequacy of the EIR; therefore, no further response is necessary.

**G D-1** This comment provides a general summary of the project and qualifications of Wilson Ihrig. This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

**G D-2** Maximum modeled construction- and operation-related noise levels are presented in 3.13-3 and 3.13-4 of the Draft EIR. As shown, estimated noise levels for all activities are below 30 dBA. As stated on page 3.13-3, operational noise levels of an existing geothermal facility in Imperial County were recorded at 70 dBA Leq at approximately 100 feet, representative of noise levels at the existing Heber Geothermal Complex. The presumed ambient noise level of 50 dBA during the day and 45 dBA during the night is likely lower than actual ambient noise levels. As stated on page 3.13-8 of the Draft EIR, modeled construction noise levels less than ambient would not be expected to increase noise levels at the modeled receptors. In addition, as summarized in Table 3.13-4, project-related operational noise would be below, and thus in compliance with the Imperial County noise standards which limits the increase in future noise levels to 5 dBA CNEL above ambient noise levels as a result of the action within Noise Impact Zones that are currently within normally acceptable noise level guidelines. Specifically, the project-related operation noise is estimated to be less than the assumed ambient daytime noise level of 50 dBA Leq and nighttime noise level of 45 dBA Leq. Thus, due to the logarithmic principals of sound (i.e., the noise levels increase by 3 dBA when the number of similar noise sources double), the project would not have the potential result in an increase of 5 dBA CNEL above existing ambient noise levels for any ambient noise levels above approximately 30 dBA (which is likely in the Project area - in the case that actual ambient noise levels are greater than the presumed ambient noise levels, the Project cumulative noise would not be perceptible above ambient noise levels due to the logarithmic principals of sound).

Note that Section 90702.00 (Sound Level Limits) of the Imperial County Code of Ordinances states: *"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 is exceeded, at any location in the county of Imperial on or beyond the boundaries of the property on which the noise is produced. at any location in the county of Imperial on or beyond the boundaries of the property on which the noise is produced."* And that: *"The sound level limit between two zoning districts (different land uses) shall be measured at the property line between the properties."* The one-hour Average Sound Level limit for General Industrial land use zones is 75 dBA – as demonstrated by the noise model developed for the Project, construction and operation noise would be far below 75 dBA and thus would not result in a cumulative increase in existing noise levels (under the conservative assumption that existing noise levels at the facility are already at the limit of 75 dBA at the property boundary).

**G D-3** Note that Section 91702.0(B) states: *"Each operator shall limit drilling noise to a sound level equivalent to CNEL sixty (60) dB(A). The level shown may be exceeded by ten percent (10%) if the noise is intermittent and during daylight hours. The noise levels shall be measured at the nearest human receptor site outside the parcel boundary."* As such, the ordinance is clear that the 60 dBA CNEL noise limit is applicable only at the nearest sensitive receptor, i.e., residential structures nearest the drilling site. Drilling noise levels were modeled with the drill rig operating 24-hours/day – as detailed in Table 3.13-3 of the Draft EIR and further documented in Appendix K of the Draft EIR (see Figures 1 through 3 of Appendix K), the nearest human receptors are far outside the 60 dBA Leq noise contour. With the appropriate nighttime penalties applied, construction and drilling noise levels are also modeled to be far below the 60 dBA CNEL noise level contour at the nearest human receptor. The analysis does not assume "intermittent" and assumes that all drilling equipment will be operating simultaneously and continuously for 24-hour days for the duration of the construction phase.

**G D-4** The commenter has misinterpreted the statement made in Appendix K regarding the noise level limits applicable to the Project. Section 90702.00(B) specifically states that the noise level limit for the land use where the noise is generated is applicable, which is 75 dBA at the property line for General Industrial land uses at the Project site. As demonstrated by the noise model developed for the Project, construction and operation noise would be far below 75 dBA and thus would not result in a cumulative increase in existing noise levels (under the conservative assumption that existing noise levels at the facility are already at the limit of 75 dBA at the property boundary). Therefore, ambient noise levels are not relevant because the conservative assumption of 75 dBA at the property boundary was assumed for the analysis.

**G D-5** Please refer to response GD-1 through GD-4 and G-53 through G-57.



**California Program Office**  
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[www.defenders.org](http://www.defenders.org)

November 13, 2024

Luis Valenzuela  
Imperial County Planning Department  
801 Main Street  
El Centro, CA 92243  
Delivered via email: [luisvalenzuela@co.imperial.ca.us](mailto:luisvalenzuela@co.imperial.ca.us)

RE: Comments on Dogwood Geothermal Energy Project CUP 23-0020/IS23/0026  
Draft Environmental Impact Report (SCH 2024010510)

Dear Mr. Valenzuela,

Defenders of Wildlife (Defenders) respectfully submits these comments on the draft environmental impact report (DEIR) for the Dogwood Geothermal Energy Project (Project). Defenders is dedicated to protecting all wild animals and plants in their natural communities and has 2.1 million members and supporters in the United States, 316,000 of whom reside in California. We employ science, public education and participation, media, legislative advocacy, litigation, and proactive on-the-ground solutions to prevent the extinction of species, associated loss of biological diversity, and habitat alteration and destruction.

H-1

We strongly support the development of renewable energy production. A low-carbon energy future is critical for California's economy, communities, and environment. Achieving this future—and *how* we achieve it—is critical for protecting California's internationally treasured wildlife, landscapes, and diverse habitats. We believe transitioning to a renewable energy future need not exacerbate the ongoing extinction crisis by thoughtfully planning projects while protecting habitat critical to species.

H-2

The proposed 125 acre project consists of three interrelated sub-projects:

1. Dogwood Geothermal Project – a 25 megawatt (MW) geothermal energy facility that includes two 20,000 gallon aboveground isopentane storage tanks, a cooling tower, 7 MW solar photovoltaic (PV) field, a substation, and a gen-tie line from

H-3

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the proposed solar facility to the proposed geothermal facility. Excepting the solar field and gen-tie line, this project would be located within the fence line of the existing Heber 2 geothermal plant.

2. Heber 2 Solar Energy Project – 15 MW solar PV field directly connected to the existing Heber 2 geothermal power plant. The solar field is proposed to be sited southeast of the Heber 2 geothermal power plant on an alfalfa field.
3. Heber Reid Geothermal Wells and Pipeline Project - three new geothermal production wells, a new injection well, and an interconnecting pipeline. Two geothermal wells would be on the existing Heber 2 geothermal power plant site. The remainder of the project would be collocated with the proposed Dogwood and Heber 2 Solar Energy Projects.

H-3  
cont.

The proposed Project is on private lands in southern Imperial County, one mile south of the City of Heber and 0.5 miles from the City of Calexico. The area surrounding the proposed project site includes solar fields, geothermal facilities, a construction and aggregate supply yard, alfalfa fields, and row crops.

The proposed Project site and the surrounding area provide potential habitat for numerous special status species including mountain plover (*Charadrius montanus*), merlin (*Falco columbarius*), long-billed curlew (*Numenius americanus*), northern harrier (*Circus hudsonius*), loggerhead shrike (*Lanius ludovicianus*), yellow warbler (*Setophaga petechia*), burrowing owl (*Athene cunicularia*), vermilion flycatcher (*Pyrocephalus rubinus*), Colorado Valley woodrat (*Neotoma albigula venusta*), western mastiff bat (*Eumops perotis californicus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), western yellow bat (*Lasiurus xanthinus*), and American badger (*Taxidea taxus*).<sup>1</sup> Long-billed curlew and northern harrier were observed on the proposed Project site during the applicant's biological surveys.

H-4

## Comments

### *California Department of Fish and Wildlife Recommendations*

We have reviewed the California Department of Fish and Wildlife's (CDFW) September

H-5

<sup>1</sup> California Natural Diversity Database. Accessed 11/5/24. <https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data>



30, 2024 comment letter on DEIR for the proposed Project.<sup>2</sup> We agree with their comments and support their recommendations. We strongly recommend the County revise the DEIR to incorporate their recommendations.

H-5  
cont.

*Permanent Conversion – Permanent Mitigation*

Due to the unrelenting demand for renewable energy and the significant transmission investment required, utility-scale solar development such as the proposed Project can be reasonably expected to remain in energy production or another industrial use far beyond the Project's initial 30 years. These projects are a permanent conversion of land use and, as such, require impact analysis and mitigation that addresses the permanent nature of the impacts. Furthermore, the ownership and/or management of the proposed Project can be reasonably expected to change over time. The proposed mitigation measures, particularly those associated with project operations and management, become meaningless if their durability is not ensured.

H-6

*Burrowing Owl*

Suitable potential burrows have been observed at the proposed Project site. Burrowing owls have been listed as a candidate species under the California Endangered Species Act. As a candidate for listing, the species is temporarily afforded the same protections as a state-listed endangered or threatened species. **BIO-4** needs to be revised to reflect the burrowing owl's candidate status and the need for an incidental take permit from CDFW.

H-7

**Cumulative Impact Analysis**

Although we encourage the development of renewable energy projects, it is causing significant and unavoidable adverse cumulative impacts on wildlife and their habitats. The DEIR dismisses the potential for significant impacts due to the mitigation measures proposed yet fails to consider the cumulative loss of habitat for the suite of special status species including burrowing owls that rely on this landscape. The DEIR should be revised to include a comprehensive cumulative impacts analysis for the loss of habitat for these species.

H-8

**Conclusion**

Thank you for consideration of our comments. We look forward to reviewing the Final EIR. Please contact Pamela Flick at (916) 442-5746 or [pflick@defenders.org](mailto:pflick@defenders.org) or Kate

H-9

<sup>2</sup> [https://ceqanet.cpr.ca.gov/2024010510/4/Attachment/tm\\_FRZ](https://ceqanet.cpr.ca.gov/2024010510/4/Attachment/tm_FRZ)

Kelly at (530) 902-1615 or [kate@kgconsulting.net](mailto:kate@kgconsulting.net) with any questions.

H-9  
cont.

Sincerely,

Pamela Flick  
California Program Director

Kate Kelly  
Consultant

## **Defenders of Wildlife**

**November 13, 2024**

- H-1** This comment is an introductory comment and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- H-2** Comment acknowledged.
- H-3** This comment provides a general summary of the project and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- H-4** This comment identifies the special-species with potential habitat on the project site and surrounding area, and the species observed during the Applicants' biological surveys. This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore no further response is required, and the comment is noted for the record.
- H-5** This comment states Defender of Wildlife has reviewed CDFW's September 30, 2024 comment letter on the Draft EIR for the proposed project and recommend that the County revise the Draft EIR to incorporate their recommendations. Please refer to responses to comments A-4, A-5, A-6, and A-8 regarding revisions to mitigation measures in the Final EIR per CDFW's recommendations in their September 30, 2024 comment letter on the Draft EIR.
- H-6** Please see Section 2.6 (Restoration of the Project Site) of the Draft EIR and Response G-41.
- H-7** Please refer to response to comment A-8.
- H-8** Please refer to response to comment G-59. Also, as provided in Chapter 5.0, Cumulative Impacts of the Draft EIR (Sections 5.1 and 5.3.4), the Draft EIR considers cumulative impacts from land use conversion to biological resources and habitat, including for burrowing owl specifically. Further, as provided in response to comment A-8, Mitigation Measure BIO-4 has been revised in the Final EIR such that, where there will be permanent impacts to occupied burrowing owl habitat, that habitat will be replaced with permanent conservation of similar vegetation communities. Such conservation measures would offset the Project's impacts on burrowing owl habitat loss should burrowing owls be discovered to be using the site as burrow habitat. Therefore, the Project would not significantly contribute to the cumulative loss of burrowing owl habitat.
- H-9** The contact information is received and acknowledged.

150 SOUTH NINTH STREET  
EL CENTRO, CA 92243-2838



TELEPHONE: (442) 265-1880  
FAX: (442) 265-1799

January 13, 2025

Jim Minnick  
Planning & Development Services Director  
801 Main Street  
El Centro, CA 92243

**RECEIVED**

By Imperial County Planning & Development Services at 1:04 pm, Jan 14, 2025

**SUBJECT:** Review of Draft Environmental Impact Report & Appendix D Air Quality and Greenhouse Gas Technical Report for Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and Heber Field Company Geothermal Wells and Pipeline Project

Dear Mr. Minnick:

The Imperial County Air Pollution Control District (Air District) appreciates the opportunity to review and comment on Administrative Review (ADM) of Draft Environmental Impact Report (DEIR) and Appendix D Air Quality and Greenhouse Gas Technical Report for Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and Heber Field Company Geothermal Wells and Pipeline Project (Project). The project proposes the development of an Integrated Two Level Unit (ITLU) Air Cooled Ormat Energy Converter (OEC), two 20,000-gallon isopentane tanks, a 7 MW parasitic solar facility, underground distribution line, and substation under CUP 23-0020. The development of a 15 MW solar energy facility that will provide a parasitic load to the existing Heber 2 plant under CUP 23-0021. Finally, the development of up to six geothermal production wells, one geothermal injection well, and approximately 4, 500 linear feet of new pipeline under CUP 23-0022. The project spans across portions of three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC.

I-1

The Air District previously provided comments in a letter dated October 2, 2024 and the majority of its comments remain relative and will be reiterated here, with one distinct addition: at the time of its earlier comments the Air Quality Analysis and associated CalEEMod analysis for the project, found in Appendix D, had not been provided to the Air District for review. Since then, the Air District has reviewed the documents and was able to satisfactorily recreate the CalEEMod outputs and finds the analysis is consistent with Air District Guidelines.

I-2



The AQA for the project is identified as Appendix D – Air Quality and Greenhouse Gas Technical Report which identified six mitigation measures identified as MM AQ-1, MM AQ-2, MM AQ-3, MM AQ-4, MM AQ-5, and MM AQ-6 to be implemented for the project to maintain emissions below thresholds of significance. Air District staff reviews all AQAs to ensure enforceability and consistency of air analysis methodology to the Imperial County Air Pollution Control District CEQA Air Quality Handbook (Handbook), Air District Rules & Regulations, and Air District guidelines. Given the permitting requirements of the project in conjunction with the implementation of mitigation measures MM AQ-1 – MM AQ-6, and the satisfactory recreation of CalEEMod results the Air District can concur the mitigation measure are consistent with those used to maintain this type of project at less than significant impact levels given historical implementation with one update for AQ-4.

I-3

The AQA in Table 13 Mitigated Project Construction – Generated Emissions finds the construction PM10 emissions exceed emission thresholds, however, the document correctly states the guidance in the Handbook is to address construction emissions qualitatively. Given the CalEEMod information the Construction Dust Control Plan as discussed in AQ-4 must be an **Enhanced Dust Control Plan**, which must exceed the standard measures of the Dust Control Plan. The forms for the Construction Dust Control Plan can be found at <https://apcd.imperialcounty.org/planning/#construction>, the Air District also requests the applicant submit a Construction Notification Form 10 days prior to earthmoving beginning for the project.

I-4

The Air District considered the project in portions consisting of the construction and operation of each of the geothermal expansion/wells and the solar field project. Review of office records shows the existing facility identified as Heber 2, as currently constructed and operating, operates under Air District Permit to Operate #2217. Given the proposed developments of the project, the applicant will need to submit an amended application for engineering review of the facility and must be issued an Authority to Construct/Permit to Operate (ATC/PTO) prior to construction of the project beginning. The applicant must submit a permit application for engineering review of the project, pay the applicable review fees, and coordinate with the Air District Engineering and Permitting Division directly to determine the permitting requirements of the project. The solar portion of the project will not fall under engineering permitting.

I-5

MM AQ-1 – MM AQ-6 mitigation measures are identified in the AQA as:

**MM AQ-1 Construction Equipment.**

All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 4 Final California Emission Standards for Off-road Compression-Ignition Engines as specified in CCR, Title 13, Section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 4 Final Engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide NOx and particulate matter emissions that are equivalent to Tier 4 engine. Drill Rig engines shall meet a minimum of Tier 4 Interim California Emission Standards. A list of the

I-6

Construction equipment, including all off-road equipment utilized at the project site 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 NOx Analysis. ICAPCD shall utilize his list to calculate air emissions to verify that equipment use does not exceed the significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.

#### **MM AQ-2 Fugitive Dust Control**

Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII – Fugitive Dust Control Measures. ICAPCD will verify implementation and compliance with these measures as part of the grading permit review/approval process.

##### **ICAPCD Standard Measures for Fugitive Dust (PM10) Control**

- All disturbed areas, including bulk material storage, which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material, such as vegetative ground cover.
- 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 the 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.

I-6  
cont.



- 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).

**MM AQ-3 Dust Suppression.**

The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. All unpaved roads associated with construction shall be effectively stabilized of dust emissions using stabilizers/suppressant before the commencement of all construction phases. This will be conducted monthly at a rate of 0.1 gallon/ square yard of chemical dust suppressant. 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).

**MM AQ-4 Dust Suppression Management Plan.**

Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

I-6  
cont.

**MM AQ-5 Speed Limit.**

During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on unpaved roads to 15 miles per hour or less.

**MM 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.

The construction emissions of both the geothermal expansion/wells and the solar field will be controlled via mitigation measures MM AQ-1 – MM AQ-6, the geothermal expansion/wells construction emissions will also be controlled via the ATC/PTO. Operational emissions of the geothermal expansion will be controlled via the ATC/PTO, which must be maintained active during operation, and relevant Rules and Regulations. Finally, operational emissions of the solar field will be controlled via the approved Operational Dust Control Plan, which is periodically reviewed for consistent implementation.

The Air District requests MM AQ-1 – MM AQ-6 be included as conditions of the CUP, with the following changes in language to MM AQ-4:

**AQ-4 Dust Suppression Management Plan.**

Prior to any earthmoving activity, the applicant shall submit an **enhanced** construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

I-6  
cont.

The Air District also requests a copy of each draft CUP prior to recording for review of relevant conditions of the CUP.

I-7

The Air District would like to remind the applicant that the equipment lists as described in MM AQ-1 will be used to calculate NOx emissions during construction to ensure emission threshold limits are not exceeded. If the Air District determines NOx thresholds were exceeded the project may be subject to Policy 5 fee requirements. Finally, the Air District would inform the applicant that as part of AQ-5, finalization of the Operational Dust Control Plan will require a site visit by Air District staff.

I-8

All Air District rules and regulations can be found for review on our website at <https://apcd.imperialcounty.org/rules-and-regulations/>. Please contact our office at (442) 265-1800 if you have any further questions or concerns.

I-9

Respectfully,

  
Ismael Garcia  
Environmental Coordinator

  
Monica N. Soucier  
APC Division Manager

## **Imperial County Air Pollution Control District**

**January 13, 2025**

- I-1** This is an introductory comment and provides a general summary of the project and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- I-2** Please refer to response to comment C-3. This comment states that ICAPCD confirms that the emissions modeling is accurate and consistent with Air District guidelines.
- I-3** Please refer to response to comment C-3. This comment indicates that the mitigation measures are consistent with Air District guidelines and potential impacts would be less than significant.
- I-4** Please refer to response to comment C-4.
- I-5** Please refer to response to comment C-5.
- I-6** This comment summarizes the Project's air quality mitigation measures from the Draft EIR and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.
- I-7** Comment acknowledged. The Project Applicants will provide ICAPCD a copy of each draft CUP for the Project.
- I-8** Comment acknowledged.
- I-9** The ICAPCD rules and regulations and contact information is received and acknowledged.

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Volume III of III

## Final Environmental Impact Report

Dogwood Geothermal Energy Project:

- Dogwood Geothermal Energy Project (CUP No. 23-0020)
- Heber 2 Solar Energy Project (CUP No. 23-0021)
- Heber Field Company Geothermal Wells & Pipeline Project (CUP No.23-0022)

SCH No. 2024010510

*Imperial County, California*

May 2025

**Prepared for**

County of Imperial  
801 Main Street  
El Centro, CA 92243

**Prepared by**

HDR  
591 Camino de la Reina, Suite 300  
San Diego, CA 92108

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## 0.4 Mitigation Monitoring and Reporting Program

The County of Imperial will adopt this Mitigation Monitoring and Reporting Program (MMRP) in accordance with Public Resources Code (PRC) Section 21081.6 and Section 15097 of the California Environmental Quality Act (CEQA) Guidelines. The purpose of the MMRP is to ensure that the Dogwood Geothermal Energy Project, which is the subject of the Environmental Impact Report (EIR), complies with all applicable environmental mitigation requirements. The mitigation measures for the project will be adopted by the County of Imperial, in conjunction with the certification of the Final EIR. The mitigation measures have been integrated into this MMRP.

The mitigation measures are provided in Table 0.4-1. The MMRP includes a checklist to be used during the mitigation monitoring period. The MMRP includes the following information for each mitigation measure:

- Description of Recommended Mitigation Measures from the CEQA EIR
- Time Frame for Implementation
- Steps to Compliance and Verification
- Responsible Monitoring Agency

The mitigation measures applicable to the project include avoiding certain impacts altogether, minimizing impacts by limiting the degree or magnitude of the action and its implementation, and/or reducing or eliminating impacts over time by maintenance operations during the life of the action.

Public Resources Code Section 21081.6 requires the Lead Agency, for each project that is subject to CEQA, to monitor performance of the mitigation measures included in any environmental document to ensure that implementation does, in fact, take place. The County of Imperial is the designated CEQA lead agency for the Mitigation Monitoring and Reporting Program. The County of Imperial is responsible for review of all monitoring reports, enforcement actions, and document disposition as it relates to impacts within the County's jurisdiction. The County of Imperial will rely on information provided by the monitor as accurate and up to date and will field check mitigation measure status as required.

A record of the MMRP will be maintained at County of Imperial, Department of Planning and Development Services, 801 Main Street, El Centro, CA 92243. All mitigation measures contained in the EIR shall be made conditions of the project as may be further described below.

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**Table 0.4-1. Mitigation Measures**

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<b>Agricultural Resources</b>			
<p><b>AG-1a. Payment of Agricultural and Other Benefit Fees.</b></p> <p>Prior to the issuance of a grading permit or building permit (whichever is issued first), one of the following options included below shall be implemented:</p> <p><b>A. Mitigation for Non-Prime Farmland:</b></p> <p><b>Option 1: Provide Agricultural Conservation Easement(s).</b> 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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits; or</p> <p><b>Option 2: Pay Agricultural In-Lieu Mitigation Fee.</b> 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,</p> <p><b>Option 3: Public Benefit Agreement.</b> The Permittee and County voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that: 1) is consistent with Board Resolution 2023-#17; and 2) must be held by the County in a restricted account to be used by the County</p>	<p>Prior to the issuance of a grading permit or building permit (whichever is issued first)</p>	<p>Submit documentation for establishment of Agricultural Conservations easements, Enrollment in Agricultural In-lieu Mitigation Fee program or Public Service Agreement.</p>	<p>Imperial County Planning &amp; Development Services.</p>

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>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 amended by the Board of Supervisors on November 7, 2023: Resolution “Amending the Public Benefit Program for use with Solar Power Plants in Imperial County”), as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy.</p> <p><b>B. Mitigation for Prime Farmland:</b></p> <p><b>Option 1: <i>Provide Agricultural Conservation Easements.</i></b> 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 (as defined in California Civil Code §§815-816) and shall be recorded prior to issuance of any grading or building permits; or</p> <p><b>Option 2: <i>Pay Agricultural In-Lieu Mitigation Fee.</i></b> 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</p> <p><b>Option 3: <i>Public Benefit Agreement.</i></b> The Permittee and County voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that 1) is consistent with Board Resolution 2023-#17; and 2) 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</p>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>County and to implement the goals and objectives of the Agricultural Benefit program (as amended by the Board of Supervisors on November 7, 2023: Resolution “Amending the Public Benefit Program for use with Solar Power Plants in Imperial County”, 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; or</p> <p><b>Option 4: Avoid Prime Farmland.</b> The Permittee must revise their Conditional Use Permit Application/Site Plan to avoid Prime Farmland.</p>			
<p><b>AG-1b. Site Reclamation Plan.</b></p> <p>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 event Permittee fails to perform the Reclamation Plan.</p>	Prior to the issuance of a grading permit	Submit Reclamation Plan to the County for Review.	Imperial County Planning & Development Services.
<p><b>AG-2 Pest Management Plan.</b></p> <p>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:</p>	Prior to the issuance of a grading permit or building permit (whichever is issued first)	Submit Pest Management Plan to the County for Review.	Imperial County Planning & Development Services.

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<ol style="list-style-type: none"> <li>Monitoring, preventative, and management strategies for weed and pest control during construction activities at any portion of the project (e.g., transmission line);</li> <li>Control and management of weeds and pests in areas temporarily disturbed during construction where native seed will aid in site revegetation as follows: <ul style="list-style-type: none"> <li>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;</li> <li>All treatments must be performed by a qualified applicator or a licensed pest control operator;</li> <li>"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;</li> <li>Use of "permanent" soil sterilants to control weeds or other pests is prohibited because this would interfere with reclamation;</li> <li>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</li> </ul> </li> </ol>			



Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>Commissioner's Office and/or California Department of Food and Agriculture;</p> <ul style="list-style-type: none"> <li>Obey all pesticide use laws, regulations, and permit conditions;</li> <li>Allow access by Agricultural Commissioner staff for routine visual and trap pest surveys, compliance inspections, eradication of exotic pests, and other official duties;</li> <li>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;</li> <li>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;</li> <li>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.</li> </ul> <p>3. A long-term strategy for weed and pest control and management during the operation of the proposed project. Such strategies may include, but are not limited to:</p>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<ul style="list-style-type: none"> <li>Use of specific types of herbicides and pesticides on a scheduled basis.</li> </ul> <p>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.</p> <p>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.</p>			
<b>Air Quality</b>			
<p><b>AQ-1 Fugitive Dust Control.</b></p> <p>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</p> <p><b>ICAPCD Standard Measures for Fugitive Dust (PM10) Control</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	Prior to the issuance of a grading permit	Submit construction dust control plan for ICAPCD approval.	Imperial County Air Pollution Control District (ICAPCD)

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul> <p><b>Standard Mitigation Measures for Construction Combustion Equipment</b></p> <ul style="list-style-type: none"> <li>Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel-powered equipment.</li> </ul>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<ul style="list-style-type: none"> <li>Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.</li> <li>Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.</li> <li>When commercially available, replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).</li> </ul>			
<p><b>AQ-2 Construction Equipment.</b></p> <p>All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 4 Final California Emission Standards for Off-road Compression-Ignition Engines as specified in CCR, Title 13, section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 4 Final engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide NOX and particulate matter emissions that are equivalent to Tier 4 engine. Drill rig engines shall meet a minimum of Tier 4 Interim California Emission Standards. A list of the construction equipment, including all off-road equipment utilized at the project site 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 the significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.</p>	Prior to the issuance of a grading permit	A list of the construction equipment shall be submitted to the County Planning and Development Services Department and ICAPCD	Imperial County Planning & Development Services, and ICAPCD

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p><b>AQ-3 Dust Suppression.</b></p> <p>The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. All unpaved roads associated with construction shall be effectively stabilized of dust emissions using stabilizers/suppressant before the commencement of all construction phases. This will be conducted monthly at a rate of 0.1 gallon/ square yard of chemical dust suppressant. 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).</p>	Prior to the issuance of a grading permit	Submit construction dust control plan for ICAPCD approval.	ICAPCD
<p><b>AQ-4 Dust Suppression Management Plan.</b></p> <p>Prior to any earthmoving activity, the applicant submit an Enhanced Dust Control Plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.</p>	Prior to the issuance of a grading permit	Submit construction dust control plan for County and ICAPCD approval.	Imperial County Planning & Development Services and ICAPCD
<p><b>AQ-5 Operational Dust Control Plan.</b></p> <p>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.</p>	Prior to issuance of a Certificate of Occupancy	Submit an operations dust control plan for County and ICAPCD approval	Imperial County Planning & Development Services and ICAPCD
<p><b>AQ-6 Speed Limit.</b></p> <p>During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on unpaved roads to 15 miles per hour or less.</p>	Prior to and during construction and operations activities	Submit a construction dust control plan and operations dust control plan for County and ICAPCD approval	Imperial County Planning & Development

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
			Services and ICAPCD
<b>Biological Resources</b>			
<p><b>BIO-1 Worker Environmental Awareness Program.</b></p> <p>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. Qualified biologist resumes shall be provided to the County for review and approval prior to the start of construction. Handouts summarizing potential impacts on special-status biological resources and the potential penalties for impacts on these resources shall be provided to all construction personnel. At a minimum, the education program shall include the following:</p> <ul style="list-style-type: none"> <li>• The purpose for resource protection;</li> <li>• A description of special-status species including representative photographs and general ecology;</li> <li>• Occurrences of USACE, RWQCB, and CDFW regulated features in the project area;</li> <li>• Regulatory framework for biological resource protection and consequences if violated</li> <li>• Sensitivity of the species to human activities;</li> <li>• Avoidance and minimization measures designed to reduce the impacts on special-status biological resources</li> <li>• Environmentally responsible construction practices;</li> <li>• Reporting requirements;</li> <li>• The protocol to resolve conflicts that may arise at any time during the construction process; and</li> </ul>	Prior to construction activities	Submit Worker Environmental Awareness Program Document to the County for review and approval. Submit records of attendance indicating date of training, location of training, and name of trainer, with name and signature of all attendees to the County.	Imperial County Planning & Development Services



Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<ul style="list-style-type: none"> <li>Workers sign acknowledgement form indicating that the environmental awareness training and education program that has been completed, which shall be kept on record.</li> </ul>			
<p><b>BIO-2 Pre-Construction Plant Surveys.</b></p> <p>Prior to the start of construction, a qualified biologist shall conduct a botanical field survey following the methodology described in Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW, March 2018). The survey shall be floristic in nature (i.e., identifying all plant species to the taxonomic level necessary to determine rarity), and shall be inclusive of areas proposed for disturbance and indirectly impacted by the Project. The results of the survey shall be documented in a letter report that will be submitted to Imperial County and CDFW. The survey shall be conducted annually until start of construction to ensure the floristic diversity is accurately captured and effective avoidance, minimization, and mitigation strategies are developed.</p> <p>If special-status plant species are observed during the preconstruction rare plant survey(s) within the development area of the Project, the Project shall be designed to reduce impacts to these species through the establishment of buffers, to the extent feasible. Buffer distances will be determined by the qualified biologist, typically 50 feet or greater from an identified special-status plant species, unless the Qualified Biologist determines a reduced buffer would suffice to avoid impacts to the species.</p> <p>If avoidance of special-status plant species is not feasible, a Special-Status Plant Relocation Plan shall be developed and implemented. The Special-Status Plant Relocation Plan shall address mitigation for special-status plants, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible nursery propagation,</p>	<p>Prior to ground-disturbing activities and during ground-disturbing activities</p>	<p>Submit report with results of surveys, and if necessary Project-specific sensitive species management plan for review.</p>	<p>Imperial County Planning &amp; Development Services</p>

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>and planting; salvage and planting of bulbs as feasible; location of on-site receptor sites; land protection instruments for receptor areas; and funding mechanisms.</p> <p>The Special-Status Plant Relocation Plan shall include methods, monitoring, reporting, success criteria, adaptive management, and contingencies for achieving success. All special-status plant species identified on site shall be mapped onto a site-specific aerial photograph and topographic map and included on the construction, grading, fuel modification, and landscape plans.</p> <p>Botanical field surveyors will possess the following qualifications and will be approved by Imperial County prior to any botanical field surveys: Knowledge of plant taxonomy and natural community ecology; Familiarity with plants of the region, including special status plants; Familiarity with natural communities of the region, including sensitive natural communities; Experience with the CNDDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards, Experience conducting floristic botanical field surveys as described in <i>Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities</i> (CDFW, March 2018), or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor; Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and Experience analyzing the impacts or projects on native plant species and sensitive natural communities.</p>			
<p><b>BIO-3 Avoidance of Sensitive Natural Communities.</b></p> <p>To the greatest extent practicable, Project work shall avoid impacts to arrow-weed thickets. If arrow-weed thickets cannot be avoided, the Project Applicant shall provide compensatory mitigation for direct impacts consisting of habitat acquisition at a minimum of a 3:1 ratio. Habitat acquisition sites shall be</p>	Prior to ground-disturbing activities	If arrow-weed thickets cannot be avoided, submit record of compensatory mitigation consisting of habitat acquisition provided at a minimum of a 3:1 ratio.	Imperial County Planning & Development Services

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
biologically equal or superior to existing conditions and must be conserved and managed in perpetuity. This mitigation measure would be implemented prior to the start of Project-related activities by the Project Proponent.			
<p><b>BIO-4 Preconstruction Nesting Bird Survey.</b></p> <p>If construction or other project activities are scheduled to occur during nesting 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 preconstruction nesting bird survey shall be conducted by a qualified avian biologist prior to Project-related disturbance within and adjacent to the Project area. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nesting locations and nesting behavior (including but not limited to copulation, carrying food or nesting materials, nest building, agitation, aggressive interaction, feigning injury, or distraction displays). In addition, any clearing of vegetation that may occur is required to take place outside of the breeding season. The survey shall be completed no more than 3 days prior to initial ground disturbance. The nesting bird survey shall include the project area and all suitable areas, including trees, shrubs, bare ground, burrows, cavities, and structures. If an active nest is identified, the biologist shall establish an appropriately sized no-work buffer zone around the nest, that is sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. The size of the no-work buffer zone will be based upon the biologist's best professional judgment, the birds' displayed behavior (agitation or stress), the nesting species, its sensitivity to disturbance, nesting stage and expected types, and the intensity and duration of disturbance. The no-work buffer zone shall be clearly marked in a way that does not alert predators. Construction activities shall not occur within any no-work buffer zones until the young birds have successfully fledged and the nest is deemed inactive by the qualified avian biologist. Qualified avian</p>	No more than 3 days prior to ground-disturbing activities	Submit report with results of surveys, and if necessary Project-specific sensitive species management plan for review.	Imperial County Planning & Development Services

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
biologist resumes will be provided to CDFW for review/approval prior to the start of construction.			
<p><b>BIO-5 Biological Monitoring.</b></p> <p>Construction monitoring shall be conducted by a qualified biologist. Qualified biologist resumes will be provided to CDFW for approval prior to the start of construction. The biologist shall be given authority to execute the following functions:</p> <ul style="list-style-type: none"> <li>• Establish construction exclusion zones and make recommendations for implementing erosion control measures in temporary impact areas.</li> <li>• Ensure all construction activities stay within the staked construction zone and do not go beyond the limits of disturbance.</li> <li>• Minimize trimming/removal of vegetation to within the project impact area.</li> <li>• Restrict non-essential equipment to the existing roadways and/or disturbed areas to avoid disturbance to existing adjacent native vegetation.</li> <li>• Verify permit compliance</li> </ul> <p>During construction, the qualified biologists will act as biological monitors and shall inspect and verify field conditions, as needed, to ensure that wildlife and vegetation adjacent to the BSA are not harmed. The biological monitor shall coordinate with the construction supervisor and construction crew and shall have the authority to stop any activity that has the potential to affect special-status species or remove vegetation.</p>	Prior to ground-disturbing activities and during ground-disturbing activities	Submit report with results of surveys, and if necessary Project-specific sensitive species management plan for review.	Imperial County Planning & Development Services
<p><b>BIO-6 Non-Reflective Coatings on Solar Panels.</b></p> <p>The Applicant will use non-reflective materials and finishes to the solar panels to reduce potential glare as described in the Glint and Glare Analysis (Appendix C of the EIR). These coatings will create a matte surface that is less likely to</p>	During construction activities	Use of non-reflective materials and finishes to the solar panels during PV solar panel installation.	Imperial County Planning & Development Services

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
resemble the reflective properties of water to birds flying overhead.			
<p><b>BIO-7 Burrowing Owl Avoidance, Minimization, and Mitigation.</b></p> <p>As recommended by CDFW, Applicant will apply for and obtain an ITP prior to beginning ground disturbing activities. Applicant will comply with all permit conditions required by CDFW to minimize take.</p> <p>Potential impacts to burrowing owl shall be mitigated per the guidance of the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012) and at minimum including the following:</p> <p><b>Burrowing Owl Protection and Mitigation Plan</b></p> <p>As the Project construction schedule and details are finalized, a qualified biologist will prepare a <i>Burrowing Owl Protection and Mitigation Plan</i> (BOPMP) for submission to CDFW for approval prior to beginning ground disturbing activities that will detail the approved, site-specific methodology proposed to avoid, minimize and mitigate impacts on this species. The goal of the BOPMP is to avoid potential direct and indirect mortality of burrowing owls.</p> <p>The BOPMP will include, at a minimum: success criteria based on factors such as site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, evidence and causes of mortality, changes in distribution, trends in stressors; remedial measures; detailed survey methodology; exclusion and excavation methods; guidance for artificial burrow construction and placement; active monitoring procedures; identification of wildlife rehabilitation centers or veterinarians capable of and willing to treat burrowing owls in the case of injury of any life stage of burrowing owl (e.g., eggs, nestlings, fledglings, adults); procedures for collection and storage of carcasses; and annual reporting protocols. The BOPMP will include an</p>	Prior to ground-disturbing activities	Submit report with results of surveys, and if necessary Project-specific sensitive species management plan for review.	Imperial County Planning & Development Services and California Department of Fish and Wildlife

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>annual report to CDFW and shall be funded by the Project Applicant.</p> <p><b>Burrowing Owl Pre-Construction Surveys and Physical Barriers</b></p> <p>A CDFW-approved qualified biologist(s) shall conduct take-avoidance (pre-construction) surveys to identify, flag, and map all potential, known, and/or nesting burrows within (a) 14 calendar days prior to beginning ground-disturbing activities in the work area and (b) 24 hours prior to project construction. Surveys shall include the Project Area and a 500-foot buffer. Technical memoranda that document these survey findings will be submitted to CDFW and Imperial County.</p> <p>If burrowing owl is identified during the non-breeding season (September 1 through January 31), a 50-meter (165-ft) to 100-meter (328-ft) no-work buffer between active burrows and construction activities shall be established by the qualified biologist. However, the minimum buffer shall be increased depending on the level of construction disturbance and construction activity. 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.</p> <p>If burrowing owl is identified during the breeding season (February 1 through August 31), then a 100-meter (328-ft) to 200-meter (656-ft) no-work buffer will be established by the qualified biologist in accordance with CDFW Staff Report (CDFG 2012). A qualified biologist shall monitor the burrowing owls for any sign of distress and adjust the buffers as necessary to ensure no take occurs. Construction and disturbance activities within the buffer will be avoided until a qualified biologist determines that the burrow is inactive or until young have fledged.</p> <p>If active burrows are present within the Project footprint and avoidance is infeasible, measures such as passive relocation methods, destruction of burrows, and construction of artificial burrows described in the following sub-sections shall be</p>			



Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>implemented upon prior approval by and in coordination with CDFW.</p> <p>Depending on the level of disturbance, a smaller buffer may be established by a qualified biologist. Burrows will be buffered from development activities to the greatest extent feasible, as determined by a CDFW-approved biologist. Physical barriers, such as fences and visual screens (e.g., a portable chain link fence with shade cloth), will be used to protect identified burrows and visually shield them from work areas when feasible. Flags or markers will be placed near burrows to ensure that construction equipment does not collapse burrows.</p> <p><b>Burrowing Owl Construction Monitoring</b></p> <p>Monitoring by a qualified biologist shall be performed during ground-disturbing construction activities to avoid disturbance to burrowing owls. Additionally, if any active burrowing owl nests are present within the Project construction area, they must be avoided by establishing a non-disturbance buffer until the young fledge or the nest fails (CDFG 2012). Any nesting owls that are adjacent to the construction area will also be avoided by establishing buffer areas. Buffer areas should be marked using flagging or fencing to facilitate avoidance.</p> <p><b>Avoidance</b></p> <p>The following avoidance measures may assist in seasonally and spatially avoiding direct impacts and disturbances that could result in take of burrowing owls, nests, or eggs.</p> <ul style="list-style-type: none"> <li>• Avoid disturbing occupied burrows during the breeding season, from February 1 through August 31.</li> <li>• Avoid impacting burrows occupied during the non-breeding season by migratory or nonmigratory resident burrowing owls.</li> <li>• Avoid direct destruction of burrows through chaining (dragging a heavy chain over an area to remove</li> </ul>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>shrubs), disking, cultivation, and urban, industrial, or agricultural development.</p> <ul style="list-style-type: none"> <li>Do not fumigate, use treated bait or other means of poisoning nuisance animals in areas where burrowing owls are known or suspected to occur (e.g., sites observed with nesting owls, designated use areas).</li> <li>Restrict the use of treated grain to poison mammals the months of January and February.</li> </ul> <p><b>Passive Relocation and Lands Management Planning</b></p> <p>If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident burrowing owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, a CDFW-approved qualified biologist shall implement a passive relocation program in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012). Procedures will also be detailed in the BOPMP.</p> <p>Passive relocation shall only be done in the non-breeding season, where resident owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012) and a CDFW-approved BOPMP as follows:</p> <ul style="list-style-type: none"> <li>To facilitate identification of replacement burrow sites, a <i>Burrowing Owl Exclusion Plan</i> and <i>Mitigation Lands Management Plan</i> shall be prepared by the qualified biologist in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (Appendix E and Appendix F of CDFG 2012). The plans shall be approved by CDFW prior to commencing passive relocation.</li> <li>All burrows would be covered or excavated, and a one-way door would be installed on occupied burrows. This will allow any animals inside to leave the burrow</li> </ul>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>but will exclude any animals from re-entering the burrow.</p> <ul style="list-style-type: none"> <li>• If burrowing owls exhibit signs of stress in attempting to re-enter the burrow, the one-way-door shall be removed to prevent take of the individual.</li> <li>• A period of at least 1 week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin.</li> <li>• Only burrows that will be directly impacted by the Project shall be excavated and filled in to prevent their reuse.</li> <li>• Off-site "replacement burrow site(s)" must consist of a minimum of two suitable, unoccupied burrows for every burrowing owl or pair to be passively relocated.</li> <li>• The <i>Mitigation Lands Management Plan</i> will be developed when off-site or on-site mitigation habitat protection is needed to ensure compliance with and effectiveness of identified management actions for the mitigation lands. The Applicant shall implement the <i>Mitigation Lands Management Plan</i> and permanently conserve in a conservation easement offsite habitat suitable for burrowing owl. Land identified to mitigate for passive relocation of burrowing owl may be combined with other offsite mitigation requirements of the Project if the compensatory habitat is deemed suitable to support the species.</li> <li>• The Applicant may purchase available burrowing owl conservation bank credits from a CDFW-approved conservation bank in lieu of placing offsite habitat into a conservation easement. The final terms of potential land acquisition and/or credits, or some combination thereof (e.g., fees, easements, approvals, documentation, etc.), will be established in consultation with CDFW via the ITP process.</li> </ul>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p><b>BIO-8 American Badger Avoidance and Minimization.</b></p> <p>Prior to initial site clearing, a CDFW-approved qualified biologist shall conduct a pre-construction survey for American badgers. The biologist shall conduct the pre-construction survey within 3 days prior to the initiation of ground disturbing activities. If no American badger individuals and/or dens are found during the pre-construction survey, the biologist shall document the findings in a letter report to CDFW, and no further mitigation shall be required. If individuals and/or dens are found, the Applicant shall consult with CDFW and a CDFW-approved qualified biologist to determine an appropriate no-disturbance buffer (typically 50-foot buffer around occupied dens and a 250-foot buffer around natal dens) to avoid impacts to the den. The no-disturbance buffer around natal dens shall remain in place until a qualified biologist determines through non-invasive means that the individuals occupying the den have dispersed. If impacts cannot be avoided and den excavation and exclusion implementation is required, den excavation and exclusion activities shall only take place during the non-breeding season (typically September 1 through January 1) in consultation with CDFW.</p>	Prior to ground-disturbing activities	Submit report with results of surveys, and if necessary Project-specific sensitive species management plan for review.	Imperial County Planning & Development Services and California Department of Fish and Wildlife
<p><b>BIO-9 Avian/Power Line Collision Avoidance and Minimization.</b></p> <p>Install bird flight diverters in accordance with the Avian Power Line Interaction Committee (APLIC) guidelines for reducing avian collisions with power lines (Reducing Avian Collisions with Power Lines; APLIC 2012). Details of design components shall be indicated on all construction plans. The Applicant shall monitor for new versions of the APLIC collision guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures. All bird flight diverters shall be maintained for the duration of construction and operation.</p>	Prior to issuance of a building permit	Submit construction plans showing bird flight diverter to be installed is in accordance with the APLIC guidelines	Imperial County Planning & Development Services

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p><b>BIO-10 Avian Electrocutation Avoidance and Minimization.</b></p> <p>Implement Project-specific design measures in accordance with the APLIC guidelines for minimizing avian electrocutions. The Applicants shall construct and maintain all transmission facilities, towers, poles, and lines in accordance with applicable policies set forth in the most recent APLIC guidelines for minimizing avian electrocutions (Avian Protection Plan Guidelines; APLIC and USFWS 2005). Specific APLIC guidelines to be incorporated into the design of the transmission lines to minimize avian electrocutions shall include the following:</p> <ul style="list-style-type: none"> <li>• Design the tops of structures to be safe for perching raptors.</li> <li>• Provide 60 inches separation between energized conductors and: <ul style="list-style-type: none"> <li>○ energized conductors,</li> <li>○ grounded or neutral conductors,</li> <li>○ pole line hardware that could provide a perch or nesting place, and</li> <li>○ overhead shield wires, including optical ground wire shield wire.</li> </ul> </li> <li>• Ensure that all exposed jumper cables are completely covered with a cover of a qualified insulation rating.</li> <li>• Ensure insulation of all energized arresters with covers and insulated cables.</li> <li>• Details of design components shall be indicated on all construction plans. The Applicants shall monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures.</li> </ul>	<p>Prior to issuance of a building permit</p>	<p>Submit construction plans showing measures to be incorporated into the design of transmission lines.</p>	<p>Imperial County Planning &amp; Development Services</p>

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p><b>BIO-11 Biological Protection Measures.</b></p> <ul style="list-style-type: none"> <li>Fence markers shall be installed to deter or prevent birds/bats from colliding with perimeter/security fencing, and maintenance or replacement of these markers will be completed per the manufacturer instruction.</li> <li>If encountered, wildlife within the Project Site shall be allowed to escape unimpeded, relocated by a qualified biologist and placed in a designated safe area away from construction activities, or left in place when required by regulations, policies, permits, and/or conditions of approval. If wildlife relocation of common species is required, the qualified biologist approved by CDFW prior to the start of construction shall approve the method of relocation or oversee the relocation. Any relocation of special status species would require additional coverage under an Incidental Take Permit or Biological Opinion.</li> <li>Construction personnel trained by the qualified biologist during the WEAP, shall inspect under vehicles and equipment every time the vehicles or equipment are moved to a make sure no special status or common wildlife species are present, which could be injured. If an animal is present, site workers shall wait for the individual to move to a safe location. If a special-status species is discovered under equipment or vehicles and does not move on its own, the Applicant shall contact Imperial County, CDFW, and/or USFWS to determine the appropriate action.</li> <li>All excavations (e.g., steep-walled holes, or trenches) more than 6 inches deep shall be covered with plywood or similar materials when not in use or fitted with at least one escape ramp constructed of earth dirt fill, wooden planks, or another material that wildlife could ascend to prevent entrapment. All excavations more than 6 inches deep shall be inspected daily for entrapped wildlife before construction activities begin and once immediately before being covered with plywood. Before excavations are filled, they shall be thoroughly inspected for entrapped wildlife. Any wildlife discovered shall be</li> </ul>	Prior to ground-disturbing activities and during construction activities	Submit construction plans showing the inclusion of the biological protection measures listed in Mitigation Measure BIO-11 as specifications.	Imperial County Planning & Development Services and California Department of Fish and Wildlife



Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>allowed to escape unimpeded before field activities resume or shall be removed from excavated areas by a qualified biologist and released at a safe nearby location.</p> <ul style="list-style-type: none"> <li>• Where habitat will be temporarily disturbed, restore the disturbed area to pre-project condition, including decompacting soil and revegetating.</li> <li>• All open ends of pipes, culverts, and conduits temporarily installed in open trenches or stored in staging/laydown areas shall be covered/capped at the end of each workday. Any such materials that have not been capped shall be inspected by construction personnel for wildlife before being moved, buried, or handled. Should wildlife become trapped, a qualified biologist shall be notified by construction personnel to remove and relocate the individual(s). If a listed species is discovered inside a pipe, that section of pipe shall not be moved. The Project shall contact CDFW and/or USFWS to determine the appropriate action.</li> <li>• All food-related trash items (wrappers, cans, bottles, food scraps, cigarettes, etc.), general trash, micro trash (nails, bits of metal and plastic, small construction debris, etc.), and other human-generated debris scheduled to be removed shall be stored in animal-proof containers and removed from the site on a regular basis (weekly during construction, and at least monthly during operations). No deliberate feeding of wildlife or domestic animals shall be allowed.</li> <li>• New light sources shall be minimized, and lighting shall be designed (e.g., using shielding and/or downcast lights) to limit the lighted area to the minimum necessary.</li> <li>• Use of chemicals, fuels, lubricants, or biocides shall be in compliance with all local, state, and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation.</li> </ul>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<ul style="list-style-type: none"> <li>• To prevent harassment and mortality of listed, special status, and common wildlife species and destruction of their habitats, no domesticated animals shall be permitted on the site.</li> <li>• No firearms shall be allowed on the Project Site, unless otherwise approved for security personnel.</li> <li>• Use only native, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit harmful pesticide residues.</li> <li>• Protect pollinators and their habitats from pesticides, including insecticides, fungicides, and herbicides. If pesticides are used in areas with flowering plants, lessen their potential harm by adhering to the following guidance: <ul style="list-style-type: none"> <li>○ Avoid the use of neonicotinoids or other systemic insecticides, including coated seeds due to their ecosystem persistence, systemic nature, and toxicity to pollinators (Xerces Systemic Insecticides List [Xerces Society 2025]).</li> <li>○ Avoid the use of insecticides that target lepidopterans (e.g., moths and butterflies), including biological pesticides (IRAC 2011).</li> <li>○ Use targeted application methods, avoid large-scale broadcast applications, and take precautions to limit off-site movement (e.g., wind drift, discharge from surface water flows).</li> <li>○ If pesticides are used for vector control treatments (e.g., mosquitoes), avoid treatment unless monitoring indicates that the species and numbers exceed a public health threshold. For any mosquito treatments, first employ prevention steps such as reducing standing water. Where possible, draw mosquitoes away</li> </ul> </li> </ul>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
from sensitive sites (e.g., using dry ice traps) to limit treatment effects in sensitive habitat areas.			
<b>Cultural Resources</b>			
<p><b>CUL-1 Evaluate Significance of Find (Unknown Archaeological Resources).</b></p> <p>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.</p> <p>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.</p>	During ground-disturbing activities	Submit archaeologist report for review. Submit proposed site plan for alternative work location within CUP site to the County for review and approval.	Imperial County Planning & Development Services
<p><b>CUL-2 Human Remains.</b></p> <p>If subsurface deposits believed to be human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist who meets the Secretary of the Interior’s Standards for prehistoric and historic archaeology and is familiar with the resources of the region, shall be retained to</p>	During ground-disturbing activities	Submit archaeologist report for review. Submit proposed site plan for alternative work location within CUP site to the County for review and approval.	Imperial County Planning & Development Services

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>evaluate the significance of the find, and shall have the authority to modify the no work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:</p> <ul style="list-style-type: none"> <li>If the find includes human remains, or remains that are potentially human, the professional archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Imperial County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented.</li> <li>If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC may mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the Imperial County Planning and Development Services Department, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.</li> </ul>			
<b>Energy</b>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p><b>ENG-1 Energy Conservation Control Measures.</b> The project applicant shall implement all the following applicable energy conservation control measures during construction of the project:</p> <ul style="list-style-type: none"> <li>• Idling times on all diesel-fueled commercial vehicles over 10,000 pounds shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure 13 CCR §2485). Clear signage to this effect shall be provided for construction workers at all access points.</li> <li>• Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written policy as required by 13 CCR §2449 (“CARB Off-Road Diesel Regulations”).</li> <li>• All construction equipment shall be maintained and properly tuned in accordance with the manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.</li> <li>• Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only be used if electricity is not available, and it is not feasible to use propane or natural gas</li> </ul>	Prior to the issuance of a grading permit	A list of the construction equipment shall be submitted to the County Planning and Development Services Department and ICAPCD	Imperial County Planning & Development Services and ICAPCD
<b>Geology and Soils</b>			
<p><b>MM GEO-1: Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.</b></p> <p>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</p>	Prior to issuance of building permits	A geotechnical and/or civil engineering report shall be submitted to Imperial County Public Works Department, Engineering Division for review and approval	Imperial County Public Works Department, Engineering Division

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p>project applicant. The final geotechnical and/or civil engineering report shall address and make recommendations on the following:</p> <ul style="list-style-type: none"> <li>• Site preparation</li> <li>• Soil bearing capacity</li> <li>• Appropriate sources and types of fill</li> <li>• Potential need for soil amendments</li> <li>• Structural foundations</li> <li>• Grading practices</li> <li>• Soil corrosion of concrete and steel</li> <li>• Erosion/winterization</li> <li>• Seismic ground shaking</li> <li>• Liquefaction</li> <li>• Expansive/unstable soils</li> </ul> <p>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 applicants. 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.</p>			
<p><b>GEO-2 Paleontological Resources.</b></p> <p>In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist</p>	During ground disturbing activities	Submit Treatment and Monitoring Plan to County for review and approval if necessary.	Imperial County Planning & Development Services



Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.			
<b>Hazards and Hazardous Materials</b>			
<p><b>HAZ-1 Isopentane Management Measures.</b></p> <p>A certified fire protection engineer survey and analysis of current and proposed fire suppression and detection equipment will be performed to evaluate the current systems performance and coverage of protection prior to construction. This analysis will evaluate proposed fire suppression and detection equipment in conjunction with existing equipment and be reviewed and approved by the Imperial County Fire Department and OES prior to building permits approval. The following measures will be required for the project:</p> <ol style="list-style-type: none"> <li>1. All isopentane storage tanks will be protected by approved automatic fire suppression equipment. All automatic fire suppression will be installed and maintained to the current adapted fire code and regulation.</li> <li>2. An approved automatic fire detection system will be installed as per the California Fire Code. All fire detection systems will be installed and maintained to the current adapted fire code and regulations.</li> </ol>	Prior to issuance of Building permits.	Submittal of Fire Protection engineering reports to Imperial County Fire Department and OES for review.	Imperial County Fire Department

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<ol style="list-style-type: none"> <li>3. Fire department access roads and gates will be in accordance with the current adapted fire code and the facility will maintain a Knox Box for access on site.</li> <li>4. Applicants will provide product containment areas(s) for both product and water run-off in case of fire applications and retained for removal.</li> <li>5. Each tank will be equipped with an automated water suppression system.</li> <li>6. Each tank will be equipped with two flame detectors and one gas detector (for a total of 4 flame detectors and 2 gas detectors for the two tanks). <ol style="list-style-type: none"> <li>a. In the case of an isopentane leak, the gas detector(s) will detect it immediately and send a notification to the operator at the control room (manned 24/7) to mobilize fixing the leak.</li> <li>b. In case of a fire, the flame detector(s) will detect it and immediately start the automatic fire suppression system.</li> <li>c. In case of a fire, there will also be a horn and strobe system that will turn on automatically to alert the plant employees.</li> </ol> </li> <li>7. Concrete containment areas will be constructed for the isopentane tanks.</li> <li>8. Isopentane vessels will rarely be filled to 90 percent capacity.</li> <li>9. Isopentane safety-control measures will be established.</li> <li>10. A blast wall will be built between the two proposed isopentane vessels.</li> <li>11. Diking and impoundment of the proposed isopentane tanks shall be installed to minimize the magnitude and extent of a tank failure.</li> </ol>			
<b>Hydrology/Water Quality</b>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p><b>HYD-1 Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration.</b></p> <p>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:</p> <ul style="list-style-type: none"> <li>• Soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching)</li> <li>• Sediment control practices (e.g., temporary sediment basins, fiber rolls)</li> <li>• Temporary and post-construction on- and off-site runoff controls</li> <li>• Special considerations and BMPs for water crossings and drainages</li> <li>• 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</li> <li>• Waste management, handling, and disposal control practices</li> <li>• Corrective action and spill contingency measures</li> <li>• Agency and responsible party contact information</li> </ul>	<p>Prior to Construction Activities</p>	<p>Submit a SWPPP to the County and SWRCB to review.</p>	<p>Imperial County Planning &amp; Development Services, and SWRCB</p>

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<ul style="list-style-type: none"> <li>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</li> <li>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.</li> </ul>			
<p><b>HYD-2 Incorporate Post-Construction Runoff BMPs into Project Drainage Plan.</b></p> <p>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.</p>	Prior to issuance of a Certificate of Occupancy	Submit Drainage Plans to the County for Review	Imperial County Public Works Department, Engineering Division
<b>Tribal Cultural Resources</b>			

Mitigation Measure	Time Frame for Implementation	Steps to Compliance and Verification	Responsible Monitoring Agency
<p><b>TCR-1.</b></p> <p>If previously unidentified tribal cultural resources are identified during construction activities, construction work within 100 feet of the find shall be halted and directed away from the discovery until a Secretary of the Interior qualified archaeologist and tribal representative assesses the significance of the resource. The archaeologist, in consultation with Imperial County and any interested Tribes, shall make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are determined to be a tribal cultural resource as defined in PRC Section 21074</p>	During to ground-disturbing activities	Submit archaeologist treatment plan and evaluation prepared with tribal consultation for review to the County, and relevant Tribes.	Imperial County Planning & Development Services

# **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	<u>Imperial County, Planning &amp; Dev Svcs.</u>	Firm Name	<u>HDR</u>
Street Address	<u>801 Main Street</u>	Street Address	<u>591 Camino de la Reina, Suite 300</u>
City/State/Zip	<u>El Centro, CA 92243</u>	City/State/Zip	<u>San Diego, CA 92108</u>
Contact	<u>Luis Valenzuela</u>	Contact	<u>Tim Gnibus</u>

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: Luis Valenzuela at the address shown above. We will need the name for a contact person in your agency.

**Project Title:** Dogwood Geothermal Energy Project

**Project Location:** The project site is located on approximately 125 acres of privately-owned land in the southern portion of Imperial County, California, approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calxico jurisdictional limit. The project site is within portions of on three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC. As shown in Figure 1, the project site is located within the Geothermal Overlay Zone, which is considered as part of the County's Renewable Energy Overlay Zone.

**Project Description (brief):** The project applicant, OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the "Applicants", and all wholly owned subsidiaries of Ormat Technologies, Inc. [Ormat]) has filed three separate Conditional Use Permits (CUP) applications with the County of Imperial for the construction and operation of various facilities. The three CUP applications are described below. Collectively, these three CUP applications are herein referred to as the "project."

**1. Dogwood Geothermal Energy Project- CUP No. 23-0020**

The Dogwood Geothermal Energy Project includes a geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 megawatt (MW) solar facility, and medium voltage distribution cable from the proposed solar facility to the geothermal plant. These project components are summarized below.

- a. **ORMAT Energy Converter (Geothermal Energy Production Unit):** The proposed ORMAT Energy Converter (OEC) unit would be a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists of a generator, turbines, a vaporizer, Air Cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).
- b. **Isopentane Storage Tanks:** Two double-walled 20,000-gallon above-ground storage tanks would be installed for motive fluid (isopentane) storage. Numerous safety and fire prevention measures would be installed on/near the ABST, including the following:
  - Concrete foundations with blast walls separating the tank from the OEC.
  - An automated water suppression system.
  - Concrete containment areas.
  - Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
  - A gas detector, which will immediately detect any isopentane leak and notify the control room (manned 24/7).
- c. **Cooling Tower:** A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid. No water is necessary.
- d. **Dogwood Substation:** The proposed Dogwood geothermal plant will require a new substation to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. No upgrades to off-site transmission facilities are necessary and the new Dogwood substation will connect directly to the existing point of interconnection with the Imperial Irrigation District (IID) controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection. A main control building would contain instrumentation and telecommunications equipment located within the greater HGEC.

The substation footprint would measure up to 145 feet by 66 feet and would be surrounded by an eight-foot-tall chain link fence with vehicle and personnel access gates. The surface of the substation would be covered by gravel and the substation equipment would be placed onto concrete foundations.
- e. **Parasitic Solar Energy Facility:** A 7 MW solar facility would provide supplemental/auxiliary energy to the proposed Dogwood geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Dogwood geothermal unit (OEC). This energy would not enter the transmission grid.
- f. **Medium Voltage Distribution Line:** The energy generated by the proposed Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the Heber 2 Project site, adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays.

## 2. Heber 2 Solar Energy Project – CUP No. 23-0021

- a. **Parasitic Solar Energy Facility:** A 15 MW solar facility would provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Heber 2 geothermal unit (OEC). This energy would not enter the transmission grid. The energy generated by the solar facility would be collected by an on-site XMD and switch and transmitted via a medium voltage distribution cable (as described above).

**3. Heber Field Company (HFC) Geothermal Wells and Pipeline Project – CUP No. 23-0022**

- a. **Geothermal Production and Injection Wells:** Production wells flow geothermal fluid to the surface, and injection wells are used to inject geothermal fluid from the energy plant back into the geothermal reservoir. Injection ensures the longevity and renewability of the geothermal resource. The Applicant proposes to develop three geothermal production wells, all within the Imperial County Geothermal Overlay Zone. The wells will be sited at three of six potential locations within APNs 059-020-001 and 054-250-017. The injection well would be installed within the HGEC, immediately next to the proposed Dogwood OEC.
- b. **Geothermal Fluid Pipeline:** Approximately 4,500 feet (0.85 miles) of geothermal fluid production pipeline are proposed for installation on APN 059-020-001. This new segment of pipeline will connect to an existing pipeline collection point that will deliver the geothermal brine to the proposed Dogwood OEC. The well on APN 054-250-017 would connect to the existing pipeline segment adjacent to the proposed well pad site. The pipeline would be used to transport geothermal fluid from the production wells to the power plants.

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. As shown in Figure 1, the project site is located within the Geothermal Overlay Zone, which is considered as part of the County's Renewable Energy Overlay Zone. Implementation of the project would require the approval of CUPs by the County to allow for the construction and operation of the proposed facilities.

**Project Applicant:** OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the "Applicants", and all wholly owned subsidiaries of Ormat Technologies, Inc. [Ormat])

Date

01/16/24

Signature



Title

Assistant Director Planning & Dev.

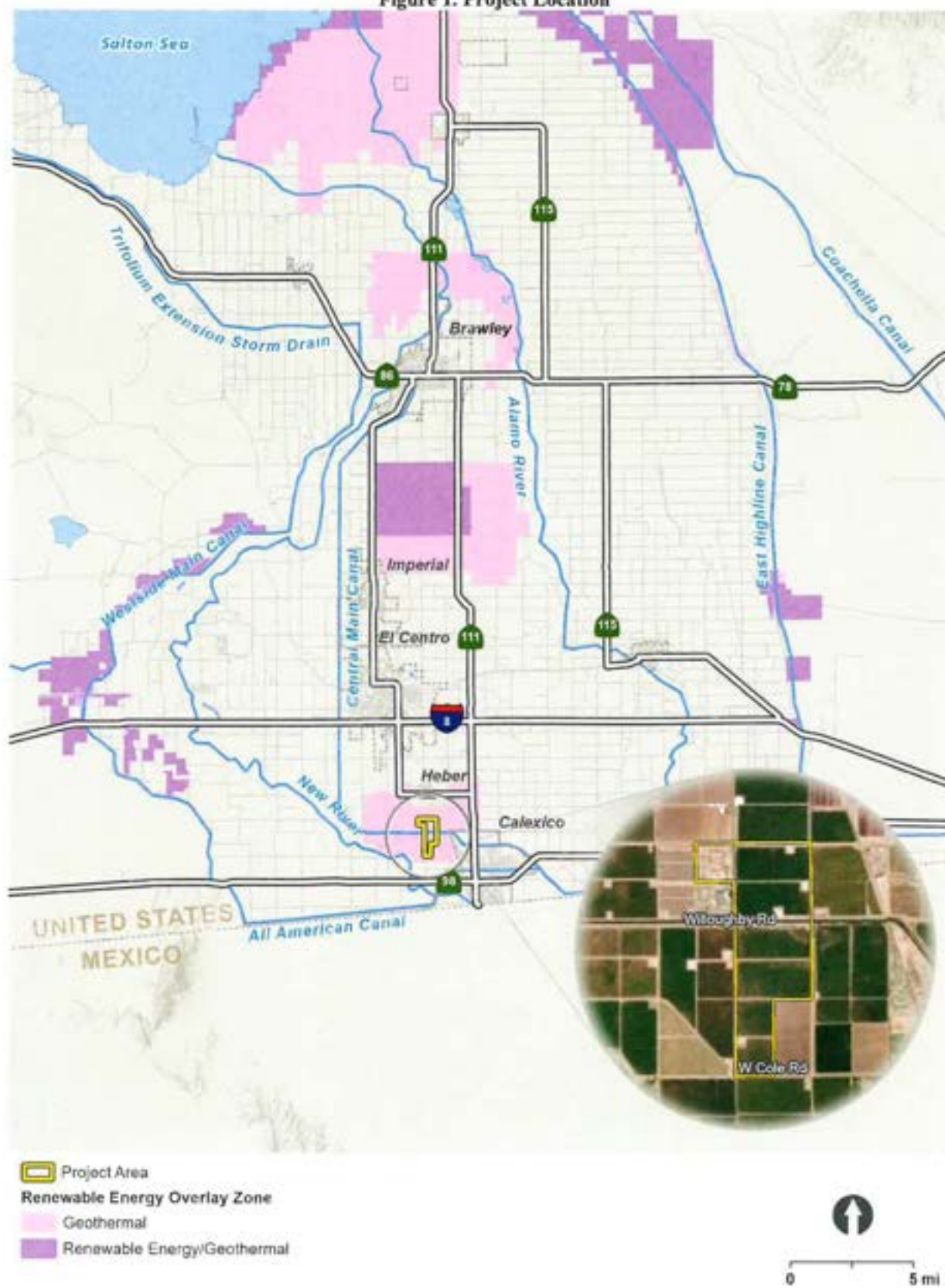
Telephone

(442) 265-1736

*Reference: California Administrative Code, Title 14, (CEQA Guidelines) Section 15082(a), 15103, 15375.*



Figure 1. Project Location



# Initial Study





## Initial Study and NOP

Dogwood Geothermal Energy Project

Initial Study #: 23-0026

CUP #s: 23-0020, -0021, and -0022

*Imperial County, CA*

January 2024

### **Reviewed by:**

County of Imperial

Planning & Development  
Services Department

801 Main Street

El Centro, CA 92243

### **Prepared by:**

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591 Camino de la Reina,  
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San Diego, CA 92108

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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 Dogwood Geothermal Energy 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:** Dogwood Geothermal Energy 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:** Luis Valenzuela, Planner I, 442-265-1736
4. **Project location:** The project site is located on approximately 125 acres of privately-owned land in the southern portion of Imperial County, California, approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calexico jurisdictional limit. The project site is within portions of three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC.
5. **Project sponsor's name and address:**  
OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the "Applicants", and all wholly owned subsidiaries of Ormat Technologies, Inc. [Ormat])  
6140 Plumas Street  
Reno, NV 89519-6075
6. **General Plan Designation:** Agriculture, Heber Specific Plan Area
7. **Zoning:** A-2-G-SPA (General Agriculture with a Geothermal Energy Zone Overlay in a Specific Plan Area) and A-2-G-U (General Agriculture with a Geothermal Energy Zone Overlay in an Urban Area)
8. **Description of project:** Ormat has filed three separate Conditional Use Permits (CUP) with the County for the construction and operation of various facilities. The three CUP applications consist of the following:

Dogwood Geothermal Energy Project – CUP No. 23-0020

- One (1) 25 net megawatt (MW) Integrated Two Level Unit (ITLU) Air Cooled ORMAT Energy Converter (OEC) generating unit
- Two (2) 20,000-Gallon Isopentane Tanks for Motive Fluid Storage
- One (1) Project substation for transmission to the grid
- Ancillary and auxiliary facilities (including, compressed air system and fire prevention system)
- A seven (7) MW solar photovoltaic (PV) facility dedicated to the Dogwood geothermal plant
- Medium voltage distribution cable from the Dogwood solar facility to Dogwood geothermal plant (OEC). The cable would be co-located along an existing above ground pipeline.

Heber 2 Solar Energy Project – CUP No. 23-0021

- A fifteen (15) MW solar PV facility dedicated to the Heber 2 geothermal plant

Heber Field Company (HFC) Geothermal Wells and Pipeline Project – CUP No. 23-0022

- Three (3) geothermal production wells
- One (1) new geothermal injection well
- Brine pipelines (approximately 4,500 linear feet)

Collectively, these three CUP applications are herein referred to as the “project.”

**9. Surrounding land uses and setting: Briefly describe the project's surroundings:** The project site is surrounded by a mix of agricultural fields, geothermal facilities (Heber 2, Heber South, and Goulds 2), Imperial Solar 1 LLC solar facility, and industrial uses.

**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 Campo Band of Mission Indians and Fort Yuma-Quechan Indian Tribe. These tribes were sent an AB 52 consultation request letter on January 19, 2024.

## 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.

<input checked="" type="checkbox"/> Aesthetics	<input checked="" type="checkbox"/> Agriculture and Forestry Resources	<input checked="" type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Energy
<input checked="" type="checkbox"/> Geology/Soils	<input checked="" type="checkbox"/> Greenhouse Gas Emissions	<input checked="" type="checkbox"/> Hazards & Hazardous Materials
<input checked="" type="checkbox"/> Hydrology / Water Quality	<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/> Mineral Resources
<input type="checkbox"/> Noise	<input type="checkbox"/> Population/Housing	<input type="checkbox"/> Public Services
<input type="checkbox"/> Recreation	<input checked="" type="checkbox"/> Transportation	<input checked="" type="checkbox"/> Tribal Cultural Resources
<input checked="" type="checkbox"/> Utilities/Service Systems	<input type="checkbox"/> Wildfire	<input checked="" type="checkbox"/> 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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ENVIRONMENTAL HEALTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OFFICE EMERGENCY SERVICES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
APCD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SHERIFF DEPARTMENT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICPDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Jim Minnick, Director of Planning/EEC Chairman

Signature

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Date:

# Project Summary

## Project Location

The project site is located on approximately 125 acres of privately-owned land in the southern portion of Imperial County, California, approximately one mile south of the City of Heber jurisdictional limit and approximately 0.5 miles west from the City of Calexico jurisdictional limit (Figure 1). The project site is on three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017 (Figure 2). APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC.

### 1. Dogwood Geothermal Energy Project – CUP No. 23-0020

The proposed Dogwood geothermal power plant would be located within the existing fenceline of the HGEC, operated by the Second Imperial Geothermal Company, a subsidiary of ORMAT which includes the Heber 2, Heber South, and Goulds 2 geothermal energy facilities located at 855 Dogwood Road, Heber, CA (APN 054-250-31). The proposed geothermal power plant is generally located north of Jasper Road and west of South (S) Dogwood Road.

The proposed 7 MW parasitic solar photovoltaic (PV) would be located southeast of the HGEC in the central portion of APN 059-020-001. APN 059-020-001 is located south of East (E) Willoughby Road and east of S Dogwood Road.

### 2. Heber 2 Solar Energy Project – CUP No. 23-0021

The proposed Heber 2 15 MW parasitic solar PV facility would be located southeast of the HGEC in the northern portion of APN 059-020-001.

### 3. HFC Geothermal Wells and Pipeline Project – CUP No. 23-0022

The new geothermal production wells and associated pipeline(s) (approximately 4,500 linear feet) will be split between two parcels. Two of these wells would be located within APN 059-020-001 with a small segment of pipeline (approximately 1,000 feet) developed within APN 059-020-001 connecting to the existing pipeline network. A third well would be installed adjacent to an existing geothermal well approximately 1,500 feet due east of the HGEC (APN 054-250-017).

## Project Summary

Ormat has filed three separate CUPs with the County for the construction and operation of various facilities. An overview of the project facilities are shown in Figure 3. The three CUP applications consist of the following:

### 1. Dogwood Geothermal Energy Project – CUP No. 23-0020

The Dogwood Geothermal Plant and Solar Energy Facility includes a 25 net MW geothermal plant and associated ancillary and auxiliary facilities, new substation, 7 MW solar facility, and medium voltage distribution cable from the proposed solar facility to the geothermal plant. These project components are described in detail below and shown in Figure 4.

- a. **ORMAT Energy Converter (Geothermal Energy Production Unit):** The proposed ORMAT Energy Converter (OEC) unit would be a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists

of a generator, turbines, a vaporizer, Air Cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).

- b. Isopentane Storage Tanks:** Two double-walled 20,000-gallon above-ground storage tanks would be installed for motive fluid (isopentane) storage. Numerous safety and fire prevention measures would be installed on/near the ABST, including the following:

  - Concrete foundations with blast walls separating the tank from the OEC.
  - An automated water suppression system.
  - Concrete containment areas.
  - Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
  - A gas detector, which will immediately detect any isopentane leak and notify the control room (manned 24/7).
- c. Cooling Tower:** A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid. No water is necessary.
- d. Dogwood Substation:** The proposed Dogwood geothermal plant will require a new substation to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. No upgrades to off-site transmission facilities are necessary and the new Dogwood substation will connect directly to the existing point of interconnection with the Imperial Irrigation District (IID) controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection. A main control building would contain instrumentation and telecommunications equipment located within the within the greater HGEC.

The substation footprint would measure up to 145 feet by 66 feet and would be surrounded by an eight-foot-tall chain link fence with vehicle and personnel access gates. The surface of the substation would be covered by gravel and the substation equipment would be placed onto concrete foundations.
- e. Parasitic Solar Energy Facility:** A 7 MW solar facility would provide supplemental/auxiliary energy to the proposed Dogwood geothermal plant. The solar facility is classified as behind-the-meter and would provide supplemental energy directly to the Dogwood geothermal unit (OEC). This energy would not enter the transmission grid. The solar facility will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy and to allow more geothermal energy to enter the grid.
- f. Medium Voltage Distribution Line:** The energy generated by the proposed Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the Heber 2 Project site, adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross S Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and

connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays.

## 2. Heber 2 Solar Energy Project – CUP No. 23-0021

- a. **Parasitic Solar Energy Facility:** A 15 MW solar facility would provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant (Figure 5). The solar facility is classified as *behind-the-meter* and would provide supplemental energy directly to the Heber 2 geothermal unit (OEC). This energy would not enter the transmission grid. The solar facility will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy and to allow more geothermal energy to enter the grid.

The energy generated by the solar facility would be collected by an on-site XMD and switch and transmitted along via a medium voltage distribution cable (as described above and shown in Figure 4).

## 3. HFC Geothermal Wells and Pipeline Project – CUP No. 23-0022

- a. **Geothermal Production and Injection Wells:** Production wells flow geothermal fluid to the surface, and injection wells are used to inject geothermal fluid from the energy plant back into the geothermal reservoir. Injection ensures the longevity and renewability of the geothermal resource. The Applicant proposes to develop three geothermal production wells, all within the Imperial County Geothermal Overlay Zone. The wells will be sited at three of six potential locations within APNs 059-020-001 and 054-250-017 (Figure 6). The injection well would be installed within the HGEC, immediately next to the proposed Dogwood OEC (Figure 6).

During well installation, each well pad would accommodate a drilling rig, support equipment, portable bathroom, baker tanks, and project vehicles. Each well pad would be prepared to create a level pad for the drill rig and a graded surface for the support equipment. Stormwater runoff from undisturbed areas around the constructed drill pads would be directed into ditches surrounding the drill pad and back onto undisturbed ground, consistent with BMPs for storm water identified in “Drilling and Operating Geothermal Wells in California” (CalGem PR7S). The site would be graded to prevent fugitive stormwater runoff off the well pad and has been designed to withstand a 100-year storm event.

Each well would be drilled with a rotary drill rig similar to those used to drill oil and gas wells. The production wells would each be drilled and cased to a design depth of approximately 5,000 feet. Following the cementing of the surface casing, blowout prevention equipment (BOPE) would be installed. During drilling operations, a minimum of 10,000 gallons of cool water and 12,000 pounds of inert, non-toxic barite (barium sulfate) would be stored at each well pad (as appropriate for the type of material) for use in preventing uncontrolled well flow, as necessary.

Once the well is completed, a well head will be installed and connected to the pipeline network to convey geothermal fluids. A motor control building would be installed next to the well head to provide system controls, sensors, and treatment systems. During normal well field operations, total geothermal fluid production rates are expected to be approximately 15,150 gallons per minute (gpm) at 280°F. Injection would occur at the same approximate levels (i.e., 15,150 gpm) but at lower temperatures of near 170°F.

- b. Geothermal Fluid Pipeline:** As shown in Figure 6, approximately 4,500 feet (0.85 miles) of geothermal fluid production pipeline are proposed for installation on APN 059-020-001. This new segment of pipeline will connect to an existing pipeline collection point that will deliver the geothermal brine to the proposed Dogwood OEC. The well on APN 054-250-017 would connect to the existing pipeline segment adjacent to the proposed well pad site. The pipeline would be used to transport geothermal fluid from the production wells to the power plants.

Construction of the pipeline network would begin by vertically auguring nominal 24-inch diameter holes into the ground about three to five feet deep at approximately 30-foot intervals along the pipeline route. Two holes for pipeline supports would be drilled at each anchor point. Dirt removed from the holes would be cast on the ground adjacent to each hole. The steel pipe “sleeper” would be placed in the hole and concrete poured to fill the hole slightly above the ground surface.

After the anchor points are installed, approximately 30-foot-long steel pipe sections would be delivered and placed along the pipeline construction corridor. A small crane would lift the pipe sections onto the pipe supports and temporary pipe jacks so that they could be welded together into a solid pipeline. Once welded and the welds tested, the pipe would be jacketed with insulation and an aluminum sheath (appropriately colored, likely covert green, to blend with the area).

When completed, the top of the new geothermal pipelines would average three to four feet above the ground surface to accommodate terrain undulations and to facilitate movement of wildlife. Electrical power and instrumentation cables for the wells would then either be installed in steel conduit constructed along the pipe or hung by cable from pipe along the pipeline route.

## Environmental Setting

The project site is surrounded by a mix of agricultural fields, geothermal facilities (Heber 2, Heber South, and Goulds 2), Imperial Solar 1 LLC solar facility, and industrial uses.

## General Plan Consistency

The proposed project is located within an unincorporated area of the County. The existing General Plan land use designations are “Agriculture” and “Heber Specific Plan Area.” The project site is currently zoned A-2-G-SPA (General Agriculture with a Geothermal Energy Zone Overlay in a Specific Plan Area) and A-2-G-U (General Agriculture with a Geothermal Energy Zone Overlay in an Urban Area). The Geothermal Energy Zone allows for “Major Geothermal Projects” to be permitted through a CUP process.

Figure 1. Regional Location

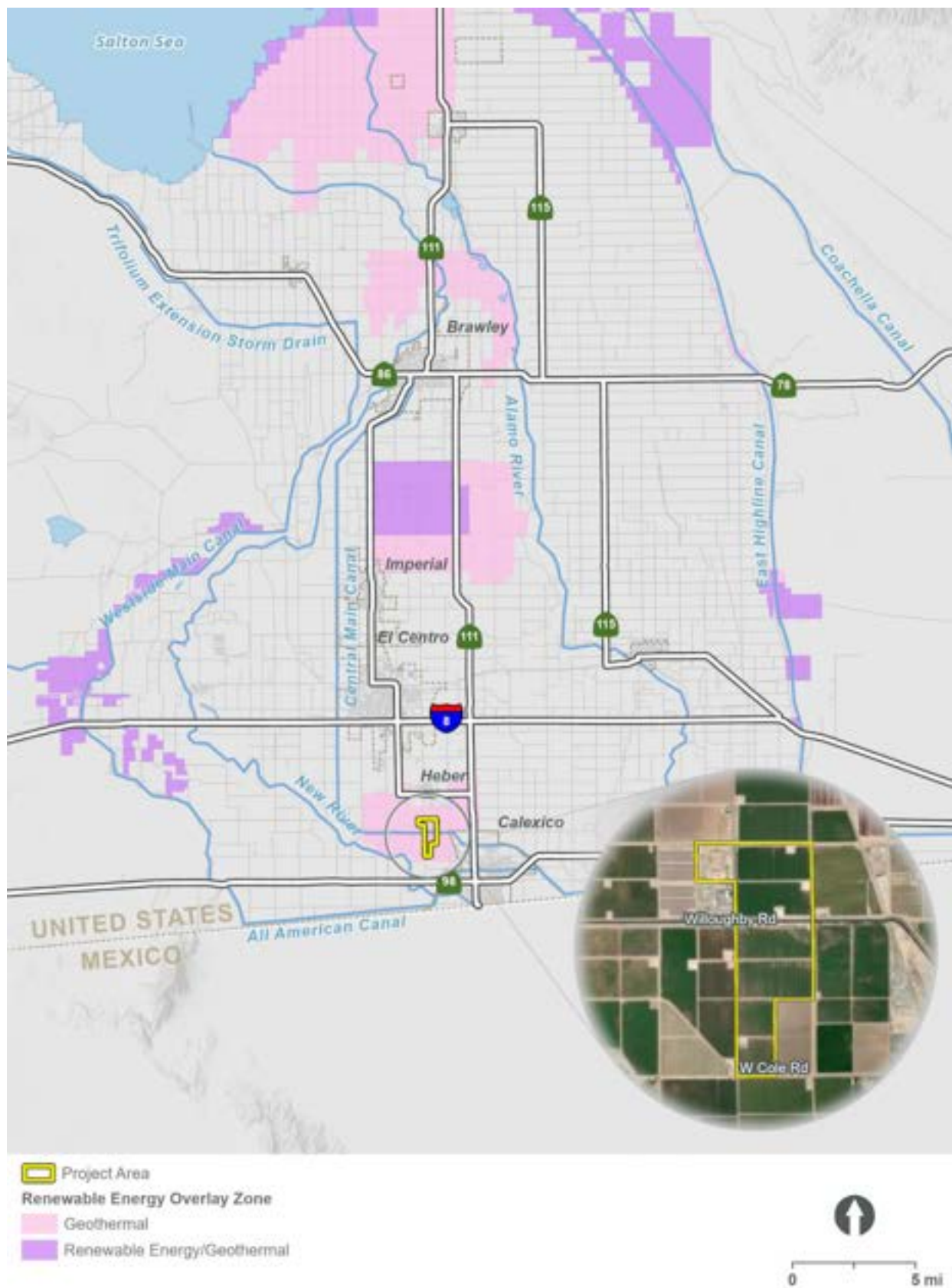




Figure 2. Project Site



Figure 3. Project Overview



Figure 4. Dogwood Geothermal Plant and Solar Energy Facility Components





Figure 5. Heber 2 Solar Energy Facility Components



Figure 6. HFC Geothermal Wells and Pipeline Components



## 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
<i>Except as provided in Public Resources Code Section 21099, would the project:</i>				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Impact Analysis

- No Impact.** The project site is not located within an area that has been formally identified as a federal, state, or county scenic vista. No scenic vistas or areas with high visual quality would be disrupted. Thus, no impact is identified for this issue area and no further analysis is warranted.
- 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 nearest eligible State scenic highway is the segment of the Sunset Cliffs Boulevard/State Route 98 west of Ocotillo. The project is located approximately 29 miles east of Ocotillo and therefore would not be visible from 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.
- 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 area. Therefore, a potentially significant impact is identified for this issue area. A visual assessment will be prepared for the project and this issue will be addressed in the EIR.
- Potentially Significant Impact.** 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. 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 is no heavily traveled public roadway 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. Although the proposed project is not expected to create a new source of substantial light or glare affecting day or nighttime views, a glint and

glare assessment will be prepared for the project and this issue will be addressed in the EIR. Therefore, a potentially significant impact is identified for this issue area.

## II. Agriculture and Forestry Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<p><b><i>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:</i></b></p>				
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Impact Analysis

- a) **Potentially Significant Impact.** According to the California Department of Conservation's California Important Farmland Finder, portions of the project site are designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland (California Department of Conservation 2020). Therefore, implementation of the proposed project has a potential to result in the conversion of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural use. This is considered a potentially significant impact, and this issue will be analyzed in further detail in the EIR.

- b) **Potentially Significant Impact.** The project site is currently zoned A-2-G-SPA (General Agriculture with a Geothermal Energy Zone Overlay in Specific Plan Areas) and A-2-G-U (General Agriculture with a Geothermal Energy Zone Overlay in an Urban Area). 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:
- y) *Electrical generation plants (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*
  - z) *Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*
  - bb) *Facilities for the transmission of electrical energy (100-200 kv)*
  - ii) *Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*
  - rr) *Major Geothermal projects per Division 17*
  - ww) *Resource extraction and energy development as per Division 17*
  - aaa) *Solar energy electrical generator*
- Because the project site is located on lands designated for agricultural uses, this issue will be analyzed further in the EIR.
- As of December 31, 2018, all Williamson Act contracts in Imperial County have been terminated. 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 is identified.
- 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
<i>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.</i>				
<i>Would the project:</i>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 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. These temporary construction emissions have the potential to result in a significant air quality impact.
- b) **Potentially Significant Impact.** The criteria pollutants for which the project area is in state nonattainment under applicable air quality standards are O<sub>3</sub> and PM<sub>10</sub>. 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. The CalEEMod air quality model will be utilized to estimate the project's air quality emissions and the results 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 land use to the project site is a single-family residence located approximately 500 feet northeast of the proposed Heber 2 solar energy facility. Other nearby sensitive receptors include residences located approximately 0.50 miles north of the project site along E Fawcett Road and Heber Elementary School located approximately 0.60 miles north of the project site. This issue is potentially significant and will be addressed in the EIR analysis.
- d) **Less Than Significant 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 the proposed geothermal, solar, geothermal wells and pipeline are not anticipated to result in odor emissions, and impacts would be less than significant.



#### IV. Biological Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project:</i></b>				
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### ***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 plants and special status species occur in the County of Imperial, and of particular concern is western burrowing owl. The project site has the potential to support native habitats and/or sensitive species. Burrowing owls and burrows are commonly found along canals and drains. The Central Main Canal, Dogwood Canal, and smaller IID canals and drains traverse the project site. Therefore, the project site has the potential to be used as burrowing owl foraging habitat, as burrowing owls and burrows are commonly found along canals and drains. Thus, a potentially significant

impact is identified for this issue area. A biological resources technical report that will address the proposed project's potential impacts on biological resources will be prepared and this issue will be addressed in the EIR.

- b) **Potentially Significant Impact.** Refer to response IV. a) above.
- c) **Potentially Significant Impact.** Being situated in an agricultural area, the project site and surrounding areas are traversed by a network of drains, canals, and other irrigation infrastructure administered by the IID, some of which constitute potentially jurisdictional features. An aquatic resources delineation that will address the proposed project's potential impacts on state or federally protected wetlands 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 located within the designated boundaries of the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP). However, the project site is not located within or adjacent to an Area of Critical Environmental Concern. 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
<b><i>Would the project:</i></b>				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### ***Impact Analysis***

- a) **Potentially Significant Impact.** The project site has been disturbed by past farming and industrial uses. Thus, the presence of significant or undamaged cultural resources on the project site is unlikely. Although the proposed project is not expected to cause a substantial adverse change in the significance of a historical or archaeological resource, this issue will be analyzed further in the EIR. Therefore, a potentially significant impact is identified for this issue area. A cultural resources report that will address the proposed project's potential impacts on historic and prehistoric resources will be prepared and 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 analysis.

## VI. Energy

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project:</i></b>				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### ***Impact Analysis***

- a) **Less than Significant Impact.** The use of energy associated with the proposed project includes both construction and operational activities. Construction activities consume energy through the use of heavy construction equipment and truck and worker traffic. The proposed project will use several energy- and fuel-efficient design features that would help minimize inefficient or wasteful use of energy and increase conservation during construction. The project grading plan and on-site construction equipment would also minimize impacts to the surrounding transportation network that would result from truck traffic associated with soil import/export and mobilization/demobilization. Additionally, implementation and operation of the geothermal and solar facilities 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 proposed project would generate renewable energy resources and is considered a beneficial effect.

Based on these considerations, the proposed project would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. A less than significant impact has been identified for this issue area.

- b) **Less Than Significant Impact.** Construction equipment would comply with federal, state, and regional requirements where applicable. With respect to truck fleet operations the USEPA and the National Highway Traffic Safety Administration (NHTSA) have adopted fuel efficiency standards for medium- and heavy-duty trucks. Construction equipment and trucks are required to comply with CARB's regulations regarding heavy duty truck idling limits of five minutes at a location and the phase in of off-road emission standards that result in an increase in energy savings in the form of reduced fuel consumption for more fuel-efficient engines. Because the main objectives of the project are to assist the state in meeting its obligations under California's RPS Program and assist California in meeting the GHG emissions reduction goal 85 percent below 1990 levels in 2045, the project would be consistent with the applicable recommended actions of CARB's 22022 Climate Change Scoping Plan, as well as applicable federal, state, and local policies. The project would assist the State and regulated utility providers to generate a greater portion of energy from renewable sources consistent with the RPS. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency during construction and operations. Short-term and long-term impacts would be less than significant.

## VII. Geology and Soils

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project:</i></b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Impact Analysis

- ai) **No Impact.** The project site is not located within or near an Alquist-Priolo Special Fault Study Zone. Therefore, no impact is identified for this issue area.
- a ii) **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 Imperial Fault Zone is the nearest active fault zone to the project site and is situated approximately 6.7 miles to the east. Due to the project's proximity to the Imperial Fault Zone, seismic hazards related to ground shaking could occur on the project site. Although the project is not designed for human occupancy, the project could pose a threat to emergency personnel. 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.
- a iii) **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 of 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.

- a iv) **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 site topography is flat, and no ancient landslides have been mapped in the area. Development of the project would not directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving landslides. Therefore, no impact is identified for this issue area.
- b) **Less than Significant Impact.** Soil erosion can result during construction as grading and construction can loosen surface soils and make soils susceptible to wind and water movement across the surface. Impacts are not considered significant because erosion would be controlled on-site in accordance with Imperial County standards, including preparation, review, and approval of a grading plan by the Imperial County engineer. Implementation of Imperial County standards would reduce the potential impacts to a less than significant level.
- c) **Potentially Significant Impact.** Near surface soils within the project site will need to be identified to determine if these 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 these soils are unstable. Therefore, this issue is potentially significant and will be analyzed in the EIR.
- e) **No Impact.** The project does not include any septic tanks or wastewater disposal systems. Therefore, the project would have no impact on the project site soil and its capacity to adequately support the use of septic tanks or alternative wastewater disposal systems. No Mitigation Measures are recommended.
- 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 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
<b><i>Would the project:</i></b>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### ***Impact Analysis***

- a) **Potentially Significant Impact.** The production of greenhouse gas emissions associated with the proposed project includes both construction and operational activities. In the long-term, the project is expected to provide a benefit with respect to reduction of greenhouse gas emissions. However, construction of the project would generate GHG emissions over a two-year construction period. Exhaust emissions would result from construction equipment and machinery as well as from vehicular traffic generated by construction activities. Thus, a potentially significant impact is identified for this issue area. The CalEEMod air quality model will be utilized to estimate the project's GHG emissions and the results will be included in the EIR analysis.
- 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
<b><i>Would the project:</i></b>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### ***Impact Analysis***

- a) **Potentially Significant Impact.** Construction of the proposed project would require the use of construction vehicles, associated grease, oil, and fuels, and the installation of two 20,000-gallon isopentane tanks. Vehicle fuels, oils, grease, and isopentane motive fluids have the potential to be released into the environment through natural events or human error. This is considered a potentially significant impact and will be addressed in the EIR analysis.
- b) **Potentially Significant Impact.** Refer to response IX. a) above.

- c) **No Impact.** The project is not located within one-quarter mile of an existing school. The closest school is Heber Elementary School, located approximately 0.60 miles to the north of the project site. Therefore, the project would have no impact on emitting or handling hazardous or acutely hazardous materials substances or waste within one-quarter mile of an existing or proposed school.
- d) **No Impact.** Based on a review of the Cortese List conducted in December 2023, the project site is not listed as a hazardous materials site (Department of Toxic Substances Control 2023, State Water Resources Control Board 2023). Therefore, implementation of the 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.
- e) **No Impact.** The project is not located within 2 miles of a public airport or a public use airport. The closest airport is Imperial County Airport located approximately 8 miles north of the project site. 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. No impact is identified for this issue area.
- f) **Less Than Significant Impact.** Imperial County Office of Emergency Services (OES) has provided three plans addressing evacuation and evacuation responsibilities for County Fire, Police, and the OES among other topics related to emergency preparedness that do not identify specific evacuation routes. The project applicant would coordinate any construction activities and use of oversized loads or movement of construction/decommissioning equipment with the Imperial County Department of Public Works (ICDPW) and/or California Department of Transportation (Caltrans) and the El Centro Highway Patrol office. Further, the project will coordinate with the ICDPW for any requested dedication of rights-of-way needed for Dogwood Road for the consideration of existing and any future road needs. Lastly, the project shall file for an encroachment permit for any work or proposed work in the affected County or Caltrans road rights-of-way and for any and all new, altered or unauthorized existing driveway(s) to access the lot or lots and for any proposed road crossings. Thus, the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and would result in a less than significant impact.
- g) **No Impact.** The project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan, the potential for a major fire in the unincorporated areas of the County is generally low (County of Imperial 1997). The project site is not located in areas considered wildlands, as the vast majority of the surrounding area is cultivated farmlands. According to the Fire Hazard Severity Zone Viewer provided by the California Department of Forestry and Fire Protection, the project area 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 2023). Therefore, there would be no impact associated with risk involving wildland fires.

## X. Hydrology and Water Quality

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project:</i></b>				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### ***Impact Analysis***

- Potentially Significant Impact.** The proposed project has the potential to create urban non-point source discharge (e.g., synthetic/organic chemicals). Potentially significant water quality impacts have been identified and will be addressed in the EIR.
- No Impact.** The proposed project would require the drilling of three new geothermal production wells and a new injection well. The production wells would be completed to depths between 1,000 and 4,000 feet.

Casing depths will comply with California Department of Conservation – Geologic Energy Management Division (CalGEM) Regulations (Chapter 4, Article 3, §§ 1723, 2018). The geothermal production wells will bypass any groundwater reservoirs in favor of geothermal aquifers. Any water needed for fugitive dust control, or other BMPs that require water will be obtained through the project applicant's existing IID contract. No groundwater wells will be drilled, nor will the project require the use of ground water. No impact on groundwater supply or recharge would occur.

- ci) **Less than Significant Impact.** The proposed project would result in the creation of impervious surfaces. Soil erosion could result during construction and earthmoving as well as during site reclamation. However, the project applicant is required to comply with the Construction General Permit and the Industrial General Permit, as well as Imperial County Land Use Ordinance, Title 9, Chapter 10 – Grading Regulations. County standards and compliance with the NPDES require the creation of a Stormwater Pollution Prevention Plan (SWPPP), and the use of best management practices (BMPs) to reduce impacts to surface and ground water quality attributed to erosion or siltation to a level less than significant. Applicant compliance with Imperial County and State standards would ensure the project does not significantly alter the site's drainage resulting in erosion or siltation on-or off-site, and impacts would be less than significant.
- cii) **Less than Significant Impact.** Refer to response X. ci) above.
- ciii) **Less than Significant Impact.** Refer to response X. ci) above.
- civ) **Less Than Significant Impact.** According to the Federal Management Agency (FEMA) Flood Insurance Rate Map (Panel 06025C2075C), the project site is within Zone X, which is an area determined to be outside the 0.2 percent annual chance floodplain (FEMA 2008). Therefore, the proposed project would not impede or redirect flood flows and this is considered a less than significant impact.
- d) **No Impact.** According to the Federal Management Agency (FEMA) Flood Insurance Rate Map (Panel 06025C2075C), the project site is within Zone X, which is an area determined to be outside the 0.2 percent annual chance floodplain (FEMA 2008). In addition, there are no large bodies of water near the project site. The Salton Sea is the closest body of water near the project site and is 28 miles away, and the Pacific Ocean is over 90 miles away. Therefore, the project would not risk release of pollutants due to project inundation by flood, tsunami or seiche. No impact would occur.
- e) **Less Than Significant Impact.** No groundwater wells will be drilled, nor will the project require the use of ground water. Any water needed for fugitive dust control, or other BMPs that require water will be obtained through the project applicant's existing IID contract. Furthermore, the project is required to comply with County, State, and Federal water quality standards. The proposed project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This is considered a less than significant impact.

## XI. Land Use and Planning

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>Would the project:</b>				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Impact Analysis

- a) **No Impact.** The project site is located in a sparsely populated, agriculturally zoned portion of Imperial County. There are no established residential communities located within or in the vicinity of the project site. The nearest established residential community is located approximately 0.50 miles north of the project site along E Fawcett Road. Therefore, implementation of the project would not divide an established community and no impact would occur.
- b) **Less than Significant Impact.** The project site is currently designated by the General Plan as "Agriculture" and is zoned A-2-G-SPA (General Agriculture with Geothermal Overlay Zone in a Special Plan Area) and A-2-G-U (General Agriculture with a Geothermal Zone Overlay in an Urban Area).

Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone:

- n) *Oil, gas and geothermal exploration meeting requirements specified in Division 17*
- s) *Solar energy extraction generation provided that is for on-site consumption only*

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:

- y) *Electrical generation plans (less than 50 MW) excluding nuclear or coal fired and meeting requirements in Division 17*
- z) *Electrical substations in an electrical transmission system (500 kv/230 kv/161 kv)*
- bb) *Facilities for the transmission of electrical energy (100-200 kv)*
- ii) *Geothermal test facilities, Intermediate projects, and major exploratory wells, meeting requirements in Division 17*
- rr) *Major Geothermal projects per Division 17*
- ww) *Resource extraction and energy development as per Division 17*
- aaa) *Solar energy electrical generator*

The County Land Use Ordinance, Division 17, includes the Geothermal Overlay Zone, which authorizes the development and operation of renewable energy projects, with an approved CUP. With an approved CUP the project would conform with the standards presented in the Implementation Ordinance of the Renewable Energy and Transmission Element update. Therefore, implementation of the project would not 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 and impacts would be less than significant.



## XII. Mineral Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project:</i></b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### ***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. Thus, no impact is identified for this issue area and no further analysis is warranted.
- 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
<b><i>Would the project result in:</i></b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### ***Impact Analysis***

- a) **Less than Significant Impact.** The Imperial County Title 9 Land Use Ordinance, Division 7, Chapter 2, Section 90702.00 - Sound level limits, establishes one-hour average sound level limits for the County's land use zones. Agricultural/industrial operations are required to comply with the noise levels prescribed under the general industrial zones. Therefore, the proposed project will be required to maintain noise levels below 75 decibels (dB) (averaged over one hour) during any time of day.

The proposed project will also be expected to comply with the Noise Element of the General Plan which states that construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB, when averaged over an eight-hour period, and measured at the nearest sensitive receptor. Construction equipment operation is also limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. on Saturday. Nevertheless, the proposed project will result in the increase in ambient noise levels during construction. A noise report that will address the proposed project's potential noise impacts will be prepared and this issue will be addressed in the EIR.

- b) **Less than Significant Impact.** Groundborne vibration and noise could originate from earth movement during the construction phase of the proposed project. However, significant vibration is typically associated with activities such as blasting or the use of pile drivers, neither of which would be required during project construction. Construction activities most likely to cause vibration include heavy construction equipment and site grading operations. Although all heavy, mobile construction equipment has the potential to cause at least some perceptible vibration when operating close to buildings, the vibration is usually short term and is not of sufficient magnitude to cause building damage. Heavy equipment such as dozers, loaders, and drill rig equipment would not be operated close enough to any residences or structures to cause vibration impact. Operation of the project would not result in vibrations perceptible to nearby receptors. As such, impacts would be less than significant.
- c) **No Impact.** The project site is not located within an airport land use plan nor is it within two miles of a public airport or public use airport. The closest airport is Imperial County Airport located approximately 8 miles north of the project site. As such, no impact would occur to people residing or working in the project area related to excessive noise levels.

#### XIV. Population and Housing

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project:</i></b>				
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

##### ***Impact Analysis***

- a) **No Impact.** Project construction would likely require a maximum of 35 workers, with an average of 10 to 20 workers after grading excavation. After construction is complete, the facilities would be staffed and maintained by 1-2 onsite employees. It is assumed that the workforce would be from southern California and would likely not require accommodations. The project is sited within the Renewable Energy Geothermal Overlay Zone and the project does not involve the construction of any new housing or commercial areas that would attract new residents to the area, nor does it require the extension of roads or creation of other infrastructure. The project would not appear to induce population growth; therefore, the project would have no impact.
- 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Impact Analysis

- ai) **Less than Significant Impact.** The project is located in an unincorporated area of Imperial County outside of Heber and Calexico, California. The project would not likely impact or displace the location of existing fire protection facilities. The project applicant will have a certified fire engineer review the proposed facilities and existing fire response infrastructure to determine if the existing fire response facilities are adequate or if additional facilities (i.e., hydrants, access points) are necessary. The project will contain a thorough Emergency Response Plan (ERP) created with consultation from the Imperial County Fire Department. The project ERP will address all emergencies likely to occur at the site and requires an Emergency Coordinator who can work with County Fire Protection. The plan contains information vital to emergency responder and engineering methods for protecting flammable isopentane tanks at the project site. Therefore, impacts would be less than significant.
- aii) **Less Than Significant Impact.** The project would not likely impact or displace the location of existing police protection facilities. The project would also include public safety mechanisms such as fences and gates to protect the facilities and reduce unauthorized visitations. In addition, there will be a security service that monitors the property. Furthermore, the project applicant would be required to pay their share of local infrastructure improvement costs. Therefore, impacts would be less than significant.
- aiii) **Less Than Significant Impact.** The proposed project does not include the development of residential land uses that would result in an increase in population or student generation. Also, the number of construction and operational workers coming to the region is low and is not expected to increase demand for schools or require the construction of new schools. Therefore, impacts would be less than significant.
- aiv) **Less Than Significant Impact.** The number of construction and operational workers coming to the region is low and is not expected to increase demand on existing or future parks. Therefore, impacts would be less than significant.
- av) **Less Than Significant Impact.** The number of construction and operational workers coming to the region is low and is not expected to increase demand for any public services (such as post offices). Therefore, impacts would be less than significant.

## XVI. Recreation

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project:</i></b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### ***Impact Analysis***

- a) **No Impact.** The project would not directly or indirectly increase the number of residents keeping the county compliant with the Quimby Act which requires 5 acres of parkland for every 1,000 residents. Project construction would likely require a maximum of 35 workers, with an average of 10 to 20 workers after grading excavation. After construction is complete, the facilities would be staffed and maintained by 1-2 onsite employees. These workers and employees are anticipated to come from existing populations that live in or commute from the surrounding local community. As there is no increase of residencies or residents, it is reasonably foreseeable that the project would not lead to an increase of use or deterioration of existing neighborhood, regional, or other recreational facilities. Therefore, the project would have no impact on the use or deterioration of existing recreational resources.
- b) **No Impact.** The project does not include nor require the construction of a recreational facility as the project does not alter the current ratio of parkland acres to residents. Therefore, the project will have no impact on the construction or expansion of recreational facilities which might have an adverse effect on the environment.

## XVII. Transportation

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project:</i></b>				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### ***Impact Analysis***

- a) **Potentially Significant Impact.** 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 impact study that will address the proposed project's potential impacts on traffic will be prepared, and this issue 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 impact study and EIR analysis.
- c) **No Impact.** The project would not result in any changes to any roads, intersections, streets, highways, nor would it provide any incompatible uses to the street and highway system. All vehicles that would be used for travel to and from the project site would be licensed and comply with all appropriate transportation laws and regulations including obtaining and adhering to provisions of any required permits for oversized loads. As such, no impact related to transportation design hazards would occur.
- d) **No Impact.** All proposed facilities would be constructed within the property boundaries of the project site and would not affect emergency vehicle access to the facility or any roadway. Emergency vehicle access is identified and designated at the Dogwood site, and these areas would not be changed as result of the proposed developments. Therefore, no impacts to emergency access to the plant site or surrounding area would occur under the project.



## XVIII. Tribal Cultural Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b><i>Would the project cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</i></b>				
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)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Impact Analysis

- a-b) **Potentially Significant Impact.** Assembly Bill 52 was passed in 2014 and took effect July 1, 2015. It established a new category of environmental resources that must be considered under CEQA called tribal cultural resources (Public Resources Code 21074) and established a process for consulting with Native American tribes and groups regarding those resources. Assembly Bill 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.

In accordance with AB 52, Imperial County, as the CEQA lead agency, sent an AB 52 consultation request letter to the Campo Band of Mission Indians and Fort Yuma-Quechan Indian Tribe on January 19, 2024. 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
<b><i>Would the project:</i></b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### ***Impact Analysis***

- a) **Less Than Significant Impact.** Operational use of water resources for the project would be limited to domestic use within operations and maintenance buildings, solar panel washing, and fire protection services. Impacts associated with water facilities would be less than significant. Construction of the proposed facilities would not generate/discharge any wastewater. Chemical additives are not required for the cooling tower operation and therefore there is no waste disposal. Impacts associated with water facilities would be less than significant.

The energy generated by the solar facilities will be collected by an on-site substation and then transferred to the plants via a short transmission cable. The solar facilities will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy and allow more geothermal energy to enter the grid. Before entering the grid, a new substation will be built near the Dogwood plant to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. No upgrades to off-site transmission facilities are necessary and the new Dogwood substation will connect directly to the existing point of interconnection with the IID controlled grid. Impacts associated with electric power facilities would be less than significant.

No natural gas facilities are located near the project and no natural gas hookup is required for the project. No impacts associated with natural gas facilities would occur. The project will not have an impact on any telecommunications.

The project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, impacts would be less than significant.

- b) **Potentially Significant Impact.** Although water for operations and maintenance buildings, solar panel washing, and fire protection services during project operation is not anticipated to result in a significant increase in water demand/use, IID would provide the water required for operations and maintenance and potable water will be trucked onto the site. Thus, a potentially significant impact is identified for the availability of sufficient water supplies to serve the proposed project for the reasonably foreseeable future. The proposed project's potential impacts on water supplies will be analyzed in the EIR.
- c) **No Impact.** The proposed project would generate a minimal volume of wastewater during construction. During construction, portable chemical sanitary facilities will be used by all construction personnel. These facilities will be serviced by a local contractor. In addition, all construction liquids would be disposed of in compliance with all appropriate local, state and federal disposal regulations. The OECs operate on a closed loop, do not consume any water and therefore there is no waste disposal. Therefore, no impacts to the wastewater treatment utility's service capacity would occur.
- d) **Less than Significant Impact.** Solid waste generation would be minor for the construction and operation of the proposed project. Solid waste during construction will be disposed of in an approved solid waste disposal site in accordance with Imperial County Environmental Health Department requirements. Waste will be routinely collected and disposed of at an authorized landfill by a licensed disposal contractor. Trash would likely be hauled to the Callexico Solid Waste Site (13-AA-0004) located approximately 1.25 miles southwest of the project site in Callexico, CA. The Callexico Solid Waste Site has approximately 1,561,235 cubic yards of remaining capacity and is estimated to remain in operation through 2079 (CalRecycle 2019). The project would not 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.

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
<b><i>If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:</i></b>				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Impact Analysis

- No Impact.** According to the Fire Hazard Severity Zone Viewer provided by the California Department of Forestry and Fire Protection, the project area 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 2023). Therefore, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan. No impact is identified for this issue area.
- No Impact.** The project area 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 2023). The Seismic and Public Safety Element of the County General Plan also states that the potential for a major fire in the unincorporated areas of the County are generally low (County of Imperial 1997). The project site is located on flat land, which does not pose a risk due to slope. The County's Multi-Jurisdictional Hazard Mitigation Plan (2021) recognizes and manages events of high winds and other extreme weather in Imperial County. The project would not exacerbate wildfire risks associated with slope or prevailing winds; no impact would occur.
- No Impact.** The project area 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 2023). The project will have two double-walled 20,000-gallon isopentane tanks on site which would be equipped with a fire suppression system supported by additional onsite water. This is required by the California Fire Code as adopted by the Imperial County Code. Additionally, the underground interconnection line would be situated along the existing utility lines along Dogwood Road. All infrastructure would comply with existing regulations and would not exacerbate fire risk; no impacts would occur.
- 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 site topography is flat, and no ancient landslides have been mapped in the area. The project would not alter the existing drainage pattern surrounding the project site and it would comply with regulations that reduce the potential for excess runoff waters from the project site. The project would not expose people or structures to significant risks as a result of runoff, post-fire instability, or drainage changes, therefore no impact would occur.

## XXI. Mandatory Findings of Significance

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>Would the project:</b>				
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Impact Analysis

- 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.
- 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, 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.
- Potentially Significant Impact.** Implementation of the proposed project has the potential to result in impacts related to: air quality, geology/soils, and hazards and hazardous materials. 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:

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Katherine Turner, Document Production Administrator

# **Comment Letters Received on Notice of Preparation**



## NATIVE AMERICAN HERITAGE COMMISSION

RECEIVED

January 26, 2024

FEB 01 2024

IMPERIAL COUNTY  
PLANNING & DEVELOPMENT SERVICESCHAIRPERSON  
**Reginald Pagaling**  
ChumashLuis Valenzuela  
Imperial County  
801 Main Street  
El Centro, CA 92243

Re: 2024010510, Dogwood Geothermal Energy Project, Imperial County

VICE-CHAIRPERSON  
**Buffy McQuillen**  
Yokayo Pomo, Yuki,  
Nomlaki

Dear Mr. Valenzuela:

SECRETARY  
**Sara Dutschke**  
Miwok

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, §15064 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).

PARLIAMENTARIAN  
**Wayne Nelson**  
LuiseñoCOMMISSIONER  
**Isaac Bojorquez**  
Ohlone-Costanoan

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 (16 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

COMMISSIONER  
**Stanley Rodriguez**  
KumeyaayCOMMISSIONER  
**Laurena Bolden**  
SerranoCOMMISSIONER  
**Reid Milanovich**  
CahuillaCOMMISSIONER  
**Vacant**EXECUTIVE SECRETARY  
**Raymond C. Hitchcock**  
Miwok, Nisenan

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.

NAHC HEADQUARTERS  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

**Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

**1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:**

Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- a. A brief description of the project.
- b. The lead agency contact information.
- c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

**2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report:**

A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

**3. Mandatory Topics of Consultation if Requested by a Tribe:** The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- a. Alternatives to the project.
- b. Recommended mitigation measures.
- c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

**4. Discretionary Topics of Consultation:** The following topics are discretionary topics of consultation:

- a. Type of environmental review necessary.
- b. Significance of the tribal cultural resources.
- c. Significance of the project's impacts on tribal cultural resources.
- d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

**5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process:** With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

**6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document:** If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
- b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. **Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
- The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
  - 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:**
- Avoidance and preservation of the resources in place, including, but not limited to:
    - Planning and construction to avoid the resources and protect the cultural and natural context.
    - Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
  - 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:
    - Protecting the cultural character and integrity of the resource.
    - Protecting the traditional use of the resource.
    - Protecting the confidentiality of the resource.
  - 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.
  - Protecting the resource. (Pub. Resource Code §21084.3 (b)).
  - 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)).
  - 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:
- 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.
  - The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
  - 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](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](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 ([https://ohp.parks.ca.gov/?page\\_id=30331](https://ohp.parks.ca.gov/?page_id=30331)) 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: [Pricilla.Torres-Fuentes@nahc.ca.gov](mailto:Pricilla.Torres-Fuentes@nahc.ca.gov).

Sincerely,

*Pricilla Torres-Fuentes*

Pricilla Torres-Fuentes  
Cultural Resources Analyst

cc: State Clearinghouse



# IID

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February 22, 2024

Mr. Luis Valenzuela  
Planner II  
Planning & Development Services Department  
County of Imperial  
801 Main Street  
El Centro, CA 92243

**RECEIVED**

*By Imperial County Planning & Development Services at 3:08 pm, Feb 22, 2024*

**SUBJECT:** NOP of a DEIR for the Dogwood Geothermal Energy Project, CUP 23-0020; Heber 2 Solar Energy Project, CUP 23-0021 and Heber Field Company Geothermal Wells & Pipeline Project, CUP 23-0022

Dear Mr. Valenzuela:

On January 19, 2024, the Imperial Irrigation District received from the Imperial County Planning & Development Services Department, the Notice of Preparation of a Draft Environmental Impact Report for the Dogwood Geothermal Energy Project, Heber 2 Solar Project and Heber Field Company Geothermal Wells & Pipeline Project, Conditional Use Permits 23-0020, 23-0021 and 23-0022, respectively. The Dogwood Geothermal Energy Project consists of a geothermal plant and associated ancillary and auxiliary facilities, a new substation that proposes to connect to the IID grid, a 7 megawatt "behind the meter" PV solar facility for supplemental energy, and a distribution line from the proposed solar facility to the geothermal plant (that will cross the Beech Drain and Central Main Canal at the existing above-ground pipeline span). The Heber 2 Solar Energy Project proposes a 15 MW "behind-the-meter" PV solar facility to provide supplemental energy to the existing Heber 2 geothermal plant. The energy generated by the solar facility would be transmitted via a distribution line like the Dogwood Geothermal Energy Project. The Heber Field Company Geothermal Wells and Pipeline Project intends to develop three geothermal production wells. The projects will be sites on approximately 125 acres of land in the southern portion of Imperial County, approximately one mile south of Heber, California and approximately 0.5 miles west of Calexico, CA. The sites are within portions of three parcels: APNs 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex located at 855 Dogwood Road, Heber, CA, and APNs 059-020-001 and 054-250-017 are immediately southeast and east, respectively, of the H2GEC.

The IID has reviewed the NOP of the DEIR and has the following comments:

1. To properly assess for potential impacts as covered in the environmental factor titled "UTILITIES AND SERVICE SYSTEMS" of the projects' Environmental Impact



Report's Environmental Checklist, and determine if the projects will require or result in the relocation or construction of new or expanded electric power facilities, the construction or relocation of which could cause significant environmental effects, a facility study, system impact study and/or circuit study/distribution impact study, will have to be performed. Any system improvements or mitigation identified in such studies to accommodate a project shall be the responsibility of the projects' proponent and should be included as part of the project for environmental assessment purposes.

2. For projects that will require distribution-rated electrical service for construction and/or operation, proponent should be advised to contact Joel Lopez, Project Development Planner Senior, at (760) 482-3444 or e-mail Mr. Lopez at [JFLopez@IID.com](mailto:JFLopez@IID.com) to initiate the customer service application process. In addition to submitting a formal application (available for download at <http://www.iid.com/home/showdocument?id=12923>), proponent will be required submit, electrical plans, electrical panel size and location, operating voltage, electrical loads, an AutoCAD file of the site plan, construction schedule, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The projects' proponent shall be responsible for all costs and mitigation measures related to providing electrical service to the projects.
3. The impacts to the Salton Sea, due to loss or reduction of agricultural runoff caused by agricultural land conversion to urban and/or solar use must be assessed in the DEIR. Due to the potential loss or reduction of inflow to the Salton Sea and to IID drains with its concurrent environmental impacts, the projects' proponent should address this issue as well as provide analysis that the projects do not impact the IID Water Conservation and Transfer Draft Habitat Conservation Plan (HCP), the existing Section 7 Biological Opinion and the California Endangered Species Act (CESA) Permit 2081.

Discussion of cumulative impacts considering other non-agricultural facilities whose water use changes (or potential water use changes) would reduce the inflow conveyed to IID drains and the Salton Sea, it is advisable that the projects' proponent present a cumulative impact analysis on inflow to IID drains and the Salton Sea.

The following are access links to the documents mentioned:

- The HCP is part of the IID Water Conservation and Transfer Project, Final EIR/EIS and can be found at the website [Water/Library/QSA-Water-Transfer/Environmental-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 Endangered Species Act permit) is available 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/qa-water-transfer/environmental-assessments-permits/cesa-compliance>.
  - The MMRP (Mitigation Monitoring and Report Program) is accessible at <https://www.iid.com/Water/Library/QSA-Water-Transfer/Mitigation>.
4. To insure there are no impacts to IID water facilities, construction plans for the projects, including grading & drainage and fencing plans, should be submitted to IID Water Department Engineering Services Section for review prior to final project design. For additional information IID WDES Section should be contacted at (760) 339-9265.
  5. Projects may impact IID drains with project site runoff flows draining into IID drains. To mitigate impacts, a comprehensive IID hydraulic drainage system analysis may be required. IID's hydraulic drainage system analysis includes an associated drain impact fee.
  6. For construction water, the projects' proponent will need to submit a Temporary Water Account Application to the IID. Furthermore, the use of IID water during a project's construction phase will require an encroachment permit. Once a project moves forward an onsite reservoir will need to be designed and constructed by the proponent to ensure that the project has at least a six-day supply of water available in case of maintenance or construction projects on the supply canal. For additional information regarding construction water, the applicant should contact IID's Water Department North End Division at (760) 482-9900.
  7. The projects' proponent will be required to provide rights of way and easements for any proposed power line extensions and/or any other infrastructure needed to serve the projects as well as the necessary access to allow for continued operation and maintenance of any IID facilities located on adjoining properties. Proponent shall provide a surveyed legal description and associated exhibit certified by a licensed surveyor for all rights of way deemed necessary by IID to accommodate a projects' electrical infrastructure. ROWs and easements shall be in a form acceptable to and at no cost to IID for installation, operation, and maintenance of all electrical facilities.



8. Public utility easements over all private public roads and additional ten (10) feet in width on both side of the private and public roads shall be dedicated to IID for the construction, operation, and maintenance of its electrical infrastructure.
9. 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 the website <https://www.iid.com/about-iid/department-directory/real-estate>. The district Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements. No foundations or buildings will be allowed within IID's right of way.
10. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.
11. IID encroachment permit(s) are required for temporary construction water, construction drainage, and construction access crossing canals and drains. IID canal and drain banks are not to be used or obstructed during construction of the projects.
12. Any new, relocated, modified or reconstructed IID facilities required for and by a 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 projects proponent.
13. Dividing a project into two or more pieces and evaluating each piece in a separate environmental document (Piecemealing or Segmenting), rather than evaluating the whole of the project in one environmental document, is explicitly forbidden by



CEQA, because dividing a project into a number of pieces would allow a Lead Agency to minimize the apparent environmental impacts of a project by evaluating individual pieces separately, each of which may have a less-than-significant impact on the environment, but which together may result in a significant impact. Segmenting a project may also hinder developing comprehensive mitigation strategies. In general, if an activity or facility is necessary for the operation of a project, or necessary to achieve the project objectives, or a reasonably foreseeable consequence of approving the project, then it should be considered an integral project component that should be analyzed within the environmental analysis. The project description should include all project components, including those that will have to be approved by responsible agencies. The State CEQA Guidelines define a project under CEQA as "the whole of the action" that may result either directly or indirectly in physical changes to the environment. This broad definition is intended to provide the maximum protection of the environment. CEQA case law has established general principles on project segmentation for different project types. For a project requiring construction of offsite infrastructure, the offsite infrastructure must be included in the project description. *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App. 4th 713.

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at [dvargas@iid.com](mailto:dvargas@iid.com). Thank you for the opportunity to comment on this matter.

Respectfully,



Donald Vargas  
Compliance Administrator II

**AIR POLLUTION CONTROL DISTRICT**



February 22, 2024

Jim Minnick  
Planning & Development Services Director  
801 Main Street  
El Centro, CA 92243

**RECEIVED**

*By Imperial County Planning & Development Services at 5:27 pm, Feb 22, 2024*

**SUBJECT:** Notice of Preparation of Draft Environmental Impact Report for Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and Heber Field Company Geothermal Wells and Pipeline Project

Dear Mr. Minnick:

The Imperial County Air Pollution Control District (Air District) appreciates the opportunity to review and comment on Notice of Preparation of Draft Environmental Impact Report for Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and Heber Field Company Geothermal Wells and Pipeline Project (Project). The project proposes the development of an Integrated Two Level Unit (ITLU) Air Cooled Ormat Energy Converter (OEC), two 20,000-gallon isopentane tanks, a 7 MW parasitic solar facility, underground distribution line, and substation under CUP 23-0020. The development of a 15 MW solar energy facility that will provide a parasitic load to the existing Heber 2 plant under CUP 23-0021. Finally, the development of up to six geothermal production wells, one geothermal injection well, and approximately 4,500 linear feet of new pipeline under CUP 23-0022. The project spans across portions of three parcels: Assessor Parcel Numbers (APN) 054-250-031, 059-020-001, and 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC.

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 (Handbook), and the Air District's State Implementation Plans (SIPs) for Ozone, PM<sub>2.5</sub> and PM<sub>10</sub> work together to ensure that air quality improves or does not degrade. Currently, the non-attainment status of marginal for the 2015 ozone standard, moderate for PM<sub>2.5</sub> and the maintenance requirements for PM<sub>10</sub> are the driving criteria in establishing the thresholds for NO<sub>x</sub>, ROG, PM<sub>10</sub>, SO<sub>x</sub> and CO found in the Handbook. These thresholds and their significance are explained under Section 6 of the handbook and The Air District strongly recommends referencing

the Handbook during the generation of the EIR as the Handbook has helpful information regarding the development of an adequate air quality analysis and emission thresholds. The Air District also strongly recommends the applicant and/or their consultant(s) contact the Air District directly to coordinate with our office for the development of the EIR as 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 for solar field projects, PM<sub>10</sub> and NO<sub>x</sub> 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 create a potential for elevated levels of NO<sub>x</sub> emissions, as well as elevated levels of PM<sub>10</sub> during earthmoving activities.

In order to identify NO<sub>x</sub> 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.<sup>1</sup> This is to ensure NO<sub>x</sub> emissions during the construction period remain under the CEQA thresholds of significance.

With regards to cumulative impacts, which occur during the operational phase of renewable projects, PM<sub>10</sub> is of main concern and an Operational Dust Control Plan (ODCP) may be required based on the permitting determination of the project. The ODCP details how dust emissions will be controlled and maintained during the operational phase of the project.<sup>2</sup> An initial site visit is required to confirm the elements of any draft ODCP before it can be finalized and then continual site visits will typically occur on a yearly basis. Please note that an ODCP is intended to provide pertinent information specific to the operation and for the reduction of fugitive dust emissions created by the ongoing operations at the facility.

Upon review of office records the Air district found that the existing facility identified as Heber 2, as currently constructed and operating, operates under Air District Permit to Operate #2217. However, given the proposed developments of the project, the applicant will need to submit an amended application for engineering review of the facility. The Air District must be notified of any proposed changes to operations, procedure, and/or equipment that could affect the emissions of a facility. The Air District requests the applicant submit a permit application for engineering review of the project, pay the applicable review fees, and coordinate with the Air District Engineering and Permitting Division directly to discuss the permitting requirements of the project.

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<sup>1</sup> 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

<sup>2</sup> The ODCP needs to be approved prior to the issuance of the Certificate of Occupancy.

The following is a synopsis of the information pertinent to the development of a Comprehensive Air Quality analysis. A thorough analysis should include a description, impacts and health consequences of all air quality and associated emissions. The analysis must be conducted using the Air Districts approved modeling factors.<sup>3</sup> 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 per alternative. A description of the Air District attainment status, State and Federal, is required as is describing any regulatory restrictions to the project.

A health risk assessment should be conducted for projects locating near already existing facilities with a potential to emit toxics in accordance with Section 4.6 of the Handbook which states "Development projects which locate in close proximity to already existing industrial type operations which have the potential to emit toxic or hazardous air pollutants . . . Such projects may be required to prepare a health risk assessment to determine the potential level of risk associated with the operation. The ICAPCD should be consulted on any project with the potential to emit toxic or hazardous air pollutants." Typically, these health risk assessments are of a quantitative nature but can be a mixed qualitative and quantitative analysis. In any case, the relative human exposure, location of the project, distance to sensitive receptors all should be considered when developing the risk assessment. Projects anticipating heavy volumes of traffic should conduct hot spot modeling.<sup>4</sup> Hot spot modeling will help determine compliance with the state CO standard at intersections and roadway links as determined by traffic impact analysis.

Existing and proposed projects must have a cumulative impact analysis. For each sub-analysis and risk assessment mitigation measures should be identified, quantified for effectiveness, and incorporated into the environmental document (i.e. Environmental Impact Report EIR or Environmental Impact Statement EIS). All mitigation measures must follow District Rules and Regulations including the most current Handbook. Consultation with the most recent Clean Air Plans (SIPs), District Rules and Regulations and other Air District approved programs is strongly recommended to achieve effective applicability of standards. When it becomes apparent that on-site mitigation is insufficient to reduce the impacts to insignificance then off-site mitigation should be discussed and appropriately applied.

Finally, in accordance with Assembly Bill 32 known as the Global Warming Solutions Act of 2006 and the most recent amendments to the CEQA Guidelines effective December 2018, a discussion of the impacts from Green House Gas (GHG) emissions and its relation to Climate Change is required, however, given the court's Golden Door ruling (*Golden Door Properties, LLC v. County of San Diego*, 2020) coordination with the Air District is recommended to adequately address GHG analysis. Given the Air District has not currently developed its own GHG thresholds, using a threshold from an area similar in size, topography, climate, and population is preferred by the Air District. The Air District also recommends using the Handbook for Analyzing Greenhouse Gas

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<sup>3</sup>The most current modeling tool recently adopted is CalEEMod.

<sup>4</sup> Using APCD approved hot spot modeling such as CALINE4, developed by and available through the California Department of Transportation.

Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook) which was developed by the California Air Pollution Control Officer's Association (CAPCOA) to assist in creating an adequate GHG analysis.

Finally, the Air District requests a copy of each draft CUP prior to recording for review.

All Air District rules and regulations can be found for review on our website at <https://apcd.imperialcounty.org/rules-and-regulations/>, the Handbook can be accessed at <https://apcd.imperialcounty.org/wp-content/uploads/2020/01/CEQAHandbk.pdf>, and the GHG Handbook can be found at <https://www.caleemod.com/handbook/index.html>. Please contact our office at (442) 265-1800 to set up discussions for the project or if you have any further questions or concerns. The Air District looks forward to coordinating to help ensure consistency and enforceability of the project.

Respectfully,



Ismael Garcia  
Environmental Coordinator



Monica N. Soucier  
APC Division Manager

**Environmental Evaluation Committee**

**February 8, 2024**

**Regarding Project Description:**

**Ormat Technologies, Inc.**

**CUP #23-0021 & CUP #23-0022/Initial Study #23-0026**

**Submitted By:**

**Walter and Toni Holtz**



Pipeline

Divider



County of Imperial  
Planning & Development Services  
801 Main Street  
El Centro, CA 92243  
(442) 265-1736  
Email: [icpds@imperial.ca.us](mailto:icpds@imperial.ca.us)  
Website: [www.icpds.com](http://www.icpds.com)

07-10-2023

## NOTICE TO COMPLY (REPAIR)

PROPERTY OWNER: Walter J & Toni F Holtz  
PIPELINE OWNER: Ormat Nevada – Heber  
ASSESSOR'S PARCEL NUMBER: APN 054-250-023-000  
SITUS ADDRESS: East Off of Clark Road near Date Canal North of Willoughby Road and  
Central Main Canal (319 AC Tract 40) - Heber, CA

The Imperial County Planning & Development Services Department received a complaint reporting that the pipeline foundations for Ormat (Heber Facility) at the above location are deteriorating, cracking and crumbling.

On June 15, 2023, our office conducted a site inspection and has confirmed that the majority of the foundations supporting the pipeline for the Heber Geothermal Plant are indeed deteriorating, cracking and crumbling. The pipeline is in danger of buckling. The pipeline and foundation have become unsafe and creates a health and safety hazard requiring your immediate attention.

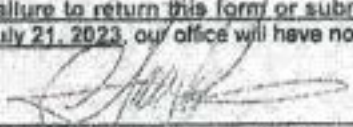
2022 California Building Code Section 116.1 Unsafe Structures and Equipment states "...unsafe conditions...structures or existing equipment that are or hereafter become unsafe, insanitary, or deficient...constitutes a fire hazard or are otherwise dangerous to human life or the public welfare...or that involve inadequate maintenance, shall be deemed an unsafe condition. Unsafe structures shall be taken down or removed or made safe, as the building official deems necessary..."

Our office has received response communications by email and telephone with the Heber Project Manager letting us know that they are aware of the issue and are working on resolving the matter.

To date our office has not received the required permit application submittal along with the engineered plans to address this public health and safety hazard.

2022 California Building Code Section 116.5 Restoration or Abatement states "...where the structure or equipment determined to be unsafe by the building official is restored to a safe condition, the owner, the owner's authorized agent, operator or occupant of the structure, premises or equipment deemed unsafe by the building official shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other approved corrective action..."

Failure to return this form or submit the required permit application (with engineering) to our office on or by 5:00p.m. on July 21, 2023, our office will have no choice but to issue an official violation notice against the property

  
Sergio Rubio, Building Division Manager  
IC Planning & Development Services Dept

Date 7/10/2023

Notice cleared 1/29/24 per Linda Hunt

**CORRECTIVE ACTION TAKEN BY LICENSEE:** Please describe what action you have taken to resolve or correct the cited violation(s) above. Use a separate sheet of paper if necessary.

(print name)

(signature)

(date)

[illegible]



RECORDING REQUESTED BY  
AND  
Please return to:

CHUCK STOREY  
COUNTY CLERK/RECORDER

PLANNING IMPERIAL COUNTY - PLANNING &amp; DEVELOPMENT SER

Imperial County Planning & Dev. Services Dept.  
801 Main Street  
El Centro, California 92243

Doc#: 2021028887



Titles: 1 Pages: 26  
Fees 165.00  
Taxes 0.00  
Other 0.00  
PAID 165.00

**AGREEMENT FOR  
CONDITIONAL USE PERMIT #19-0017  
ORMAT NEVADA, INC.  
PLANNING COMMISSION: JUNE 9, 2021**

This Agreement is made and entered into on this 9th day of November 2021, by and between Second Imperial Geothermal Company, hereinafter referred to as Permittee, and the COUNTY OF IMPERIAL, a political subdivision of the State of California, (hereinafter referred to as "COUNTY").

**RECITALS**

**WHEREAS**, Permittee is the owner, lessee or successor-in-interest in certain land in Imperial County located south of State Highway 86, west of Dogwood Road, north of Willoughby Road and southeast of the townsite of Heber, California, described as a portion of the East half of Tract 44, APN 054-250-31-01, 39.99 acres, Township 16 South Range 14 East, SBB&M; and,

**WHEREAS**, Permittee has applied to the County of Imperial for a Conditional Use Permit #19-0017 ("Project") for the above project, which supersedes the previously approved CUP #06-0028.

**GENERAL CONDITIONS:**

The "GENERAL CONDITIONS" are shown on the letter "G". These conditions are conditions that are either routinely and commonly included in all Conditional Use Permits as "standardized conditions" and/or conditions that the Imperial County Planning Commission has established as a requirement on all CUP's for consistent application and enforcement. The Permittee is hereby advised that the General Conditions are as applicable as the SITE SPECIFIC conditions.

**G-1 GENERAL LAW:**

The Permittee shall comply with all local, state and/or federal laws, rules, regulations, ordinances, and/or standards as they may pertain to the Project whether specified herein or not.

**MINUTES OF THE  
PLANNING COMMISSION MEETING  
JUNE 9, 2021**

The Imperial County Planning Commission convened a Meeting on Wednesday, June 9, 2021 at 9:00 a.m. in the Board of Supervisors Chambers, El Centro, California.

**Staff present:** Director, Jim Minnick/Assistant Director, Michael Abraham/Planner IV, Patricia Valenzuela on behalf of David Black/Planner III, Diana Robinson/Planner II, Mariela Moran/Clerks-Kimberly Noriega and Maria Scoville.

Chairman Rudy Schaffner called meeting to order at 9:00 a.m.

- I. Roll Call: Commissioners present:** Schaffner, Bergh, Cabanas and Pacheco in attendance.

**Zoom Call:** Kalin, Wright, Medina, Castillo and Roben.

**Absent:** N/A

- II. Pledge of Allegiance:**

- III. Approval of Minutes:** Chairman Schaffner entertained a motion to approve the Planning Commission Minutes for the **May 12, 2021** meeting as submitted by staff. Motion was made by Commissioner Kalin seconded by Commissioner Cabañas and carried on the affirmative vote by the Commissioners present Schaffner (yes), Kalin (yes), Bergh (yes), Cabanas (yes), Wright (yes), Medina (yes) and Pacheco (yes).

Commissioner Castillo and Roben were not present for the approval of the minutes; they joined the meeting after.

Chairman Schaffner made a change of the order of the Agenda; he started with item #6 due to a conflict of interest with Commissioner Cabanas

- 6. Consideration of Conditional Use Permit #19-0017, for a Planning Commission determination as submitted by Second Imperial Geothermal Company, proposing a fifteen (15) year renewal for the operation of the existing Second Imperial Geothermal facilities. The proposed Conditional Use Permit #19-0017 will allow for upgrades including the installation of two new water-cooled ORMAT Energy Converters (OECs) to replace six old units from 1992; 3 10,000-gallon isopenteny storage tanks; and, additional pipes to connect the proposed facilities. All proposed upgrades will be develop within the existing Heber 2 facility and fence line. CUP #19-0017 also proposes to renew the permitted life of the Second Imperial Geothermal facilities including the (Heber 2, Heber South, Goulds 2 plant facilities) for 15 years. Additionally, the Planning Commission will make a determination for a proposed Mitigated Negative Declaration (MND) and a Mitigation Monitoring and Reporting Program and approval of the Findings of Fact that the project is categorically exempt from CEQA under Government Section Code 15301, 15302 & 15061 and no further environmental documentation is necessary. This project is located at 855 Dogwood Road, south the town-site of Heber, California. The parcels are describe as Tract 44, Township 16 South, Range 14 East, SBB&M and identified as APN 054-250-031-000, on an approx. total of 40 acres. (Supervisory District # 2). The Commission took the following action,**

Jim Minnick, Director, gave a brief description of the project, and introduced Patricia Valenzuela, Planner IV, to read the project into the record.

Patricia Valenzuela, Planner IV, on behalf of David Black read the PowerPoint presentation of the project into the record and stated that the applicant ORMAT and our County Counsel were in attendance for questions from the Commission.

1 (See pg 2)



Chairman Schaffner asked if there was a representative(s) for this project to state their name and address for the record.

X Larry Grogan introduced himself on stated he was representing Walter and Tony Holtz currently a royalty and landowner within the geothermal district. Mr. Grogan stated that they had three things they wanted to bring up before the Commission. #1. Complete an inventory of the support pillars on the Holtz land. #2. Notify the Holtz of work planned on their property 48-hours in advance of work activities on their land. #3 Replacement of approximately 100' of 12" diameter 1" wall steel irrigation pipe. The problem is when you start to patch a drains if there is any type of materials stuck in the pipeline being repaired you get a buildup of material and it is very possible it could end up creating problems for the actual drainage itself. The only thing they are asking is for the Planning Commission, that you attach a condition that they would report their findings and pipeline reports. Mr. Grogan also stated that he would take any questions the Commission may have.

Chairman Schaffner asked Mr. Minnick if that is doable. Mr. Minnick stated yes if both parties agree. The Chairman asked for a geothermal representative to confirm all that the Holtz are request. Troy Owens of ORMAT stated that they agree with those conditions.

Chairman Schaffner, opened/closed the public portion of the meeting, there were no public comment he then turned it over to the Commission for any questions and/or comments. He then entertained a motion.

Commissioner Bergh asked ORMAT, what you think is causing the damage on the piers. Is it the vibration? Mr. Owens stated that he was correct and it is a seismic area were they are and is something that they always maintain moving forward with inspections and repairs needed. Mr. Bergh stated that some of those look somewhat old. Mr. Owens stated that he does not know which pillars he was looking at or their age, they are currently working on doing their inspection on all of those pillars.

- A. Motion made by Commissioner Kalin with the added conditions discussed by Mr. Grogan and seconded by Commissioner Bergh, on the affirmative vote by the Commissioners present as follow; Schaffner (yes), Kalin (yes), Bergh (yes), Castillo (yes), Wright (yes), Medina (yes), and Pacheco (yes). To approve of the Findings of Fact that project is categorically exempt from CEQA under Government Code Section 15301, 15302, & 15061 and that no further environmental documentation is necessary. Adopt the Mitigated Negative Declaration with the "Mitigations, Monitoring and Reporting Program" based on the Initial Study and any comments received showing no substantial evidence that the project will have a significant effect on the environment. Make the De Minimus Findings, as recommended at the November 19, 2020 EEC hearing, that the project will not individually or cumulatively have an adverse effect on Fish and Wildlife Resources, as defined in Section 711.2 of the Fish and Game Codes. In addition, adopt the Findings and Resolution(s), approving Conditional Use Permit #19-0017, subject to all the conditions of approval, and authorize the Planning & Development Services Department Director to execute the CUP Agreement.

Jim Minnick, Director stated that this project stands approved and adopted by the Planning Commission. If any interested party or member of the public wishing to appeal this decision to the Board of Supervisors, may do so within 10 days from today's hearing and submit the appropriate fee of \$650.00 to the Planning & Development Services Department.

1. Consideration of Time Extension #21-0014 for TR#00941 as submitted by Kilmainham Holdings, LLC requesting the sixth and final time extension of Tract Map #00941, for one (1) additional year. The Board of Supervisors approved Tract Map #00941, subject to conditions, on January 19, 1999. This time extension request is being made pursuant to the Subdivision Map Act and the property owner's intent of developing the land in the near future. This sixth and final extension would cover from June 15, 2021 to June 15, 2022. On properties legally described as a Portion of Section 11, 12 and Tract 148, Township 17 South, Range 15 East, SBB&M, in an unincorporated area of the County of Imperial, State of California. Assessor's Parcel Number (s) 059-210-035 (et al.) (1851 Carr Road, Calexico, CA), (Supervisory District #2). The Commission took the following actions:

Jim Minnick, Director, gave a brief description of the project, and introduced Diana Robinson, Planner III, to read the project into the record.

(see pg 9)

















Weeds  
Dividen



Office of the Agricultural Commissioner  
Sealer of Weights and Measures  
852 Broadway, El Centro CA 92243

Jolene Dessert  
Commissioner / Sealer

Rachel Garewal  
Asst. Commissioner / Sealer

January 23, 2024

Luis Valenzuela, Planner II  
Planning & Development Services Department  
County of Imperial  
801 Main Street  
El Centro, CA 92243

Re: orHeber 3 LLC, Second Imperial Geothermal Company LLC, Heber Field Company LLC CUP23-0020/021/022

Dear Mr. Valenzuela:

Our department received and reviewed the documents pertaining to CUP #23-0020/21/22 as submitted by orHeber 3 LLC, Second Imperial Geothermal Company LLC, Heber Field Company LLC. The applicant is proposing a geothermal plant and solar energy facility; 7MW parasitic solar facility, underground distribution line and project substation for CUP23-0020. The applicant also proposes to develop a 15-MW solar energy facility that will provide a parasitic load to the existing Heber 2 geothermal power plant (project) for CUP23-0021. Finally, for CUP 23-0022 the applicant proposes to develop up to six geothermal production wells, one geothermal injection well, and approximately 4,500 linear feet of new pipeline (project) that will support the proposed Dogwood OEC. The project is located at 855 Dogwood Rd. Heber, CA 92249.

Any plans to mitigate farmland taken out of production through the use of easements must ensure that the mitigating farm ground is in farmable condition. If the mitigation plan involves a Parceling Project, any parcels to remain in farming must align with existing infrastructure such as canals, delivery ditches, and surface & subsurface drainage systems. Mitigating farmland must be maintained in farmable condition, including repairs as needed to the infrastructure.

This project will require an ongoing Pest Management Plan to mitigate negative impacts to surrounding farmland from pests such as insects, vertebrates, weeds, and plant pathogens. The plan must be submitted to our office for approval prior to the issuance of a grading or building permit, whichever occurs first. Attached are the requirements that your company will need to meet.

APN 059-020-001 is currently designated as Farmland of Statewide Importance, as per the California Department of Conservation, Farmland Mapping and Monitoring Program (FMPP). Projects constructed on farm ground will also require a reclamation plan that would return the land to its pre-constructed agricultural condition at the conclusion or abandonment of the project. The reclamation plan needs to include a written description of the crop history of each field, water delivery system, drainage system, physical infrastructure, the parties responsible for conducting reclamation, and a detailed description of the recycling, and/or disposal of all solar arrays, inverters, transformers and other structures on each of the sites. The plan must be submitted to our office for approval prior to the issuance of a grading permit.

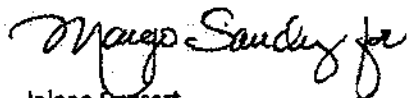


Office of the Agricultural Commissioner  
Sealer of Weights and Measures  
852 Broadway, El Centro CA 92243

Page 2 of 2

If you or the applicant has any questions, please contact me at 442-265-1500.

Respectfully,

A handwritten signature in black ink, appearing to read "Margo Sanders for".

Jolene Dessert  
Agricultural Commissioner







HEBER FIELD COMPANY  
GEOTHERMAL WELL  
THOMPSON NO. 2  
SECT. 3 T17S R14E  
EMERGENCY PHONE NUMBER  
(760) 353-8200 EXT. 40420

Verizon

1:25 PM

75%



Calexico

August 14, 2021 9:11 AM

Edit

HDR









May 31, 2005

Mr. Greg Griffith, Plant Manager  
Ormat Heber Field Company  
947 Dogwood Road  
Heber, CA 92249

(Via Facsimile)

RE: NOTICE OF DEFAULT

Dear Greg:

This letter serves as your official notice of default to Article 13 of that certain Geothermal Lease dated February 15, 1977 for Tract 244 which states "Lessee will keep Occupied Land in a clean weed-free condition at all times. If Lessor so desires, he may do the work required and bill Lessee for his actual costs."

Additionally, this letter serves as official notice of default to Article 13 of that certain Pipeline Easement dated September 1, 1984 which states in part "Grantee shall keep and maintain the Permanent Easement free and clear of all weeds, brush and debris, and shall mow, clean and clear the same as may be necessary to keep the same neat in appearance and free of such weeds, brush and debris and shall chemically treat or remove the same as may be necessary to conform to the requirements hereof. Grantee shall coordinate with Grantor as to the type and application thereof of all chemicals to be used on the Permanent Easement". It further states in Article 13 "If Grantee defaults in the performance of any of the above requirements, Grantor shall have the right to give notice to Grantee specifying the nature such default. If Grantee fails to correct such default within a reasonable time thereafter (reasonable time shall depend upon the nature of the default and in any event shall not exceed seven days), Grantor may correct the same and Grantee shall pay for the costs thereof."

As you know, we have discussed the problem with the weeds around the pipelines on several occasions over the last few months, both in person and in writing. You assured us it would be taken care of right away and to date nothing has happened except the problem has become significantly worse. We have been left with no choice but to take official action, thus this letter which serves as Heber Field Company's Official Notice of Default to both the Geothermal Lease for Tract 244 and the Pipeline Easement.

We explained to you several months ago we were contemplating leasing the ranches out this summer and one area of concern was the weed problem around the pipelines. We indicated to potential tenants this would be taken care of based on our conversation with you. The weed problem has the potential of damaging us monetarily by reducing the optimum rental amount as well as by already damaging our credibility. Losses could exceed \$25,000 over the next three years because of this problem.



Mr. Greg Griffith, Plant Manager  
May 31, 2005  
Page Two

This problem must be dealt with immediately. We expect a plan of action to be presented in writing by the end of the week which will detail how Heber Field Company will cure the default.

Both the Lease and the Pipeline Easement give us the option of cleaning up the weeds. This has been discussed and to date you have indicated that you were going to take care of it, but nothing has happened. Unfortunately, now the problem has become a much greater task and will require significantly more time and effort.

If it is left up to us as Lessor to clean up the weed problem, which is within our rights under the Lease we would expect payment no later than seven (7) days after presenting an invoice for payment.

It is unfortunate we had to take such an extreme and official position to get action on this problem; however, we were left with no other choice. Thank you in advance for your immediate attention to this. We look forward to hearing from you with a solution no later than the end of this week.

Sincerely,

Walter and Toni Holtz  
102 Ralph Road  
Imperial, CA 92251  
(760)355-2872

cc: Heber Field Company  
980 Greg Street  
Sparks, NV 89431  
Attn: Director of Asset Management

cc: Larry Ebner, Morrison and Foerster, LLP

✓ #1 - final result  
Dinner +  
started weed spraying  
project then quit

Spills

Diviner

[illegible]









## SECTION 3 Operation and Maintenance Plan

The Dogwood Project is located within APN 054-250-31; APN 059-020-001; and APN 054-250-017, near the existing geothermal energy complex located at 855 Dogwood Road, Heber, California. The following non-structural water quality best management practices (BMPs) are proposed for the Project:

- Good Housekeeping
- Preventative Maintenance
- Spill Response
- Material Handling and Storage
- Employee Training
- Waste Handling/Recycling
- Record Keeping and Internal Reporting
- Erosion Control and Site Stabilization

(See next pages 8+9)

### 3.1 MAINTENANCE RESPONSIBILITY

The Heber Field Company (subsidiary of ORMAT) is the property owner and is responsible for BMP maintenance. Since HFC/ORMAT is the owner, no access agreement or easement is necessary to maintain the BMPs. HFC/ORMAT funds will be used to support Operation and Maintenance (O&M) activities to maintain BMP functionality. HFC/ORMAT maintenance staff are expected to perform the maintenance.

### 3.2 MAINTENANCE ACTIONS AND FREQUENCY

Maintenance actions are generally grouped into two categories: routine and intermittent.

#### Routine Maintenance

Routine inspections of the Project facilities and grounds will be performed annually. During these inspections staff evaluate if there is significant accumulation of trash, debris, or sediment that would need to be removed. Cleaning is done as needed based on the results of the inspections. The inspection frequency may be adjusted based on experience at the site (e.g., if inspections rarely find any material that needs to be cleaned out, then the inspection frequency can be reduced).

#### Intermittent Maintenance

Intermittent maintenance activities include more substantial maintenance that is not required as frequently as routine maintenance. The most likely form of intermediate maintenance is removal of sediment from existing drainage infrastructure and detention basins where necessary to maintain the capacity of the basins. Given that the Project Site is pervious and will not be graded or significantly altered and that rain is infrequent in Heber, this type of maintenance is expected to be required approximately once every year.



### 2.1.1 Good Housekeeping

As a component of this program, good housekeeping practices are performed so that facility is kept in a clean and orderly condition. Proper housekeeping practices include:

- Periodic cleanup of equipment, as needed, based upon facility inspections,
- Sweeping impervious surfaces, as needed, based upon facility inspections,
- Proper waste disposal practices and covering of waste storage areas at all times,
- Proper storage and covering of materials at all times,
- Removal of any oil-stained soil/gravel, especially around equipment locations and loading areas,
- Cleaning of significant oil and grease stains on surfaces that drain to the stormwater drainage areas, and
- Cleaning the exterior of oil containers on hydraulic machinery upon discovery of an accumulation of hydraulic fluid.

### 2.1.2 Preventative Maintenance

As a component of this program, operations and maintenance staff perform preventative maintenance of stormwater management devices to assure their proper operation. Preventative maintenance of stormwater management devices includes the following:

- Cleaning of accumulated sediment, potential contaminants, and debris from the Site;
- Inspection of secondary containment structures as part of the regular daily visual inspections;
- Maintenance and inspection of secondary containment structures, as needed, based upon inspections;
- Daily inspection and maintenance of equipment and associated piping and valves as required by preventive maintenance procedures;
- Inspection and maintenance of rainfall protection coverings for waste storage bins and receptacles on a periodic basis; and
- A comprehensive preventive maintenance schedule is performed on all facility operations equipment as part of routine procedures.

### 2.1.3 Spill Response

Spill prevention and response is performed according to the facility's SPCC Plan. Copies of this plan are located in the on-site ORMAT office.

A limited amount of spill cleanup equipment is stored onsite. This equipment is found within hazardous material storage areas. Detailed information concerning spill cleanup equipment and resources is included in the SPCC Plan.

The volume of containment areas surrounding each potential source is designed to hold the contents of a spill from the largest vessel / container. The SPCC Plan summarizes the capacity of potential sources and volume of the respective secondary containment areas.

#### *2.1.4 Material Handling and Storage*

The primary hazardous material to be stored on-site is isopentane. The additional isopentane will be stored in the appropriately designed (2x) 20,000 gallon above ground storage tanks, as well as the existing (2x) 10,000 gallon tanks for Heber 2 OEC. The isopentane is used as a motive fluid for geothermal energy generation and is not directly discharged, rather is released as an air emission. Therefore, the isopentane would not be directly exposed to stormwater. All other hazardous waste would be stored in 55-gallon drums and other Department of Transportation (DOT) approved packaging within a contained area located on the Site. Stormwater that accumulates within the hazardous material and hazardous waste containment area is collected via vacuum truck and disposed of off-site or recycled back into the production system. A bill of lading, non-hazardous waste manifest or uniform hazardous waste manifest is used to document all such shipments.

#### *2.1.5 Employee Training*

A combined annual Storm Water Compliance / SPCC Plan training program is conducted for the Pollution Prevention Team members and operations personnel. Participants undergo stormwater management training for all areas and operations at this facility, as well as reviewing the spill response, control and countermeasure procedures. Other stormwater training is done on an as-needed basis.

#### *2.1.6 Waste Handling/Recycling*

At times, product or oily waste streams are transferred from the facility in 55-gallon drums. A bill of lading, non-hazardous waste manifest or uniform hazardous waste manifest is used to document all such shipments. Operations or contractor personnel closely monitor loading of transport vehicles. Collection and satellite accumulation containers for hazardous and non-hazardous waste are kept covered to prevent contact with stormwater. Appropriate spill control equipment and supplies are kept readily available in case of a spill.

#### *2.1.7 Record Keeping and Internal Reporting*

All inspection, sampling, maintenance, corrective action records, and any other information that is a part of this plan are maintained at the facility office. All records are maintained for a period of at least three (3) years.

#### *2.1.8 Erosion Control and Site Stabilization*

Permanent BMPs used at the existing HGEC facility to prevent soil erosion include routing runoff along earthen swales or drainage areas, and preventing run-off with berms along certain sections of the property line. Temporary BMPs used at the Site to prevent soil erosion include the use of sandbags, crushed rock, and silt fence. These BMPs are used as and where needed, especially in areas that are undeveloped or in the process of being developed.

ieothermal Royalty Owners Group  
a Rossi  
96, Aptos, CA 95001

SAN JOSE CA 950

3 APR 2024 PM 4 L



RECEIVED  
APR 10 2024

BY: \_\_\_\_\_

HDR Engineering, Inc.  
591 Camino de la Reina, Suite 300  
San Diego, CA 92108-3104

92108-310575



Heber Geothermal Royalty Owners Group

P.O. Box 96, Aptos, CA 95001

(831) 320-8131

April 2, 2024

Jim Minnick  
County of Imperial  
Planning & Development Services Department  
801 Main Street  
El Centro, CA 92243

Subject: Conditional Use Permit Application for Dogwood Geothermal Energy Project  
CUP 23-0020, CUP 23-0021, CUP 23-0022

Dear Mr. Minnick:

I represent Heber Geothermal Royalty Owners Group (HGROG) consisting of a group of approximately 57% of the landowners under various Geothermal Leases and Unit Agreements initially dating back to February 15, 1977 and subsequently amended via various operators and now operated and binding to Ormat for the Heber Geothermal Complex. This letter is in follow-up to the recent Environmental Evaluation Committee meeting held on February 8, 2024.

At the meeting, Larry Grogan, geothermal consultant for several Imperial County landowners and HGROG members, brought forth several areas of concern to the landowners and farmers of the agricultural lands surrounding this proposed project and existing CUP's in effect as follows:

1. Pipeline Maintenance
  - a. Cracked and crumbling stanchions not maintained by Ormat and when reported as a potential safety hazard, ignored by Ormat forcing landowners to seek county assistance and red tag procedures in July 2023. The issue was finally repaired on January 29, 2024, a little more than a week before the EEC Hearing on February 8, 2024. Refer to Exhibit 1.
2. Weed Control and Abatement
  - a. Uncontrolled noxious weeds growing around wells, pipelines and landowner easements including Ormat owned facilities that spread to surrounding agricultural lands and spread seed, harbor potential viruses and other pathogens such as mildew. Refer to Exhibit 2.
  - b. Per existing Conditional Use Permits, Ormat is required to maintain weeds around wells, pipelines and easements. Ormat fails without consequence from

Committee Members

Steve Holtz, Toni & Walter Holtz, Alex Abatti, Jr., William Plourd, Mary Jackson, James Hawk, Carol Saikhon, Nancy Saikhon-Borelli, Tim Labrucherie, Suzanne Labrucherie Enis, Larry Smith, Larry Osburn, Russ Love

county officials. Weed abatement is also addressed in landowners leases, existing pipeline and wellsite agreements.

- c. Landowners have been requesting Ormat maintain surface structures in a clean and weed free condition for as long as Ormat has been operating the Heber Geothermal facilities dating back to 2004 without response or action and remains in breach of landowner agreements.
  - i. Section 17 of Lease - "Lessee will keep Occupied land in a clean and weed-free condition at all times..."

- 3. Standing water in well sources and leaks from poorly maintained pipelines. Refer to Exhibit 3
  - a. Potential harm to farmlands.
  - b. Potential for mosquito infestation.
  - c. Potential discharge of brine into public Imperial Irrigation District drains.

We want to state clearly, we are not opposed to this project, however based on many years of failed attempts in dealing with Ormat, on clearly stated conditions in existing Conditional Use Permits, we are requesting the county assist it's landowners with the following additional requirements as a condition of approval of this new project to ensure Ormat is a good steward to our lands:

- 1. Require routine and documented inspection of pipelines, wells and surface equipment on landowners property for structural integrity for safety to farm operators, tenants and the surrounding agricultural lands.
- 2. Require Ormat to contract with a Botanist or allow the County Ag Department to inspect pipelines, pipeline easements, wells and any surface equipment monthly for weeds with suggested remediation efforts with time restrictions.
- 3. Environmental inspection to monitor mosquitoes in standing water.
- 4. Require Ormat to designate a contact that landowners can report surface issues to with the requirement to respond and report remediation plan within 7 days of notification.
  - a. Failure to respond will result in the landowner being allowed to take action to cure by the removal of the issue and recover cost from Ormat. Failure to cure or reimburse landowner shall result in Red Tag measures.
- 5. Require Ormat to develop and maintain an Inspection and Remediation Report covering requirements #1, #2, #3 and #4 above that will be submitted to the affected landowner and Heber Geothermal Royalty Owners Group on a quarterly basis. In addition, report related to #2 (Botanist/Ag Department) to be submitted to the Ag Commissioner's Office.
- 6. Develop a method for enforcement by county officials for Ormat's failure to comply with existing and new CUP's.

The members of HGROG are hopeful that you will consider our request and look forward to working collectively with you to ensure these applications are approved with some added protections for Imperial County landowners and farm operators. These requirements are not



unreasonable and should be considered good business practices for the general safety and well being of our county and the surrounding community in the vicinity of this project.

Warm Regards,

For Heber Geothermal Royalty Owners Group (HGROG)



Linda Scaroni Rossi  
Member and Treasurer

CC:

Luis Valenzuela, Planner II, County of Imperial, Planning Department

HDR Engineering, Inc.

Rudy Schaffner, Chairman, Imperial County Planning Commissioner, District 5

Carson Kalin, Vice-Chairman, Imperial County Planning Commissioner, District 4

Dennis Bergh, Supervisor, Imperial County Planning Commissioner, District 2

Sergio Cabanas, Supervisor, Imperial County Planning Commissioner, District 2

Scott Wright, Imperial County Planning Commissioner, District 3

Ernesto Medina, Imperial County Planning Commissioner, District 1

Katheryn Cynthia Dunn, Imperial County Planning Commissioner, District 4

Russell Roben, Imperial County Planning Commissioner, District 3

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Michael W. Kelley, Imperial County Board of Supervisor, Division 3

Ryan E. Kelley, Imperial County Board of Supervisor, Division 4

John Hawk, Imperial County Board of Supervisor, Division 5

Larry Grogan, Consultant

Heber Geothermal Royalty Owner Group Members



EXHIBIT 1

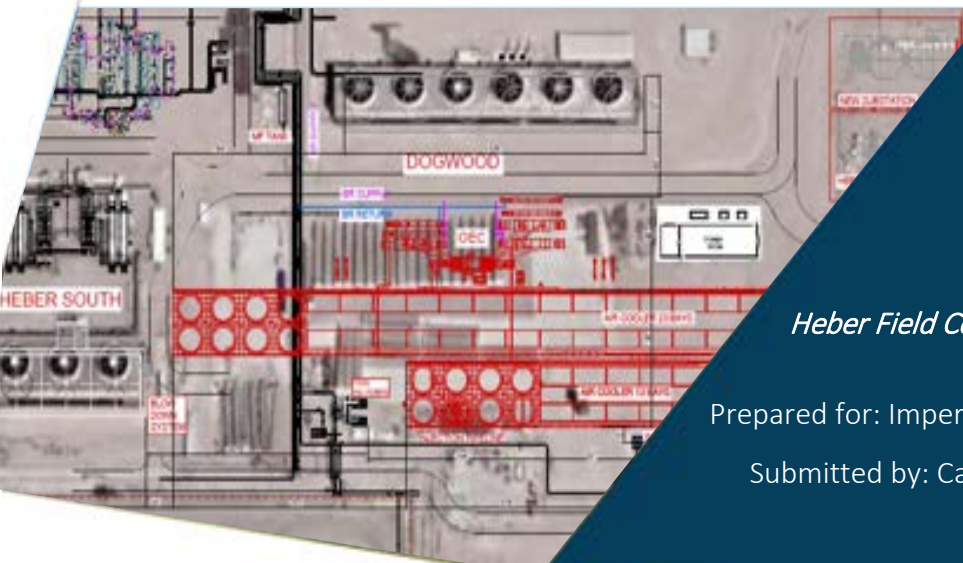


EXHIBIT 2



EXHIBIT 3





## Visual Resources Baseline & Sensitivity Report

*Dogwood Geothermal Energy Project  
Heber 2 Solar Energy Project  
Heber Field Company Geothermal Wells & Pipeline Project*

Prepared for: Imperial County Planning & Development Services

Submitted by: Catalyst Environmental Solutions (on behalf of ORMAT)

**March 21, 2024**



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## SECTION 1

# Introduction

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This report has been prepared to characterize the existing visual and aesthetic resources and potential sensitive receptors<sup>1</sup> in the viewshed of the proposed Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and the Heber Field Company Geothermal Wells and Pipeline Project (collectively, the Project). A key objective of this report is to assess potential views of the proposed facilities from public areas (i.e., parks, schools) and potential sensitive receptors by performing viewshed modeling and collecting data (photographs, GIS points, field notes) on the line-of-sight and potential degree of contrast of the proposed facilities. This report adheres to the U.S. Bureau of Land Management's (BLM) protocols for assessing potential impacts on an existing visual landscape and identifying Key Observation Points (KOPs) for visual/aesthetic analysis.

### Project Description

OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the "Applicants", and all wholly owned subsidiaries of Ormat Technologies, Inc. [Ormat]), proposes to develop a new 25-megawatt (MW; net generation) geothermal energy facility supported by a 7 MW parasitic solar energy facility (Dogwood Project); a 15 MW parasitic solar energy facility for the existing Heber 2 geothermal plant (Heber 2 Parasitic Solar Project); and, up to six geothermal production wells, one injection well, and supporting pipeline segment (Heber Field Company Wells & Pipeline Project). Below is a breakdown of the proposed developments, provided by the Applicant:

#### **Dogwood Project (OrHeber 3, LLC) – CUP No. 23-0020**

- One (1) Integrated Two Level Unit (ITLU) Air Cooled Ormat Energy Converter (OEC) generating unit
- Two (2) 25,000-Gallon Isopentane Tanks for Motive Fluid Storage
- One (1) Project substation for transmission to the grid
- Ancillary and auxiliary facilities (including, compressed air system and fire prevention system)
- A seven (7) megawatt (MW) solar photovoltaic field dedicated to the Dogwood geothermal plant
- Interconnecting cable line from Dogwood solar facilities to Dogwood geothermal plant

#### **Heber 2 Parasitic Solar Energy Facilities (Second Imperial Geothermal Company) – CUP No. 23-0021**

- A fifteen (15) MW solar photovoltaic field dedicated to the Heber 2 geothermal plant
- Interconnecting cable line from Heber 2 solar facilities to Heber 2 geothermal plant

#### **Wells and Pipeline (Heber Field Company, LLC) –CUP No. 23-0022**

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<sup>1</sup> Sensitive receptors are those populations that are more susceptible to visual effects than the population at large. Sensitive receptors can include, for example, long-term health care facilities, religious centers, hospitals, retirement homes, schools, playgrounds, parks and recreations centers, and public athletic fields/facilities.

- Up to six (6) new production wells (3 sited, 3 unsited)
- One (1) new injection well
- Brine pipelines

The total project disturbance footprint is approximately 124 acres, as provided in Table 1 below.

**Table 1 – Project Disturbance Area Estimate (Acres)**

<i>Facility</i>	<i>Disturbance (Acres)</i>
Geothermal Energy Facilities and Project Substation	5.0 acres
Solar Field and Connection Line	~95 acres
Production and Injection Wells and Connecting Pipeline	~24 acres
<b>TOTAL</b>	<b>124 acres</b>

Two solar fields will be developed directly adjacent to each other within the same parcel – One to provide auxiliary power to the Dogwood Project and one for the existing Heber 2 plant. One 7 MW solar photovoltaic field dedicated to the Dogwood Project (Dogwood Solar) would stand 10 feet tall. One 15 MW solar photovoltaic field dedicated to the Heber 2 geothermal plant (Heber 2 Solar) directly adjacent to the south would stand 10 feet tall. Due to their proximity and heights, Dogwood Solar, Heber 2 Solar, the XMD switch and the two proposed production wells have been analyzed below as an approximately 95-acre combined parcel. The energy generated by the combined solar facilities would be collected at an on-site XMD and switch on the western edge of the site adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cables would span approximately 20-feet overhead across Dogwood Road and Wiloughby Road, supported by a mono-pole on either side of the respective street. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays. The Project proposes two production wells situated within the combined solar field and one situated to the north directly adjacent to an existing production well. These wells would be surrounded by chain-link fencing.

### Project Location

The proposed facilities would be located on APN 054-250-031; APN 059-020-001; and APN 054-250-017. APN 054-250-31 is within the existing Heber 2 Geothermal Energy Complex (HGEC) located at 855 Dogwood Road, Heber, CA, and APN 059-020-001 and APN 054-250-017 are immediately southeast and east, respectively, of the HGEC (Figure 1). All proposed facilities are located within the Imperial County Geothermal Overlay Zone that allows for Major Geothermal Projects to be permitted via a Conditional Use Permit (CUP) process (Imperial County General Plan; Renewable Energy and Transmission Element Update of County of Imperial General Plan, 2015; Figure 1). The HGEC is comprised of three stand-alone geothermal power plants: Heber 2, Heber South, and Goulds 2, and is completely devoted to geothermal energy generation.

The Dogwood Project would be located within the HGEC (APN 054-250-31; (5.7 acres) in an area currently used for materials storage and supporting operations. The development area for the Dogwood Project is completely disturbed from energy generation operations and devoid of any vegetation,

surface waters, or existing facilities that would require relocation or demolition. The Dogwood solar facility would be developed southeast of the HGEC (APN 059-020-001), described below.

The Dogwood and Heber 2 parasitic solar photovoltaic facilities would be located immediately southeast of the HGEC (APN 059-020-001; 105.22-acres). Two separate solar fields will be developed – one to provide auxiliary power to the proposed Dogwood Project and one for the existing Heber 2 plant. Currently the solar sites are used for the cultivation of crops, specifically alfalfa (Figure 2).

The new geothermal production wells and associated pipelines will be split between two parcels. Two of these wells would be located within the solar energy site (APN 059-020-001) with a small segment of pipeline (approximately 1,000 feet) developed within the solar site connecting to the existing pipeline network. A third well would be installed adjacent to an existing geothermal well approximately 1,500 feet due east of the HGEC (APN 054-250-017). This well would utilize the existing pipeline network. APN 054-250-017 is currently used for the cultivation of crops, specifically alfalfa. The new injection well would be located adjacent to the proposed Dogwood geothermal plant within the HGEC (Figure 2).

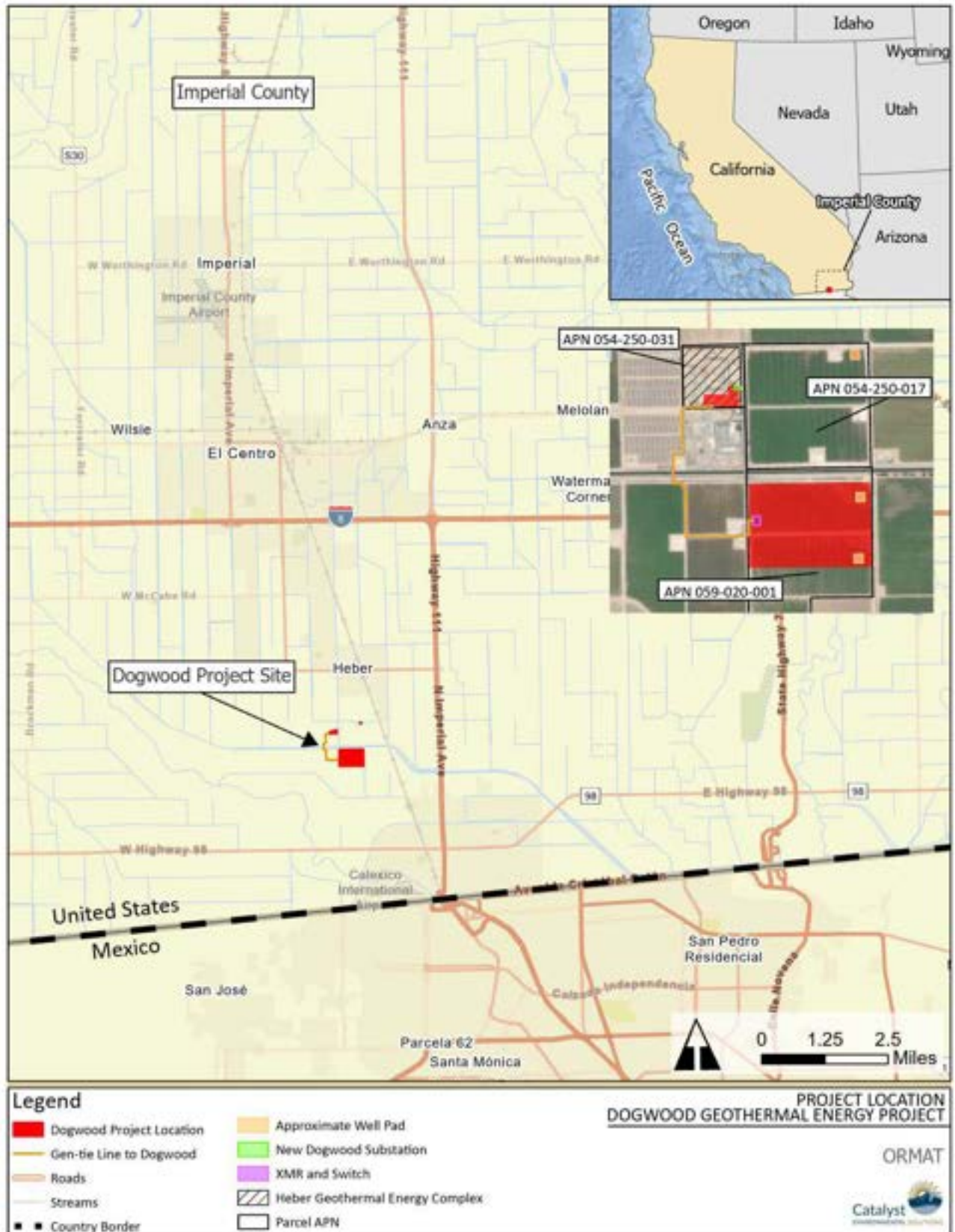
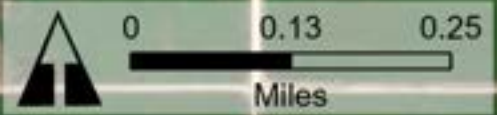


Figure 1: Dogwood Geothermal Energy Project





- Legend**
- |                                           |                                       |                           |
|-------------------------------------------|---------------------------------------|---------------------------|
| Dogwood Geothermal Plant                  | New Dogwood Substation                | Existing Pipeline         |
| Dogwood Parasitic Solar Energy Facilities | XMR and Switch                        | New Pipeline              |
| Heber 2 Parasitic Solar Facilities        | Heber Geothermal Energy Complex       | Proposed Production Wells |
| Approximate Well Pad                      | Isopentane Storage Tanks (25,000-gal) | Injection Well            |
| Existing Heber Substation                 | Medium Voltage Cable                  |                           |

**EXISTING FACILITIES AND PROPOSED DOGWOOD AND SOLAR ENERGY FACILITY**

## Existing Conditions

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The proposed facilities would be located on APN 054-250-31; APN 059-020-001; APN 054-250-017, near the existing Heber Geothermal Energy Complex (HGE) located at 855 Dogwood Road, Heber, CA. The HGE is comprised of three stand-alone geothermal power plants: Heber 2, Heber South, and Goulds 2, and is completely devoted to geothermal energy generation. Surrounding land uses in the Project vicinity are primarily for industrial facilities, energy facilities, and agricultural cultivation. Solar energy facilities and agricultural cultivation are directly west; a construction/aggregates company is adjacent to the south; agricultural operations are present to the north and east; and, geothermal well pads and pipelines are present throughout the local vicinity. Imperial Irrigation District (IID) irrigation canals are also present throughout the Project vicinity.

Interstate 8 (I-8), located approximately 4.5 miles directly north, provides primary highway access to the HGE. Dogwood Road stems off of I-8 and provides immediate site access. From the south, Wiloughby Road runs west-east approximately 1,700 feet from the site and connects to Dogwood Road, providing immediate site access. Dogwood Road is a regional arterial under the 2013 Imperial County Long Range Transportation Plan. Significant transmission lines and towers are present along Dogwood Road.

The Dogwood Project would be located within the existing HGE in an area currently used for materials storage and is completely devoid of any vegetation or surface water features. The solar facility areas are presently used for cultivation. The proposed well pads would also be located in areas presently used for agriculture.

The area is characteristically flat with minimal elevation changes throughout the project area. The primary contributor to the otherwise flat project area would be the New River which runs to the south along the project area. Views in this area are characterized by sparse development and agricultural land with minimal topographic features. Residences, transmission lines, sparse vegetation such as trees, and transportation corridors such as roads are discernable throughout the Project area.



## SECTION 2 Methods

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The methods used to determine the Project site(s) existing conditions and the subsequent change with the implementation of the project was determined using aerial and ground level imagery in conjunction with aerial topography. Field surveys were conducted by Catalyst on March 9, 2023 to locate and document visually sensitive areas. During the survey field staff photographed the existing conditions and visibility of the project area from various potential Key Observation Points (KOPs).

Assessments of existing visual conditions were made based on professional judgment that considered sensitive receptors and sensitive viewing areas in the Project areas. A total of eight locations were identified as KOPs to represent areas most sensitive to the project's implementation and are described in Section 4. Appendix B which contains a photolog that shows each KOPs existing view for reference. These KOPs serve as the key data for this visual resource baseline report.

The KOP locations were then implemented in the viewshed report shown in Appendix A, which was developed using ArcGIS. Figure 2 highlights the three aspects of the Project considered for visual impact analysis. These include the proposed geothermal facility (approximately 25 feet tall), two proposed overhead distribution lines across Dogwood Road and Wiloughby Road (3-20 feet tall) , and the two solar fields (approximately 10 feet tall, aggregated into one square), and the northern most geothermal production well area (approximately 8-10ft tall). The combined solar field area contains a XMD switch, new pipelines, and two geothermal production well areas however these features would not exceed 10 ft and would be primarily obstructed from view by the surrounding solar field. The blue area of Appendix A represents visibility based on the topography of the area. This means the Dogwood Solar and Heber 2 Solar (combined solar field), Dogwood Project, and overhead distribution line are all visible from that location at 6 feet off ground surface (human height) with no natural existing topographical obstructions. The extent of the model extends to 3 miles which is the maximum distance of human sight. The following analysis of the KOP with the projected view of the Project areas was conducted using best professional judgement using existing facilities and the viewshed model (Appendix A) to determine the degree of overall aesthetic change and contrast.

During the field survey, each KOP viewpoint was photographed using a 35mm full frame, fixed lens Canon EOS camera. Camera positioning was identified through field staff notes and subsequent aerial imagery mapping. The photos were taken at the eye level of a 5'11" field scientist.

## SECTION 3 Description of Potential Visual Effects

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This section describes views from each KOP from their existing condition and a view of the project based on Viewshed analysis and existing KOP locations. KOP locations are shown below in the viewshed analysis figure in Appendix A. Photos of KOPs and their existing settings are attached in Appendix B.

### 3.1 KOP 1: View from Heber Elementary School

#### 3.1.1 Existing View

KOP 1 is Heber Elementary School located at 1052 Heber Ave., Heber, CA approximately .66 miles northeast of the project at the closest edge. The picture was taken from the corner of 14th St. and Heber Avenue, the major transportation corridor to Heber Elementary School, looking south/southwest down Heber Ave. The view of the Project area is characteristically flat. There is a mountain range present in the background but has low scenic quality. Gen-tie lines from the current energy facility are visible in the distance along the horizon. Residencies are present in the foreground, and some vegetation provides screening of the Project areas. Existing gen-tie lines are present in the foreground. The existing Heber 2 complex is not in view from KOP 1, but the solar field area is visible. See Figure 1 in Appendix B for further reference.

#### 3.1.2 View with Project

The north side of Dogwood Solar, and the overhead cables across Dogwood Road will be visible from KOP 1 looking south down Heber Avenue. These structures would be detectable against the current landscape but contribute an overall weak to moderate level of contrast. From a level elevation, the combined solar field Solar would appear as a generally dark uniform rectangle in the background of the KOP. Portions of the landscape obstructed by Dogwood solar would be the bottom half of existing gen-tie lines, and the silhouettes of indistinguishable building structures in the background. The solar arrays do not produce glint or glare from this KOP (SWCA 2023). The mono poles and lines associated with the Project, would assimilate with the numerous existing gen-tie lines in the background.

### 3.2 KOP 2: View from Closest Residence to the North

#### 3.2.1 Existing View

KOP 2 is the closest residence located at 20 E. Fawcett Road, Heber, CA approximately .5 miles due north/northeast of the Project site. All Project areas as well as the existing HGEC facility are visible from this location. The existing view is characteristically flat in the foreground and middle ground, consisting primarily of tan and green agricultural land. Existing gen-tie lines heading southbound along Dogwood Road are present in front of the existing Heber 2 facility. The existing facility appears as dark low lying uniform squares and rectangles against the horizon. Sparse trees are present off to the west. The gen-tie lines and the vegetative features provide minimal screening or obstruction of the view of the project area. See Appendix B Figure 2 for further reference.

### 3.2.2 View with Project

Approximately half of the Dogwood Project's northside, the combined solar facility, the northern production well, and the overhead cables across Dogwood Road would be visible from KOP 2. The Project would contribute an overall weak to moderate level of visual contrast against the existing view. The Dogwood Project would assimilate in shape, scale, and color with the existing Heber 2 facility and surrounding features. The production well and fenced area would be situated directly adjacent to an identical well and fenced area. The production well and chain link fence would create a vertical feature that assimilates with the existing setting and provides minimal screening of the background. The combined solar field would be the most prominent portion of the project from KOP 2. The combined solar field would blend in against the background of dark space vegetative features and surrounding facilities as a dark metallic horizontal bar. The combined solar field does not produce glinting or glaring effects visible from KOP 2 (SWCA 2023).

## 3.3 KOP 3: View from Heber Childrens Park

### 3.3.1 Existing View

KOP 3 is Heber Childrens Park located at 39 Crane Lane, Heber, CA approximately 1 mile north/northeast of the Project site. The area is characterized by a Childrens Park with a primary colored recreational structure, open space, and a comparatively medium density of trees. The area is also characterized by residential building structures, transparent fencing in the foreground, and solid white fencing in the background. Local transmission lines and streetlights are visible throughout the foreground. The view of the current project location or any of its associated facilities or transmission lines are completely obstructed by neighborhood residencies and surrounding vegetation in the foreground. See Appendix B Figure 3 for further reference.

### 3.3.2 View with Project

The view of the Project location including its associated facilities or distribution lines would remain completely obstructed by neighborhood residencies and surrounding vegetation. Therefore, the Project would not contrast with the existing landscape of KOP 3.

## 3.4 KOP 4: View from Closest Residence to the South/Southeast

### 3.4.1 Existing View

KOP 4 is from the closest residence approximately .75 miles south/southeast of the existing project site located at 104 Jasper Road, Heber, CA. From the closest edge of KOP 4 looking to the west/northwest, the existing geothermal facilities and transmission lines area visible in background. The view from KOP 4 is characteristically flat with an agricultural field in the middle ground. In the foreground, vegetation, chain-link fencing, and transmission lines are present. These features provide a combined moderate obstruction of the existing power plant area which consists of rectangular and tan shapes in the middle ground and gen-tie lines supported by monopoles running throughout the middle ground and background. The view does not include the combined solar field area and is not considered section 4.4.2 for analysis. See Appendix B Figure 4 for further reference.

### 3.4.2 View with Project

The overall contrast of the Project on the surrounding landscape from KOP 4 would be weak. The Dogwood Project and the northern production well would be partially visible from KOP 4. The visibility of the project area from KOP 4 is partially obstructed by vegetation in the foreground. The project would assimilate in color and form with the existing Heber 2 facility. The size and color of the Dogwood Project would be consistent with the existing facilities and would not deviate from the silhouette line of buildings to the north/northwest. The northern production well would be screened by an existing production well and fencing situated in the foreground. The vertical feature and would assimilate in form and color with the existing setting.

## 3.5 KOP 4A: View from Closest Residence to the South/Southeast

### 3.5.1 Existing View

KOP 4A is from the closest residence approximately .25 miles south/southeast of the existing project site located at 104 Jasper Road, Heber, CA. From the closest edge of KOP 4A looking to the south/southeast the proposed solar site would be from the residence in the middle ground. A view of the Dogwood Project is not included from this angle. The landscape is characteristically flat and agricultural with vertical distribution line poles and visually soft lines to connect them. An IID water canal is present in the immediate foreground. Beyond the canal, low-lying vegetation that are shades of tan and green, a vertical water pump, and existing gen-tie powerlines are present. In the background along the horizon, dark sparse buildings and vegetative figures are present. See Appendix B Figure 5 for further reference.

### 3.5.2 View with Project

The combined solar facility and the overhead cables at Dogwood Road would present a moderate to strong contrast to the existing landscape. The combined solar field would be a prominent figure and be visually bold against the overall landscape character visible from KOP 4A. The rectangular shape of solar panels would contribute a generally uniform and symmetrical rectangle form across the view of the foreground. Portions of the sparse building and vegetative features in the background of the landscape would be obstructed. The bottom half of existing gen-tie structures in the background would be obstructed but the tops of the vertical poles would remain visible. View of the proposed pipeline, two southern production wells, XMD switch, and cables would be primarily obstructed by solar panels in the foreground. The solar panels would not produce a source of glint or glare from this KOP (SWCA 2023).

## 3.6 KOP 5: View from Intersection of Dogwood Road and Wiloughby Road

### 3.6.1 Existing view

KOP 5 is located at the Intersection of Dogwood Road and Wiloughby Road approximately 1,000 feet south of the Heber 2 facility. Looking toward the project, medium density transmission lines and poles are present in the foreground, reducing in apparent size as they continue north along Dogwood Road. Additionally, an IID canal is present in the foreground with a bridge connecting both sides of Dogwood Road. Dense vegetative features in front of the Project area provide screening from the road so that

only the tops of the geothermal plants are visible. The combined solar facility is not included in this angle and is not considered in the section 4.6.2 analysis. See Appendix B Figure 6 for further reference.

### 3.6.2 View with Project

The Dogwood Project, overhead cables at Wiloughby Road, and northern production well area would be visible from KOP 5 and present a weak contrast to the existing landscape. The dense vegetative features in front of the Dogwood Project would provide screening so that only the rectangular tops of the facility would be visible. The Dogwood Project would obstruct the current view of the Heber 2 facility however it would only increase the relative size of the existing white form at the top of the vegetation line. The project would assimilate color, line, and texture to the existing setting. The addition of overhead lines across Wiloughby Road would add to the density of the existing gen-tie and transmission lines present but would absorb into the existing form and color of the existing landscape. The northern production well facility would be absorbed into the background forms, features, and colors of the existing setting.

## 3.7 KOP 5A: View from Intersection of Dogwood Road and Wiloughby Road

### 3.7.1 Existing View

KOP 5A is located at the Intersection of Dogwood Road and Wiloughby Road and looks south toward the proposed Solar fields, directly across Wiloughby Road. The area is characteristically flat agricultural land, and the combined solar field would be directly visible from the intersection. There are limited features visible from KOP5A with minimal transmission lines and no vegetation obstructing the view in the foreground aside from flat green/tan grassland. An approximately 3-foot tall pipeline is partially visible as a linear feature spanning across the proposed solar field area and proposed transmission cable area. Existing transmission lines, sparse buildings and thin, dense, vegetation is visible approximately 1 mile away and further. See Appendix B Figure 7 for further reference.

### 3.7.2 View with Project

The combined solar field and overhead cables at Dogwood Road would result in a moderate to strong contrast with the existing character of the surrounding landscape. The combined solar facility would add a prominent rectangular in form with vertical features underneath to the foreground of an otherwise flat area. The combined solar field would appear dark and metallic against an otherwise green and tan area. The existing transmission lines, sparse buildings and thin, dense, vegetation in the background would mostly be obstructed by the combined solar facilities. The two southern production wells, pipeline, and XMD switch would be obstructed by solar panels in the foreground. The overhead cables intersecting Dogwood Road would add to the density of the existing gen-tie and transmission lines present but would absorb into the existing form and color of the existing landscape. The solar panels would not produce a source of glint or glare from this KOP (SWCA 2023).

## 3.8 KOP 6: View from Margarito Huerta Jr. Park

### 3.8.1 Existing view

KOP 6 is located at the furthest edge of Margarito Huerta Jr Park at the intersection of W. Hawk Street and Palm Avenue, approximately 1.25 miles north of the proposed geothermal facility. The area is characterized by dense residential buildings and some vegetative features with Palm Avenue serving as a viewing corridor to the Project area. Residential transmission lines can be seen in the middle ground. The Heber 2 geothermal units can be seen in background facing south down Palm Avenue. Residences and vegetation provide some screening of the existing geothermal units. The combined solar field area is completely obstructed by residential features and cannot be seen from KOP 6. Therefore, these facilities are not considered in Section 4.8.2 analysis. See Appendix B Figure 8 for further reference.

### 3.8.2 View with Project

The Dogwood Project would be visible add a weak level of contrast with the existing character of the surrounding landscape. From this KOP, the Dogwood Project would be situated behind the existing Heber 2 facility and is almost completely obstructed. The tops of the facility would be partially visible in the background, however they would significantly assimilate with the existing form, color, line, and texture of the existing facility landscape. The gen-tie vertical features would only be partially visible as the residents would obstruct their presence. These gen-tie lines would connect to the Dogwood Project adding density to existing gen-tie vertical features but not create a new linear contrasting facility. The combined solar field would not be visible from this KOP and therefore would not contribute to the contrast of the landscape.

## 3.9 KOP 7: View from Mountain View Cemetery

### 3.9.1 Existing View

KOP 7 is located at 895 Scaroni Road, Calexico, CA approximately 2.3 miles southeast of the Project site. Looking northwest from the back of the cemetery, the tops of the Heber 1 site are visible however Heber 2 facilities are not visible from this KOP. The area is characterized by expansive and flat agricultural land present in the foreground. Some chain link fencing as well as northbound transmission lines are present. Existing structural features such as generation plants and buildings as well as sparse vegetative features such as trees are present along the horizon. See Appendix B Figure 9 for further reference.

### 3.9.2 View with Project

The Project would have no contrast with the existing characteristic landscape. The view of the project location or any of its associated facilities or distribution lines remains completely obstructed by existing buildings, vegetative features, and distribution lines along the horizon.



## 3.10 KOP 8: View from Las Casitas Park

### 3.10.1 Existing View

KOP 8 is located at 600 JM Ostrey St., Calexico, CA southeast of the Project site. Facing northwest toward the project, however the Project area is not visible from the highest point in Las Casitas Park. The area is characterized by vegetative features and a soccer field with multiple goals throughout the foreground and middle ground. An earthen berm in the background provides a level visual barrier, completely obstructing the view of the project area. Vertical transmission poles and the tops of vegetative features are visible behind the berm providing additional screening of the project area. See Appendix B Figure 10 for further reference.

### 3.10.2 View with Project

The Project would have no contrast with the existing characteristic landscape of KOP 8. The view of the project location or any of its associated facilities or distribution lines remains completely obstructed by the earthen berm, existing buildings, vegetative features, and distribution lines along the horizon.

## SECTION 4

## Preliminary CEQA Analysis

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This section provides a preliminary technical assessment of the potential environmental effects outlined in the California Environmental Quality Act (CEQA) under Visual Resources/Aesthetics. Below are the questions asked to identify impact significance.

**1. Would the Project have a substantial adverse effect on a scenic vista?**

**No Impact.** Scenic vistas are typically expansive views from elevated areas that may or may not be designated scenic overlooks or areas providing a static vista view of a landscape. No scenic vistas have been identified within or near the project area and therefore the project would have no impact on a scenic vista.

**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 Impacts.** No state scenic highway that runs within or near the project area and thus no damage to any potentially scenic resources would occur. Therefore, the project would have no impact on scenic resources within a state scenic highway.

**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.** The proposed facilities are consistent with the nature of the area's existing visual character. The development of the Dogwood Project will be built within and directly adjacent to ongoing operations at Heber 2 facilities, not creating a new visual contrast. The solar fields would be visible but would add an overall weak contrast to the existing character of the landscape. Views from most of the KOPs indicate weak to no contrast with the existing setting. Therefore, the Project's impact on degrading the existing visual character or quality of public views 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.** The proposed solar facilities may contribute temporary glare to the surrounding environment depending on the angle and intensity of the sun. However, the Project would not introduce a new substantial source of light or glare, as numerous solar developments are present throughout the Project vicinity. Further, the area is considered to have the characteristics of a BLM Visual Resource Management (VRM) Class IV zone, which has the objective to....“provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Projects/activities may dominate a local view and be the major focus of viewer attention.

However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.” (BLM 1976).

The solar facilities do not produce a source of glint or glare for any of the assessed KOPs. However, a technical memorandum produced by SWCA proposed mitigation measure **MM AES-1** and **MM AES-2** which shall be incorporated into the project to further reduce potential aesthetic impacts (SWCA 2023). Based on the preliminary analysis, all KOP locations are considered below or meet these classification objectives. Therefore, the project would result in a less than significant impact.

**MM AES-1:** Use of non-reflective materials, finishes, and surface treatments on project components would reduce contrast and glare.

**MM AES-2:** Visual barriers such as vegetation are the most effective at mitigating glare from solar arrays when the vegetation is located as close to the source as possible. If vegetation is used, native and naturalized plants should be specified to match or complement existing vegetation within the area. Existing vegetation within and surrounding the project area should be maintained and preserved to the greatest extent possible. Preserving existing vegetation will reduce the project’s overall impact on soils, wildlife, cost, and visual aesthetics.

## SECTION 5 Conclusions

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The Project would result in the construction of a visually prominent geothermal facility, solar arrays, and a gen-tie line in the southern portion of Heber, California on currently disturbed and agricultural land. In views from publicly accessible locations, the proposed Project would be visible and identifiable, though it would not substantially alter the existing visual character of the area or introduce a significant new visual contrast. From the KOP views, much or all of the Project would be absorbed into the broader landscape. Most of this portion of the Imperial Valley is dedicated to agricultural and energy (solar and geothermal) production and transmission. The Project would appear consistent with existing patterns of croplands, geothermal facilities, solar fields, utility infrastructure, and other mechanized or industrial appearing development.

## SECTION 6

# References

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Bureau of Land Management. January 1976. *Manual 8431 - Visual Resource Contrast Rating*. Available online at: <https://www.blm.gov/programs/recreation/recreation-programs/visual-resource-management>. Accessed April 9, 2023.

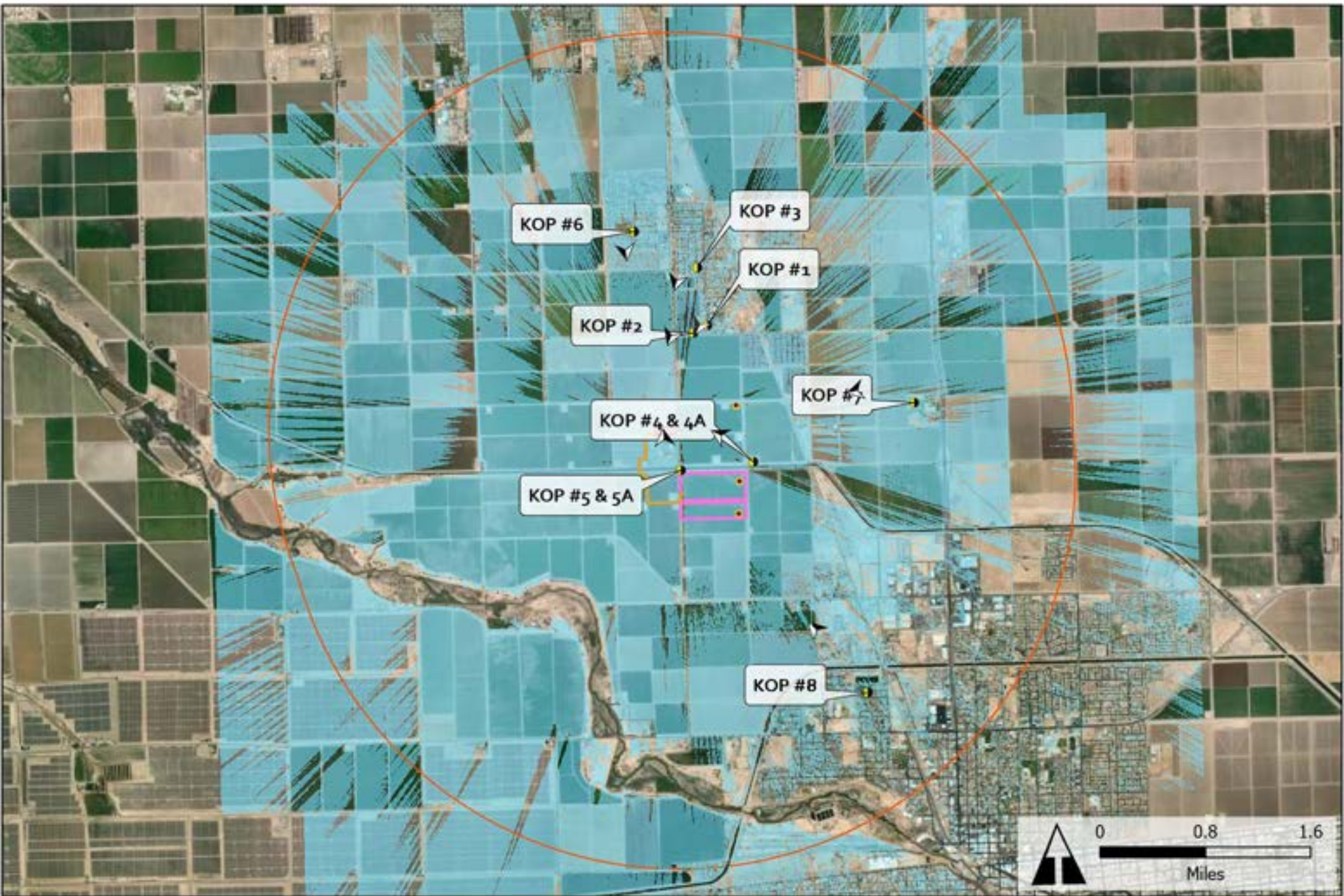
Roland, J., May 2019. Healthline.com *How Far Can We See and Why?* Available online at: [How Far Can the Human Eye See? \(healthline.com\)](https://www.healthline.com/health/how-far-can-the-human-eye-see). Accessed April 9, 2023.

SWCA Environmental Consultants (SWCA). 2023. *Glint and Glare Assessment, Dogwood Solar Energy Project, Imperial County, California*.

## Appendix A: KOP Viewshed Map

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- Legend**
- Dogwood Geothermal Plant (25 Feet High)
  - Transmission Line (3-20 Feet High)
  - Solar Fields and XND Switch (10 Feet High)
  - Fence line (8 feet high)
  - Approx. Limit of Human Eyesight (2mi)
  - Proposed Production Wells
  - Key Observation Points
  - Direction of KOP Photos
  - Project Visible



## Appendix B: Photo Log

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**Figure 1.** KOP 1: View from Heber Elementary School



**Figure 2.** KOP 2: View from Closest Residence to the North



**Figure 3.** KOP 3: View from Heber Childrens Park



**Figure 4.** KOP 4: View from Closest Residence to the South/Southeast





**Figure 5.** View from Closest Residence to the South/Southeast



**Figure 6.** KOP 5: View from Intersection of Dogwood Road and Wiloughby Road



**Figure 7.** KOP 5A: View from Intersection of Dogwood Road and Wiloughby Road



**Figure 8.** KOP 6: View from Margarito Huerta Jr. Park



**Figure 9.** KOP 7: View from Mountain View Cemetery



**Figure 10.** KOP 8: View from Las Casitas Park





Table 1: Photolog for Dogwood Visual Baseline/KOP Survey

Date	Time	KOP No.	KOP Name	Location/Address	Feature/From	Ground Elevation	Observer Height	Project Visible from KOP?
March 9, 2023	11:53am	KOP 1	Heber Elementary School	1052 Heber Ave., Heber, CA	Picture taken from corner of 14 <sup>th</sup> St. and Heber Ave., looking south/southwest towards Heber 2 complex.	Sea Level	5'11"	Yes, transmission lines visible in distance background
March 9, 2023	1:40pm	KOP 2	Closest residence to north	20 E. Fawcett Road, Heber	Taken from Fawcett Road looking towards existing Heber 2 facility.	Sea Level	5'11"	Yes, Heber 2 facility visible in background.
March 9, 2023	1:46pm	KOP 3	Heber Childrens Park	39 Crane Lane, Heber, CA	Taken from park looking towards Heber 2 facility.	Sea Level	5'11"	No. Residences and vegetation obstructing view.
March 9, 2023	2:03pm	KOP 4	Closest residence to the south/southeast	104 Jasper Road, Heber, CA	Taken from road shoulder looking west/northwest towards Heber 2 facility	Sea Level	5'11"	Yes, existing geothermal facilities and transmission lines present in background. Vegetation provides some screening.
March 9, 2023	2:03pm	KOP 4A	Closest residence to the south/southeast	104 Jasper Road, Heber, CA	Taken from road shoulder looking south/southwest towards proposed solar farm.	Sea Level	5'11"	Yes, proposed solar site visible from residence.
March 9, 2023	2:09pm	KOP 5	Intersection of Dogwood Road and Wiloughby Road	Intersection of Dogwood Road and Wiloughby Road. H2 facility approximately 1,000 feet to the north.	Taken from road shoulder looking north towards Heber 2 facility.	Sea Level	5'11"	Yes, transmission lines present in foreground and tops of geothermal plants barely visible in background due to vegetation screening.
March 9, 2023	2:09pm	KOP 5A	Intersection of Dogwood Road and Wiloughby Road	Intersection of Dogwood Road and Wiloughby Road. Proposed solar fields immediately across Wiloughby Road.	Taken from road shoulder looking south towards proposed solar fields.	Sea Level	5'11"	Yes, proposed solar site is directly visible from intersection.
March 9, 2023	2:18pm	KOP 6	Margarito Huerta Jr. Park	Intersection of W. Hawk Street and Palm Ave.	Taken from park corner looking south towards geothermal facility.	Sea Level	5'11"	Yes, tops of existing geothermal units present in background. Residences and vegetation provide limited screening.
March 9, 2023	2:38pm	KOP 7	Mountain View Cemetery	895 Scaroni Road, Calexico, CA	Taken from back of cemetery looking west towards Heber 2 facility.	Sea Level	5'11"	No, Heber 1 facilities are visible in background but not Heber 2 facilities.
March 9, 2023	3:46pm	KOP 8	Las Casitas Park	600 JM Ostrey St., Calexico, CA	Taken from highest point in park looking north/northwest towards Heber 2 complex.	Sea Level	5'11"	No, earthen berm and trees/vegetation screen facilities from views at the park.

## Appendix C: Visual Contrast Rating Forms

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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**VISUAL CONTRAST RATING WORKSHEET**

Date: 03/09/2023

District Office: California Desert District Office

Field Office: El Centro Field Office

Land Use Planning Area: Geothermal

SECTION A. PROJECT INFORMATION

1. Project Name Dogwood Geothermal Energy Project	4. KOP Location (T.R.S) 16S 14E 28E 1052 Heber Ave, Heber CA	5. Location Sketch Flat suburban area. The Project Site is characterized by flat open land low lying vegetation, exposed soils, and existing geothermal facilities.
2. Key Observation Point (KOP) Name KOP-1: View from Heber Elementary School		
3. VRM Class at Project Location Class IV	(Lat. Long) 32.724419; -115.529886	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat simple terrain of paved roads and open grassy land. Indistinct rolling mountain range in background	Sparse density of shrubs, trees, and grass land.	Overhead distribution lines on wood and metal monopoles and solid rectangular residences.
LINE	Banded diffuse linear form in the foreground. Simple horizontal butt edge from paved road to grass land.	Banded, broken linear form from vegetation.	Horizontal linear form from the existing distribution lines. Vertical liner forms of monopoles. Moderate Silhouette-line from residences.
COLOR	Gray, light brown, tan, and light green from a combination of paved roads, grassy land, and exposed soils.	Present residential trees, shrub, and grass are light to dark green, and light brown, depending on the time of year	The monopoles are dark brown with metallic components; the distribution line is black. Residences light to dark brown
TEXTURE	Fine and even/ordered texture. The road and grass texture are fine with some color transition.	Medium density residential vegetation with uneven/random texture.	The medium density of distribution line poles and residences creates a medium contrast and texture.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	The primary form of the paved roads, open grass land, and indistinct rolling mountain range would not be altered	The primary vegetation forms would not be altered.	Facilities would create indistinct solid forms and new flat linear forms
LINE	The primary linear forms of land/water would not be altered.	Facilities would have weak contrast with surrounding vegetative communities.	Facilities will create indistinct horizontal and intermittent linear forms against horizon.
COLOR	The metallic solar array would have a weak to moderate overall contrast to existing land.	The metallic solar array would have a weak to moderate overall contrast to existing vegetative features	Facilities would be painted light brown, dark brown to blend. Metal facilities would have moderate color contrast
TEXTURE	Facilities would add even, solid, and medium texture against the existing environment.	Facilities would add a smooth and medium density and overall medium contrast and texture to vegetation.	Facilities would add dense and solid texture creating overall medium contrast with the existing environment.

SECTION D. CONTRAST RATING       SHORT TERM    ☒ LONG TERM

1. DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes    ___No (Explain on reverses side)	
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)					
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE		
ELEMENTS	FORM				✓				✓			✓		3. Additional mitigating measures recommended ___Yes <input checked="" type="checkbox"/> No    (Explain on reverses side)	
	LINE				✓			✓			✓		Evaluator's Names  Ben Pogue		
	COLOR		✓				✓			✓					Date  03/09/2023
	TEXTURE		✓				✓			✓					

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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in a weak to moderate visual contrast from the current landscape, resulting in some change to the baseline scenic environment. Installing new facilities would not represent a significant change to the existing scenic environment given the presence of the existing transmission lines, geothermal facilities, and low-lying solar arrays. Therefore, the Project would result in minor impacts to the scenic environment and would meet the standards for VRM Class IV.

Impacts to visual resources would be long term, but there are no sensitive receptors in the vicinity of the Project Area. The primary visual impacts for this KOP would be the limited school traffic along E 14<sup>th</sup> street and Heber Ave. Given the remote and undeveloped nature of the Project Area and distance from KOP 1, the proposed geothermal facilities would have a minor impact on the scenic environment.

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Additional Mitigating Measures (See item 3)



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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in weak to moderate visual contrast from the current landscape, resulting in minimal change to the baseline scenic environment. Installing new facilities would not represent a significant change to the existing scenic environment given the presence of the existing transmission lines, geothermal facilities and low lying solar arrays. Therefore, the Project would result in minor impacts to the scenic environment and would meet the standards for **VRM Class IV**

Impacts to visual resources would be long term, but there are no sensitive receptors in the vicinity of the Project Area. The primary visual impacts for this KOP would be residences along Heber Ave. Given the remote and undeveloped nature of the Project Area and distance from KOP 2, the proposed geothermal facilities would have a minor impact on the scenic environment.

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Additional Mitigating Measures (See item 3)



SECTION A. PROJECT INFORMATION

1. Project Name Dogwood Geothermal Energy Project	4. KOP Location (T.R.S) 16S; 14E 28 39 Crane Lane, Heber CA	5. Location Sketch  KOP 3 is characterized by residencies, irregular vegetation, and overhead distribution lines.
2. Key Observation Point (KOP) Name KOP-3: View from Heber Childrens Park	(Lat. Long) 32.730806; - 115.531003	
3. VRM Class at Project Location Class IV		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat simple terrain of paved roads and residencies.	Numerous irregular trees and other vegetative forms. Rectangular patches of park and residential grass.	Distribution lines on wood monopoles, vertical streetlights and solid rectangular residencies and play structures.
LINE	Various banded and diffuse linear forms from roads and walkways.	Simple broken forms from irregular vegetation.	Horizontal linear forms from the existing distribution lines. Simple Silhouette-line forms from facilities.
COLOR	Gray, light brown, and light green from a combination of paved roads, walkways, grassy patches and exposed soils.	Present trees, shrub, and grass are light to dark green, and light brown.	The monopoles and residencies are dark brown or gray and metallic. Light to dark brown residencies and a primary color children's play structure
TEXTURE	Fine and even/ordered texture. Primarily fine grass texture with minimal color transition.	Strong density medium coarse vegetative features creates an medium uneven/random texture and contrast	Medium density of distribution line poles and coarse and dense structures creates a strong contrast and texture.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	The flat simple terrain visible would not be altered by the Project	The vegetative forms would not be altered by the Project	Facilities cannot be seen from KOP 3 and do not contribute additional forms
LINE	The primary linear forms of land/water would not be altered by the Project	Vegetative lines would be altered by the Project.	Facilities cannot be seen from KOP 3 and do not contribute additional lines.
COLOR	The characteristic colors would not be altered by the Project.	Colors of vegetative features would not be altered by the project	Facilities cannot be seen from KOP 3 and do not contribute additional colors.
TEXTURE	Characteristic land/water textures would not be altered by the Project	Textures from vegetation would not be altered.	Facilities cannot be seen from KOP 3 and do not contribute additional textures.

SECTION D. CONTRAST RATING    \_\_SHORT TERM    ☒LONG TERM

1.  DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes    __No (Explain on reverses side)
		LAND/WATER BODY				VEGETATION				STRUCTURES				
		(1)				(2)				(3)				
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	3. Additional mitigating measures recommended? __Yes <input checked="" type="checkbox"/> No    (Explain on reverses side)  Evaluator's Names Ben Pogue  Date 03/19/2024
ELEMENTS	FORM				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	
	LINE				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	
	COLOR				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	
	TEXTURE				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	

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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in no visual contrast from the current landscape, resulting in no change to the baseline scenic environment. New facilities would not be visible from the existing scenic environment given the presence of residencies and vegetation. Therefore, the Project would result in no impacts to the scenic environment and would meet the standards for **VRM Class IV**

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Additional Mitigating Measures (See item 3)

SECTION A. PROJECT INFORMATION

1. Project Name Dogwood Geothermal Energy Project	4. KOP Location (T.R.S) 16S 14E 33 17S 14E 03 Intersection of Ware Road/Pitzer Road/Willoughby Road (Lat. Long) 32.709269; - 115.524325	5. Location Sketch  The Project Site is characterized by flat open land, low lying vegetation, exposed soils, and existing geothermal facilities.
2. Key Observation Point (KOP) Name KOP-4: View from Closest Residence to the South/Southeast		
3. VRM Class at Project Location Class IV		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

1. LAND/WATER		2. VEGETATION	3. STRUCTURES
FORM	Flat simple terrain of paved and unpaved roads, an open canal, and grassy land.	Simple rectangular form of low-lying shrub and grass land. Few irregular trees.	Distribution lines on wood monopoles rectangular horizontal diffuse fencing. Solid rectangular structures, distribution monopoles, and geothermal wells in the background.
LINE	Simple banded linear roads.	Simple silhouette-line forms from irregular vegetation. Butt-edge from exposed soil to grass in middle ground.	Horizontal diffuse linear forms from the existing distribution lines and simple Silhouette-line forms from facilities.
COLOR	Gray, light brown, and light green from a combination of paved roads, grassy land, and exposed soils.	Present trees, shrub, and grass are light to dark green, and light brown.	The monopoles are dark brown, fencing is transparent gray. Light to dark brown facilities depending on time of day
TEX- TURE	Fine and even/ordered texture. Primarily fine grass / granular soil texture with weak overall density	Sparse to medium density vegetative features with uneven/random texture and some internal contrast.	Medium density of distribution line poles and weak density structures creates a weak to medium contrast and texture.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

1. LAND/WATER		2. VEGETATION	3. STRUCTURES
FORM	The primary form of the flat simple terrain would not be altered.	Vegetative forms in foreground and background would not be altered.	Facilities would create additional solid rectangular forms and linear forms
LINE	The new linear forms from the facility would present some contrast to the existing flat and linear landscape.	Facilities would create weak horizontal and intermittent contrast with broken surrounding vegetation	Facilities would create weak horizontal and intermittent linear forms against existing facilities.
COLOR	Facility colors would retreat into existing colors of the land.	New facilities would be neutral and subtle against surrounding vegetation.	Building facilities would be painted tan to provide minimal contrast to existing structures.
TEX- TURE	Facilities would add even, solid, and sparce texture against the existing environment.	Texture from new facilities would be sparce, and uneven / random against surrounding vegetation	Facilities would add a medium even density and weak overall contrast to existing structures.

SECTION D. CONTRAST RATING    ☐ SHORT TERM    ☒ LONG TERM

1.  DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverses side)	
		LAND/WATER BODY				VEGETATION				STRUCTURES					
		(1)				(2)				(3)					
ELE MEN	FORM				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	3. Additional mitigating measures recommended? ___Yes <input checked="" type="checkbox"/> No    (Explain on reverses side)	
	LINE			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			
Evaluator's Names														Date	

	COLOR			✓				✓				✓		Ben Pogue	03/19/2024
	TEXTURE			✓				✓				✓			

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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in weak overall visual contrast from the current landscape, resulting in minimal change to the baseline scenic environment. Installing new facilities would not represent a significant change to the existing scenic environment given the presence of the existing transmission lines and geothermal facilities. This analysis does not include the effects of the solar field but are considered in a separate analysis. Therefore, the Project would result in minor impacts to the scenic environment and would meet the standards for VRM Class IV

Impacts to visual resources would be long term, but there are no sensitive receptors in the vicinity of the Project Area. The primary visual impacts for this KOP would be the single resident along Jasper Rd. Given the existing nature of the Project Area with existing geothermal facilities its and distance from KOP 4, the proposed Project would have a minor impact on the scenic environment.

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Additional Mitigating Measures (See item 3)





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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in moderate to strong visual contrast from the current landscape, resulting in strong change to the baseline scenic environment. Installing new facilities would represent a significant change to the existing scenic environment however similar existing facilities are present in the Project area. A separate analysis was created for the geothermal facility and not considered. Therefore, the Project would result in moderate impacts to the scenic environment and would meet the standards for **VRM Class IV**.

Impacts to visual resources would be long term, but there are no sensitive receptors in the vicinity of the Project Area. The primary visual impact for this KOP would be a single resident along Jasper Rd. However, given the existing nature of the Project Area with existing geothermal facilities and the location of KOP4A, the proposed Project would have a moderate impact on the overall scenic environment.

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Additional Mitigating Measures (See item 3)

SECTION A. PROJECT INFORMATION

1. Project Name Dogwood Geothermal Energy Project	4. KOP Location (T.R.S) 16S 14E 33 17S 14E 03 Intersection of Dogwood Road and Willoughby Road	5. Location Sketch  The Project Site is characterized by flat open land, low lying vegetation, exposed soils, and existing geothermal facilities.
2. Key Observation Point (KOP) Name KOP-5: View from Intersection of Dogwood Road and Willoughby Road	(Lat. Long) 32.709269; - 115.524325	
3. VRM Class at Project Location Class IV		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

1. LAND/WATER		2. VEGETATION	3. STRUCTURES
FORM	Flat simple terrain of paved and unpaved roads, an open canal, and open land.	Simple solid rectangular form of trees in the background. Few irregular shrub forms and grasses.	Distribution lines on wood monopoles diffuse fencing. Small solid rectangular structures in background.
LINE	Simple banded linear roads and diffuse linear canal	Simple and continuous tree line along paved road.	Diffuse linear forms from the existing distribution lines. Weak and irregular lines from the tops of existing facilities.
COLOR	Gray, light brown, and light green from paved roads, grassy land, and exposed soils. Some glare present from canal.	Present trees, shrub, and grass are light to dark green, and light brown.	The monopoles are dark brown, fencing is transparent gray. White and Light to dark brown facilities.
TEX- TURE	Fine and even/ordered texture. Primarily fine roads / granular soil texture with weak overall density	Dense medium grain tree line with an even/ordered regularity. Weak to moderate internal contrast.	Medium density of distribution line poles and uniform/ordered structure density along tops of tree line.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

1. LAND/WATER		2. VEGETATION	3. STRUCTURES
FORM	The primary form of the flat simple terrain would not be altered.	Vegetative forms in foreground and background would not be altered.	Facilities would create small solid rectangular forms and additional linear distribution line forms
LINE	The new linear forms from the facility would present some contrast to the existing flat and linear landscape.	Facilities would create weak horizontal and intermittent contrast at the top of dominant continuous tree line.	Facilities would create weak horizontal and intermittent linear contrast along line of existing distribution lines and facilities.
COLOR	Facility colors would retreat into existing colors of the land.	New facilities would be neutral and subtle against surrounding vegetation.	Facilities would be painted tan providing minimal contrast to existing structure colors.
TEX- TURE	Facilities would add even, solid, and sparse texture against the existing environment.	Texture from new facilities would have weak contrast with uniform/ordered density against tops of dense vegetation	Facilities would add an even density and weak overall contrast to existing structures.

SECTION D. CONTRAST RATING           SHORT TERM      ☒ LONG TERM

1.  DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes <u>    </u> No (Explain on reverses side)
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	
ELEMENTS	FORM				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	3. Additional mitigating measures recommended? <u>    </u> Yes <input checked="" type="checkbox"/> No    (Explain on reverses side)
	LINE			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	Evaluator's Names  Ben Pogue   Date  03/19/2024	
	COLOR			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		
	TEXTURE			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		

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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in minimal visual contrast from the current landscape, resulting in minimal change to the baseline scenic environment. Installing new facilities would not represent a significant change to the existing scenic environment given the presence of the existing transmission lines and geothermal facilities. This analysis does not include the effects of the solar field but are considered in a separate analysis. Therefore, the Project would result in minor impacts to the scenic environment and would meet the standards for **VRM Class IV**

Impacts to visual resources would be long term. The project would primarily be visible to travelers along Dogwood and Willoughby Road which lack significant traffic. Given the existing nature of the Project Area with existing geothermal facilities and the overall view from KOP 5, the proposed Project would have a weak impact on the scenic environment.

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Additional Mitigating Measures (See item 3)

SECTION A. PROJECT INFORMATION

1. Project Name Dogwood Geothermal Energy Project	4. KOP Location (T.R.S) 16S 14E 33 17S 14E 03 Intersection of Dogwood Road and Willoughby Road	5. Location Sketch  The Project Site is characterized by flat open land, low lying vegetation, exposed soils, and existing geothermal facilities.
2. Key Observation Point (KOP) Name KOP-5A: View from Intersection of Dogwood Road and Willoughby Road	(Lat. Long) 32.708539; - 115.517133	
3. VRM Class at Project Location Class IV		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

1. LAND/WATER		2. VEGETATION	3. STRUCTURES
FORM	Flat simple terrain of paved and unpaved roads, an open canal, and undeveloped land. Indistinct rolling mountain range in the background	Simple rectangular form of low-lying grass land. Simple tree forms in the background.	Few lines on monopoles in foreground and few indistinct monopoles in background. Long low-lying piping forms and few solid rectangular structures in the background.
LINE	Flat diffuse banded line between grass and roads. Weak smooth line from mountain range.	Continuous diffuse silhouette-line of trees in the background. Straight lines of grassland.	Vertical linear forms of distribution lines and simple silhouette-line forms of low-lying piping.
COLOR	Gray, light to dark brown, and light green from paved roads, grassy land, exposed soil, and mountain range.	Present trees, shrub, and grass are light to dark green.	The monopoles are dark brown, the lines themselves are black and piping is pastel blue/green
TEXTURE	Fine and even/ordered texture. Primarily fine grass / granular soil texture	Dense vegetative features with uniform/even texture in background along horizon.	Spars density of distribution line poles and structures creates a weak contrast and texture.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

1. LAND/WATER		2. VEGETATION	3. STRUCTURES
FORM	The primary form of the flat simple terrain would not be altered. The mountain form would be obstructed.	Facilities would dominate visible open grass form and background tree forms.	Prominent rectangular forms of solar facilities and additional linear distribution line forms
LINE	Facilities would have primarily flat linear forms parallel to flat land/water	Facilities would create bold horizontal and strong contrast with broken background vegetation	Facilities would create bold horizontal and intermittent linear forms against horizon.
COLOR	The metallic/dark solar panel would produce moderate contrast in colors from land/water	New metallic facilities would have a dominant contrast with existing vegetative colors.	New metallic/dark facilities would have some contrast with existing facilities. Additional distribution poles and powerlines would assimilate in color.
TEXTURE	Facilities would add even, solid, and dense texture against the existing environment.	Texture from new facilities would be dominant against sparse surrounding vegetation	Facilities would add a medium even density and moderate overall contrast to existing structures.

SECTION D. CONTRAST RATING      ☐ SHORT TERM      ☒ LONG TERM

1. DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverses side)	
		LAND/WATER BODY				VEGETATION				STRUCTURES					
		(1)				(2)				(3)					
ELEMENTS	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	3. Additional mitigating measures recommended? ____Yes <input checked="" type="checkbox"/> No    (Explain on reverses side)		
	FORM			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				Evaluator's Names Ben Pogue	
	LINE			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>					Date 03/19/2024
	COLOR		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
TEXTURE	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>					

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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in moderate to strong visual contrast from the current landscape, resulting in strong change to the baseline scenic environment. Installing new facilities would represent a significant change to the existing scenic environment, however similar existing facilities are present in the Project area. A separate analysis was created for the geothermal facility and not considered. Therefore, the Project would result in moderate impacts to the scenic environment and would meet the standards for **VRM Class IV**

Impacts to visual resources would be long term, but there are no sensitive receptors in the vicinity of the Project Area. The project would primarily be visible to travelers along Dogwood and Willoughby Road which lack significant traffic. Given the existing nature of the Project Area with existing geothermal facilities and the location of KOP5A, the proposed Project would have a moderate impact on the overall scenic environment.

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Additional Mitigating Measures (See item 3)

SECTION A. PROJECT INFORMATION

1. Project Name Dogwood Geothermal Energy Project	4. KOP Location (T.R.S) 16S 14E 29 Intersection of W. Hawk Street and Palm Ave.	5. Location Sketch  Flat suburban area. The Project Site is characterized by flat open land low lying vegetation, exposed soils, residencies, and existing geothermal facilities.
2. Key Observation Point (KOP) Name KOP-6: View from Margarito Huerta Jr. Park	(Lat. Long) 32.734933; - 115.53915	
3. VRM Class at Project Location Class IV		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

1. LAND/WATER		2. VEGETATION	3. STRUCTURES
FORM	Flat simple terrain of paved roads. Indistinct rolling mountain range in background	Sparse density of shrub, trees and patches of residential grass.	Solid rectangular residences. Rectangular building forms and distribution lines on wood and metal monopoles in background.
LINE	Banded diffuse linear form from road in the foreground. Straight line from mountain ridge	Banded transitional edge of residential linear forms to grass land.	Horizontal linear form from the existing distribution lines. Broken horizontal linear forms from the tops of buildings.
COLOR	Gray, light brown, tan, and light green from a combination of paved roads, grass patches and exposed soils.	Present residential trees, shrub, and grass are light to dark green, and light brown.	The monopoles and residencies are dark brown with metallic components atop of the poles; the distribution line is black.
TEX- TURE	The road and grass texture are fine with some color transition creating an even/ordered texture	Sparce density residential vegetation creates uneven/random texture.	The medium to strong density of residencies and creates a medium to strong contrast and texture.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

1. LAND/WATER		2. VEGETATION	3. STRUCTURES
FORM	The primary form of the paved roads, open grass land, and indistinct rolling mountain range would not be altered	The primary vegetation forms would not be altered.	Facilities would create new indistinct, solid, and rectangular forms against existing facilities.
LINE	There would be a weak to no overall change in linear land/water features.	Facilities would not alter or contrast with surrounding vegetative communities.	Facilities will create indistinct horizontal and intermittent linear forms against existing facilities.
COLOR	The buildings colors of light brown and tan would provide weak contrast to existing land/water color	The buildings colors of light brown and tan would provide weak contrast to surrounding vegetation	The buildings colors of light brown and tan would provide weak contrast to existing building colors.
TEX- TURE	Facilities would add even, solid, and medium texture and weak contrast to existing developed environment.	Texture from facilities add a smooth and medium density to existing grasslands with an overall weak contrast.	Facilities would add linear, solid, flat, and medium textures and weak contrast with the existing developed environment.

SECTION D. CONTRAST RATING    SHORT TERM    LONG TERM

1.  DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes    ___No (Explain on reverses side)  3. Additional mitigating measures recommended ___Yes <input checked="" type="checkbox"/> No    (Explain on reverses side)		
		LAND/WATER BODY				VEGETATION				STRUCTURES						
		(1)				(2)				(3)						
ELEMENTS	FORM				✓				✓				✓			Evaluator's Names  Ben Pogue  Date  03/19/2024
	LINE				✓				✓				✓			
	COLOR				✓				✓				✓			
	TEXTURE				✓				✓				✓			



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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in minimal visual contrast from the current landscape, resulting in weak contrast to the baseline scenic environment. Installing new facilities would not represent a significant change to the existing scenic environment given the presence of the existing transmission lines and geothermal facilities. Solar arrays are not visible from this KOP reducing overall contrast of the project. Therefore, the Project would result in minor impacts to the scenic environment and would meet the standards for **VRM Class IV**

Impacts to visual resources would be long term, but there are no sensitive receptors in the vicinity of the Project Area. The primary visual impact for this KOP would be limited to recreationalists at Margarito Jr. Park and local residencies. Given the remote and developed nature of the Project Area and distance from KOP 6, the proposed geothermal facilities would have a minor impact on the scenic environment.

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Additional Mitigating Measures (See item 3)

SECTION A. PROJECT INFORMATION

1. Project Name Dogwood Geothermal Energy Project	4. KOP Location (T.R.S) 16S 14 E 35 895 Scaroni Road, Calexico	5. Location Sketch  The area is characterized by flat land, irregular vegetation, and overhead distribution lines.
2. Key Observation Point (KOP) Name KOP-7: View from Mountain View Cemetery		
3. VRM Class at Project Location Class IV	(Lat. Long) 32.715353; - 115.5032	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat simple terrain of exposed soils and grass lands. Indistinct mountain form in background	Rectangular patches of trees in background. Few irregular tree and shrub forms.	Distribution lines on metal monopoles and rectangular fence form with metal posts. Visible square indistinct building structures.
LINE	Distinct butt edge between flat exposed soil and grass land. Longs smooth line on mountain ridge.	Simple silhouette-lines from irregular vegetation.	Diffuse linear forms from the existing distribution lines. Simple Silhouette-line forms from facilities.
COLOR	Brown and light green from grassy patches and exposed soils.	Present trees, shrub, and grass are light to dark green, and brown.	The monopoles and residencies are dark brown or gray and metallic. Light to dark brown building structures
TEX-TURE	Fine grass texture with some color transition creates a weak even/ordered texture and contrast	Medium density vegetative features in background creates weak even/regular contrast and texture	sparce density of distribution line poles and weak density structures creates a weak to medium contrast and texture.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	The flat simple terrain visible would not be altered by the Project	The vegetative forms would not be altered by the Project	Facilities cannot be seen from KOP 7 and do not contribute additional forms
LINE	The primary linear forms of land/water would not be altered by the Project	Vegetative lines would be altered by the Project.	Facilities cannot be seen from KOP 7 and do not contribute additional lines.
COLOR	The characteristic colors would not be altered by the Project.	Colors of vegetative features would not be altered by the project	Facilities cannot be seen from KOP 7 and do not contribute additional colors.
TEX-TURE	Characteristic land/water textures would not be altered by the Project	Textures from vegetation would not be altered.	Facilities cannot be seen from KOP 7 and do not contribute additional textures.

SECTION D. CONTRAST RATING    ☐ SHORT TERM    ☒ LONG TERM

1.  DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverses side)  3. Additional mitigating measures recommended? ___Yes <input checked="" type="checkbox"/> No    (Explain on reverses side)  Evaluator's Names Ben Pogue  Date 03/19/2024
		LAND/WATER BODY				VEGETATION				STRUCTURES				
		(1)				(2)				(3)				
ELEMENTS	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE		
				✓				✓				✓		
				✓				✓				✓		
				✓				✓				✓		

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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in no visual contrast from the current landscape, resulting in no change to the baseline scenic environment. New facilities would not be visible from the existing scenic environment given the presence of vegetation and existing building forms obstructing the view. Therefore, the Project would result in no impacts to the scenic environment and would meet the standards for VRM Class IV

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Additional Mitigating Measures (See item 3)



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SECTION D. (Continued)

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Comments from item 2.

The proposed project would result in no visual contrast from the current landscape, resulting in no change to the baseline scenic environment. New facilities would not be visible from the existing scenic environment given the presence of vegetation and existing building forms obstructing the view. Therefore, the Project would result in no impacts to the scenic environment and would meet the standards for VRM Class IV

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Additional Mitigating Measures (See item 3)

## TECHNICAL MEMORANDUM

**To:** Catalyst Environmental Solutions

**From:** Spenser Branch, Associate Project Visual Simulation Specialist

**Date:** December 5, 2023

**Re:** **Glint and Glare Assessment, Dogwood Solar Energy Project, Imperial County, California / SWCA Project No. 84241**

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### INTRODUCTION

Catalyst Environmental Solutions (the applicant) proposes to construct, operate, and maintain the Dogwood Solar Project (project). The project is located roughly 1 mile south of Herber and approximately 0.5 mile northeast of Calexico in Imperial County, California. The project area stretches approximately 0.5 mile east to west adjacent to Willoughby Road and 0.8 mile north to south adjacent to Dogwood Road and Beech Drain. Project features include temporary and permanent access roads, solar trackers, junction boxes, a generation tie line, and a step-up transformer/on-site substation. The landscape in the vicinity of the project is characterized by flat terrain mostly consisting of agriculture, industrial land use, and mostly dispersed low-density single-family residences. Primary travel routes near the project include Dogwood Road, Willoughby Road, and Imperial Avenue, with secondary travel routes that support access to local residences and agriculture. There are four airports that surround the project area; the proposed project area is approximately 2.4 miles northwest of Calexico International Airport, 10.3 miles southeast of El Centro Naval Air Facility, 17.3 miles southeast of the Imperial County Airport, and 34.5 miles southwest of the Holtville Airport.

### PURPOSE

The purpose of this technical memorandum is to summarize potential glinting and glare effects of the project. Based on the results of these effects, potential health, safety, and visual mitigation measures associated with these glinting and glare effects may be proposed. For the purposes of this technical memorandum, *glint* is defined as a bright, momentary flash of light; *glare* is defined as a more continuous and sustained presence of light that may appear to “sparkle” from public viewing locations.

The source of potential glint and glare for the project is the proposed photovoltaic (PV) panels. However, PV panel surfaces are designed specifically not to reflect light, thus reducing the potential for glint and glare.



## GLINT AND GLARE ANALYSIS

The analysis focused on potential glare effects on observation points (OPs) and linear travel routes. An inventory of visual receptors was conducted by reviewing publicly available geographic information system (GIS) data to determine OPs from airport landing and take-off points, residences, travel routes, recreation areas, Herber Elementary School, and the Mountain View Cemetery. Aircraft landing and approach were considered at the four airports listed above. Although the project is not located on airport property and therefore is not subject to Federal Aviation Administration jurisdiction under Federal Aviation Regulations Part 77 to protect airspace safety and is located beyond the 2-mile final approach as defined in the Interim Solar Policy, the applicant has sought to voluntarily apply Federal Aviation Administration ocular hazard standards (78 *Federal Register* 63276).

### Software

Analysis for the project was conducted using the GlareGauge model (also known as Solar Glare Hazard Analysis Tool [SGHAT]) developed by Forge Solar and the U.S. Department of Energy's Sandia National Laboratories to evaluate potential glare. GlareGauge employs an interactive Google map where the user can quickly locate a site, draw an outline of the proposed solar energy system, and specify observer locations and, if needed, aircraft approach paths. Latitude, longitude, and elevation are automatically recorded through the Google interface, providing necessary information for sun position and vector calculations. Additional information regarding the orientation and tilt of the solar energy panels, reflectance, environment, and ocular factors are entered by the user.

If glare is found, the tool calculates the retinal irradiance and subtended source angle (size/distance) of the glare source to predict potential ocular hazards ranging from a temporary afterimage to retinal burn. The results are presented in a simple, easy-to-interpret plot that specifies when glare will occur throughout the year, with color codes indicating the potential ocular hazard. The tool can also predict relative energy production while evaluating alternative designs, layouts, and locations to identify configurations that maximize energy production while mitigating the impacts of glare.

### Assumptions

- The proposed solar project will operate 365 days per year, during daylight hours.
- “Green” glare is glare with low potential to cause an afterimage (flash blindness) when observed prior to a typical blink response time.
- “Yellow” glare is glare with potential to cause an afterimage (flash blindness) when observed prior to a typical blink response time.
- “Red” glare is glare with potential to cause retinal burn (permanent eye damage) when observed prior to a typical blink response time.
- Times associated with glare are denoted in standard time.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover, and geographic obstructions.
- Several calculations use 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 subsections 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.
- 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.
- Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Panels are designed to absorb sunlight and will be treated with anti-reflective coatings that will absorb and transmit light rather than reflect it.<sup>1</sup>

### **Input Parameters**

The GlareGauge inputs the specifications of the array, including a single-axis tracking system with a north-south orientation, maximum tracking angle of 55°, a 0° resting angle, a panel height of 5.3 feet above ground level, and a smooth panel surface with anti-reflective coating to provide maximum flexibility in module selection. Modeling was then undertaken for the applicable sensitive receptors. No air traffic control towers are located at airports and therefore these were not included in the analysis. OPs used a height of 6 feet, and route receptors used a height of 4 feet (an average height of passenger cars, trucks, and diesel trucks).

### **Results**

The OPs and route receptors used in the analysis consisted of 16 residences, three parks, a cemetery, a school, and a main travel route (Table 1).

**Table 1. Glare Observation Points**

<b>Name</b>	<b>Description</b>
OP 1: Recreation	Margarito Huerta Jr. Park
OP 2: Recreation	Herber Childrens Park
OP 3: Residence	Private residence near project area
OP 4: Residence	Private residence near project area
OP 5: Residence	Private residence near project area
OP 6: School	Herber Elementary School
OP 7: Residence	Private residence near project area
OP 8: Residence	Private residence near project area
OP 9: Travel Receptor	Private residence near project area
OP 10: Residence	Private residence near project area
OP 11: Residence	Private residence near project area
OP 12: Cemetery	Mountain View Cemetery

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<sup>1</sup> Refer to [www.forgesolar.com/help/](http://www.forgesolar.com/help/) for assumptions and limitations not listed here.

Name	Description
OP 13: Residence	Private residence near project area
OP 14: Residence	Private residence near project area
OP 15: Residence	Private residence near project area
OP 16: Residence	Private residence near project area
OP 17: Residence	Private residence near project area
OP 18: Residence	Private residence near project area
OP 19: Residence	Private residence near project area
OP 20: Residence	Private residence near project area
OP 21: Recreation	Las Casitas Park
Route Receptor 1: Imperial Avenue	Main northbound travel route
Route Receptor 2: Imperial Avenue	Main southbound travel route

### ***Glint and Glare Effects Discussion***

The project has the possibility to create low-potential afterimage (green ocular impact) glare at the Holtville Airport East Runway. The OP will have the potential to experience glare up to 290 minutes per year; the glare would occur from the middle of November to the end of January, between the hours of 4:00 p.m. and 5:00 p.m., for approximately 5 minutes per day from 1.4 to 2.0 miles along the approach path.

### **RECOMMENDATIONS**

Mitigation measures such as the use of non-reflective materials, finishes, and surface treatments on project components would reduce contrast and glare. Visual barriers such as vegetation are the most effective at mitigating glare from solar arrays when the vegetation is located as close to the source as possible. If vegetation is used, native and naturalized plants should be specified to match or complement existing vegetation within the area. Existing vegetation within and surrounding the project area should be maintained and preserved to the greatest extent possible. Preserving existing vegetation will reduce the project's overall impact on soils, wildlife, cost, and visual aesthetics.

## **ATTACHMENT A**

### **GlareGauge Output Model Report**

# FORGESOLAR GLARE ANALYSIS

Project: **84241\_Dogwood Solar**

Site configuration: **84241\_Dogwood Solar\_2023-temp-2**

Analysis conducted by Ryan Rausch (rrausch@swca.com) at 17:30 on 01 Dec, 2023.

## 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

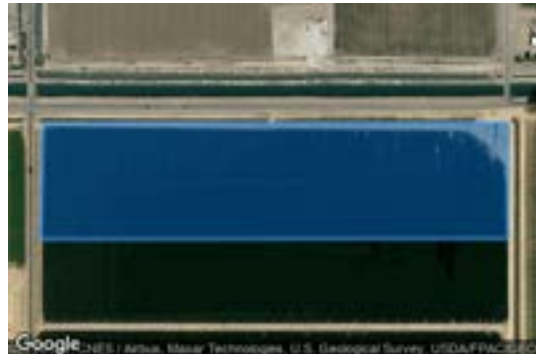
## Analysis Parameters

DNI: peaks at 1,000.0 W/m<sup>2</sup>  
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: 106890.17747  
Methodology: V2



## PV Array(s)

**Name:** PV array 1  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 180.0°  
**Max tracking angle:** 55.0°  
**Resting angle:** 0.0°  
**Ground Coverage Ratio:** 0.5  
**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	32.708216	-115.533863	-2.20	5.30	3.10
2	32.708234	-115.525441	-0.33	5.30	4.97
3	32.706464	-115.525441	-0.33	5.30	4.97
4	32.706455	-115.533927	-2.54	5.30	2.76



## Flight Path Receptor(s)

**Name:** Calexico International Airport - R26

**Description:**

**Threshold height:** 50 ft

**Direction:** 270.7°

**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	32.667365	-115.510653	0.00	50.00	50.00
Two-mile	32.667017	-115.476270	1.04	602.38	603.43

**Name:** Calexico International Airport - R8

**Description:**

**Threshold height:** 50 ft

**Direction:** 91.1°

**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	32.667564	-115.525029	5.41	50.00	55.41
Two-mile	32.668094	-115.559409	-3.40	612.24	608.84

**Name:** El Centro Naval Air Facility - R12

**Description:**

**Threshold height:** 50 ft

**Direction:** 136.3°

**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	32.829425	-115.671678	-49.58	50.00	0.42
Two-mile	32.850314	-115.695495	-54.15	608.00	553.84

**Name:** El Centro Naval Air Facility - R26

**Description:**

**Threshold height:** 50 ft

**Direction:** 270.3°

**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	32.829157	-115.657186	-49.77	50.00	0.23
Two-mile	32.828986	-115.622739	-48.23	601.89	553.66

**Name:** El Centro Naval Air Facility - R30

**Description:**

**Threshold height:** 50 ft

**Direction:** 315.2°

**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	32.817207	-115.657312	-44.20	50.00	5.80
Two-mile	32.796691	-115.633042	-36.60	595.82	559.22

**Name:** El Centro Naval Air Facility - R8

**Description:**

**Threshold height:** 50 ft

**Direction:** 90.2°

**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	32.829157	-115.686053	-49.72	50.00	0.28
Two-mile	32.829248	-115.720501	-40.69	594.39	553.71

**Name:** Holtville Airport - East

**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	32.844917	-115.259607	57.61	50.00	107.61
Two-mile	32.844917	-115.225153	76.95	584.09	661.04

**Name:** Holtville Airport - Northwest

**Description:**

**Threshold height:** 50 ft

**Direction:** 137.6°

**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	32.845060	-115.277149	57.54	50.00	107.54
Two-mile	32.866418	-115.300373	-0.56	661.52	660.96

**Name:** Holtville Airport - Southeast

**Description:**

**Threshold height:** 50 ft

**Direction:** 311.1°

**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	32.834279	-115.264661	40.40	50.00	90.40
Two-mile	32.815262	-115.238713	62.24	581.59	643.83

**Name:** Holtville Airport - West

**Description:**

**Threshold height:** 50 ft

**Direction:** 91.0°

**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	32.845044	-115.277707	57.49	50.00	107.49
Two-mile	32.845543	-115.312156	-2.02	662.94	660.92

**Name:** Imperial County Airport - R14

**Description:**

**Threshold height:** 50 ft

**Direction:** 153.6°

**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	32.841892	-115.578924	-58.17	50.00	-8.17
Two-mile	32.867798	-115.594221	-64.58	609.84	545.26

**Name:** Imperial County Airport - R26

**Description:**

**Threshold height:** 50 ft

**Direction:** 270.1°

**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	32.832130	-115.575684	-58.32	50.00	-8.32
Two-mile	32.832085	-115.541234	-62.89	608.00	545.11

**Name:** Imperial County Airport - R32

**Description:**

**Threshold height:** 50 ft

**Direction:** 332.5°

**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	32.830165	-115.571757	-57.09	50.00	-7.09
Two-mile	32.804515	-115.555861	-49.04	595.37	546.34

**Name:** Imperial County Airport - R8

**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	32.832130	-115.589953	-57.49	50.00	-7.49
Two-mile	32.832130	-115.624402	-50.96	596.90	545.94

## Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	32.735092	-115.539399	-19.68	6.00
OP 2	2	32.731208	-115.531020	-12.08	6.00
OP 3	3	32.726566	-115.551578	-13.94	6.00
OP 4	4	32.721809	-115.586715	-9.32	6.00
OP 5	5	32.723640	-115.559769	-9.20	6.00
OP 6	6	32.724655	-115.528982	-6.82	6.00
OP 7	7	32.723446	-115.530730	-4.43	6.00
OP 8	8	32.711059	-115.577585	-9.58	6.00
OP 9	9	32.708471	-115.534085	-6.10	6.00
OP 10	10	32.709388	-115.525057	-3.06	6.00
OP 11	11	32.712620	-115.513877	1.14	6.00
OP 12	12	32.714873	-115.501835	0.59	6.00
OP 13	13	32.707681	-115.482800	4.30	6.00
OP 14	14	32.700316	-115.486542	4.24	6.00
OP 15	15	32.694021	-115.542860	-1.02	6.00
OP 16	16	32.695023	-115.533445	-1.10	6.00
OP 17	17	32.693836	-115.519786	1.33	6.00
OP 18	18	32.694721	-115.516546	1.57	6.00
OP 19	19	32.690437	-115.508114	1.93	6.00
OP 20	20	32.685512	-115.516565	1.65	6.00
OP 21	21	32.684356	-115.510348	-0.85	6.00



## Route Receptor(s)

**Name:** Imperial Avenue - Northbound

**Path type:** One-way (toward increasing index)

**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	32.683464	-115.498932	6.11	4.00	10.11
2	32.685902	-115.499093	10.24	4.00	14.24
3	32.689313	-115.499120	3.56	4.00	7.56
4	32.692796	-115.499146	1.53	4.00	5.53
5	32.695230	-115.499143	1.08	4.00	5.08
6	32.697737	-115.499182	2.16	4.00	6.16
7	32.700298	-115.499189	1.74	4.00	5.74
8	32.702932	-115.499224	0.99	4.00	4.99
9	32.705369	-115.499231	-0.89	4.00	3.11
10	32.707842	-115.499299	-0.10	4.00	3.90
11	32.710433	-115.499323	-0.89	4.00	3.11
12	32.713168	-115.499346	-1.79	4.00	2.21
13	32.714495	-115.499366	-1.34	4.00	2.66
14	32.715658	-115.499384	0.69	4.00	4.69
15	32.716576	-115.499391	0.79	4.00	4.79
16	32.717068	-115.499434	0.44	4.00	4.44
17	32.717520	-115.499488	0.06	4.00	4.06
18	32.718761	-115.499708	0.23	4.00	4.23
19	32.719956	-115.499939	0.12	4.00	4.12
20	32.720653	-115.500049	0.68	4.00	4.68
21	32.721287	-115.500119	0.04	4.00	4.04
22	32.722565	-115.500141	-0.04	4.00	3.96
23	32.723907	-115.500164	-0.88	4.00	3.12

**Name:** Imperial Avenue - Southbound

**Path type:** One-way (toward increasing index)

**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	32.723912	-115.500404	-0.88	4.00	3.12
2	32.722543	-115.500372	-0.56	4.00	3.44
3	32.721200	-115.500340	0.13	4.00	4.13
4	32.720631	-115.500270	0.68	4.00	4.68
5	32.719927	-115.500152	0.06	4.00	4.06
6	32.718704	-115.499916	0.36	4.00	4.36
7	32.717479	-115.499708	0.09	4.00	4.09
8	32.717037	-115.499654	0.46	4.00	4.46
9	32.716563	-115.499622	0.81	4.00	4.81
10	32.715654	-115.499606	0.79	4.00	4.79
11	32.714494	-115.499606	-1.20	4.00	2.80
12	32.713162	-115.499568	-1.91	4.00	2.09
13	32.710421	-115.499566	-0.43	4.00	3.57
14	32.707859	-115.499520	-0.86	4.00	3.14
15	32.705370	-115.499496	-0.85	4.00	3.15
16	32.702917	-115.499472	1.03	4.00	5.03
17	32.700319	-115.499426	1.83	4.00	5.83
18	32.697757	-115.499381	1.07	4.00	5.07
19	32.695232	-115.499378	1.08	4.00	5.08
20	32.692814	-115.499375	1.52	4.00	5.52
21	32.689303	-115.499343	3.73	4.00	7.73
22	32.685899	-115.499311	10.14	4.00	14.14
23	32.683477	-115.499163	6.14	4.00	10.14

# 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	290	0	-

*Total annual glare received by each receptor*

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
Calexico International Airport - R26	0	0
Calexico International Airport - R8	0	0
El Centro Naval Air Facility - R12	0	0
El Centro Naval Air Facility - R26	0	0
El Centro Naval Air Facility - R30	0	0
El Centro Naval Air Facility - R8	0	0
Holtville Airport - East	290	0
Holtville Airport - Northwest	0	0
Holtville Airport - Southeast	0	0
Holtville Airport - West	0	0
Imperial County Airport - R14	0	0
Imperial County Airport - R26	0	0
Imperial County Airport - R32	0	0
Imperial County Airport - R8	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
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 17	0	0
OP 18	0	0
OP 19	0	0
OP 20	0	0
OP 21	0	0
Imperial Avenue - Northbound	0	0
Imperial Avenue - Southbound	0	0

## Results for: PV array 1

Receptor	Green Glare (min)	Yellow Glare (min)
Calexico International Airport - R26	0	0
Calexico International Airport - R8	0	0
El Centro Naval Air Facility - R12	0	0
El Centro Naval Air Facility - R26	0	0
El Centro Naval Air Facility - R30	0	0
El Centro Naval Air Facility - R8	0	0
Holtville Airport - East	290	0
Holtville Airport - Northwest	0	0
Holtville Airport - Southeast	0	0
Holtville Airport - West	0	0
Imperial County Airport - R14	0	0
Imperial County Airport - R26	0	0
Imperial County Airport - R32	0	0
Imperial County Airport - R8	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
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
OP 18	0	0
OP 19	0	0
OP 20	0	0
OP 21	0	0
Imperial Avenue - Northbound	0	0
Imperial Avenue - Southbound	0	0

### Flight Path: Calexico International Airport - R26

0 minutes of yellow glare

0 minutes of green glare

### **Flight Path: Calexico International Airport - R8**

0 minutes of yellow glare

0 minutes of green glare

### **Flight Path: El Centro Naval Air Facility - R12**

0 minutes of yellow glare

0 minutes of green glare

### **Flight Path: El Centro Naval Air Facility - R26**

0 minutes of yellow glare

0 minutes of green glare

### **Flight Path: El Centro Naval Air Facility - R30**

0 minutes of yellow glare

0 minutes of green glare

### **Flight Path: El Centro Naval Air Facility - R8**

0 minutes of yellow glare

0 minutes of green glare



## Flight Path: Holtville Airport - East

0 minutes of yellow glare

290 minutes of green glare



## Flight Path: Holtville Airport - Northwest

0 minutes of yellow glare

0 minutes of green glare

## Flight Path: Holtville Airport - Southeast

0 minutes of yellow glare

0 minutes of green glare

## Flight Path: Holtville Airport - West

0 minutes of yellow glare

0 minutes of green glare

## Flight Path: Imperial County Airport - R14

0 minutes of yellow glare

0 minutes of green glare

### **Flight Path: Imperial County Airport - R26**

0 minutes of yellow glare

0 minutes of green glare

### **Flight Path: Imperial County Airport - R32**

0 minutes of yellow glare

0 minutes of green glare

### **Flight Path: Imperial County Airport - R8**

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

**Point Receptor: OP 13**

0 minutes of yellow glare  
0 minutes of green glare

**Point Receptor: OP 14**

0 minutes of yellow glare  
0 minutes of green glare

**Point Receptor: OP 15**

0 minutes of yellow glare  
0 minutes of green glare

**Point Receptor: OP 16**

0 minutes of yellow glare  
0 minutes of green glare

**Point Receptor: OP 17**

0 minutes of yellow glare  
0 minutes of green glare

**Point Receptor: OP 18**

0 minutes of yellow glare

0 minutes of green glare

**Point Receptor: OP 19**

0 minutes of yellow glare

0 minutes of green glare

**Point Receptor: OP 20**

0 minutes of yellow glare

0 minutes of green glare

**Point Receptor: OP 21**

0 minutes of yellow glare

0 minutes of green glare

**Route: Imperial Avenue - Northbound**

0 minutes of yellow glare

0 minutes of green glare

**Route: Imperial Avenue - Southbound**

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 V1 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/](http://www.forgesolar.com/help/) for assumptions and limitations not listed here.

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# Air Quality and Greenhouse Gas Technical Report

*Dogwood Geothermal Energy Project*  
*Heber 2 Solar Energy Project*  
*Heber Field Company Geothermal Wells & Pipeline Project*

Prepared for: Imperial County Planning & Development Services

July 16, 2024



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## Attachments

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Attachment A. CalEEMod Air Quality and GHG Emission Data

## SECTION 1 Introduction

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Catalyst Environmental Solutions Corporation (Catalyst) has prepared this report to evaluate the potential for impacts related to air quality and greenhouse gas (GHG) resulting from implementation of the proposed Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and the Heber Field Company Geothermal Wells and Pipeline Project (collectively, the Project) in the Imperial County, California. This report includes an evaluation of potential impacts associated with construction and operational air emissions and whether Project-induced emissions are in excess of standards established by the applicable local jurisdiction (i.e., Imperial County Air Pollution Control District). Site-specific construction and operations activity information used for air emissions models are based on information provided by ORMAT.

### 1.1 Project Overview

#### 1.1.1 Project Location and Description

The Project entails the development of a new 25 megawatt (MW; net generation) geothermal power plant supported by a 7 MW parasitic solar energy facility (Dogwood Project); a 15 MW parasitic solar energy facility for the existing Heber 2 geothermal plant (Heber 2 Parasitic Solar Project); and, up to six geothermal production wells, one injection well, and supporting pipeline segment (Heber Field Company Wells & Pipeline Project). Proposed facilities include:

- **Dogwood Project (OrHeber 3, LLC) – CUP No. 23-0020**
  - One (1) Integrated Two Level Unit (ITLU) Air Cooled ORMAT Energy Converter (OEC) generating unit
  - Two (2) 20,000-Gallon Isopentane Tanks for Motive Fluid Storage
  - One (1) Project substation for transmission to the grid
  - Ancillary and auxiliary facilities (including, compressed air system and fire prevention system)
  - A seven (7) megawatt (MW) solar photovoltaic field dedicated to the Dogwood geothermal plant
  - Interconnecting cable line from Dogwood solar facilities to Dogwood geothermal plant
- **Heber 2 Parasitic Solar Energy Facilities (Second Imperial Geothermal Company) – CUP No. 23-0021**
  - A fifteen (15) MW solar photovoltaic field dedicated to the Heber 2 geothermal plant
  - Interconnecting cable line from Heber 2 solar facilities to Heber 2 geothermal plant
- **Wells and Pipeline (Heber Field Company, LLC) – CUP No. 23-0022**
  - Up to six (6) new production wells (3 sited, 3 unsited)

- One (1) new injection well
- Brine pipelines

Proposed developments would occur on APN 054-250-31; APN 059-020-001; APN 054-250-017, near the existing geothermal energy complex located at 855 Dogwood Road, Heber, California. The Project Site(s) is within the Imperial County Geothermal Overlay Zone that allows for Major Geothermal Projects to be permitted via a Conditional use Permit (CUP) process (Imperial County General Plan; Renewable Energy and Transmission Element of County of Imperial General Plan, 2015).

photovoltaic field exclusively dedicated to the Heber 2 geothermal plant.

The Project would rely on fluid from the existing well field and new production wells proposed by the Heber Field Company (HFC), which owns and operates the wells that service the Heber 2, Heber South, and Goulds 2 facilities. Three new production wells will be split between two locations (two in APN 059-020-001 and one in APN 054-250-017), and a 1000-foot brine pipeline would be constructed in the solar field (APN 059-020-001). HFC also proposes to utilize the existing available injection capacity from an existing well on-site and build one new injection well that would be installed adjacent to the Dogwood geothermal facility. HFC would install new connections and pipeline segments to connect the Project with the new and existing well system. The total project area of disturbance from the proposed development is approximately 124 acres as summarized in **Table 1**.

Table 1. Dogwood Project Area of Disturbance Estimates

Facility	Disturbance (Acres)
Geothermal Energy Facilities and Project Substation	5.0 acres
Solar Field and Connection Line	~ 95 acres
Production and Injection Wells and Connecting Pipeline	~ 24 acres
<b>TOTAL</b>	<b>124 acres</b>

### 1.1.2 Dogwood Geothermal Energy Project

#### 1.1.3 Geothermal Production and Injection Wells

Production wells flow geothermal fluid to the surface, and injection wells are used to inject geothermal fluid from the energy plant back into the geothermal reservoir. Injection ensures the longevity and renewability of the geothermal resource. The Applicant proposes to develop up to six geothermal production wells, all within the Imperial County Geothermal Overlay Zone. The location of three of the production wells are known at this time and the remaining wells will be sited within the same APNs 059-020-001 and 054-250-017. The injection well would be installed within the HGEC, immediately next to the proposed Dogwood OEC (separate CUP application).

During well installation, each well pad would accommodate a drilling rig, support equipment, portable bathroom, baker tanks, and project vehicles. Each well pad would be prepared to create a level pad for the drill rig and a graded surface for the support equipment. Each well would be drilled with a rotary drill rig similar to those used to drill oil and gas wells. The production wells would each be drilled and cased to a design depth of approximately 5,000 feet. Following the cementing of the surface casing, blowout prevention equipment (BOPE) would be installed. During drilling operations, a minimum of

10,000 gallons of cool water and 12,000 pounds of inert, non-toxic barite (barium sulfate) would be stored at each well pad (as appropriate for the type of material) for use in preventing uncontrolled well flow, as necessary.

Once the well is completed, a well head will be installed and connected to the pipeline network to convey geothermal fluids. A motor control building would be installed next to the well head to provide system controls, sensors, and treatment systems. During normal well field operations, total geothermal fluid production rates are expected to be approximately 15,150 gallons per minute (gpm) at 280°F. Injection would occur at the same approximate levels (i.e., 15,150 gpm) but at lower temperatures of near 170°F.

#### 1.1.4 Geothermal Fluid Pipeline

Approximately 4,500 feet (0.85 miles) of geothermal fluid production pipeline are proposed for installation on APN 059-020-001. This new segment of pipeline will connect to an existing pipeline collection point that will deliver the geothermal brine to the proposed Dogwood OEC. The well on APN 054-250-017 would connect to the existing pipeline segment adjacent to the proposed well pad site. The pipeline would be used to transport geothermal fluid from the production wells to the power plants.

Construction of the pipeline network would begin by vertically auguring nominal 24-inch diameter holes into the ground about three to five feet deep at approximately 30-foot intervals along the pipeline route. Two holes for pipeline supports would be drilled at each anchor point. Dirt removed from the holes would be cast on the ground adjacent to each hole. The steel pipe “sleeper” would be placed in the hole and concrete poured to fill the hole slightly above the ground surface.

After the anchor points are installed, approximately 30-foot-long steel pipe sections would be delivered and placed along the pipeline construction corridor. A small crane would lift the pipe sections onto the pipe supports and temporary pipe jacks so that they could be welded together into a solid pipeline. Once welded and the welds tested, the pipe would be jacketed with insulation and an aluminum sheath (appropriately colored, likely covert green, to blend with the area).

When completed, the top of the new geothermal pipelines would average three to four feet above the ground surface to accommodate terrain undulations and to facilitate movement of wildlife. Electrical power and instrumentation cables for the wells would then either be installed in steel conduit constructed along the pipe or hung by cable from pipe along the pipeline route.

#### 1.1.5 ORMAT Energy Converter (OEC)

The proposed OEC unit is a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists of a generator, turbines, a vaporizer, Air-Cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).

#### 1.1.6 Isopentane Storage Tanks

Two double-walled 20,000-gallon above-ground storage tanks (AST) will be installed for the Project. Numerous safety and fire prevention measures will be installed on/near the isopentane tanks, including:

- Concrete foundations with blast walls separating the tanks from the OEC
- An automated water suppression system.
- Concrete containment areas.
- Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
- A gas detector, which will immediately detect any isopentane leak and notify the control room (manned by 24/7).

### 1.1.7 Cooling Tower

A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid. The dry cooling tower array does not result in water evaporation, hence there are no associated emissions of particulate matter associated with operation of these types of units as there are with wet cooling towers.

### 1.1.8 Supplemental Solar Energy Plants

An approximately 7 MW (net) solar photovoltaic field would provide power directly to the Dogwood Project to offset auxiliary/parasitic loads during operations. A 15 MW solar field would also provide supplemental/auxiliary energy to the existing Heber 2 geothermal plant. The solar arrays will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy.

### 1.1.9 Project Substation

The Project will require a new substation to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. No upgrades to off-site transmission facilities are necessary and the new Dogwood substation will connect directly to the existing point of interconnection with the Imperial Irrigation District (IID) controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection. A main control building would contain instrumentation and telecommunications equipment.

The substation footprint would measure up to 145 feet by 66 feet and would be surrounded by an eight-foot-tall chain link fence with vehicle and personnel access gates. The surface of the substation would be covered by gravel and the substation equipment would be placed onto concrete foundations.

### 1.1.10 Water Use and Source

Water required for facility construction activities, including grading and dust control, will be obtained from the applicant's existing contract with IID. Up to 5,000 gallons per day (gpd) of water will be required for the first 2-4 months of development of the facility. Approximately 2,000 gpd will be consumed during the remaining development schedule of approximately 12-18 months. Thus,



approximately 1.1 million gallons of water (10.1 acre-feet) will be used on-site during construction. Once operating, up to approximately 325 gpd (0.36 acre-feet per year) of non-potable water will be required and provided by the applicant's existing IID contract/allocation. Water required for well drilling would typically average 50,000 gpd. Water necessary for these activities would be obtained from local irrigation canals in conformance with IID requirements. Alternatively, a temporary pipeline from the respective irrigation canal could be used for water delivery to well sites. Any temporary pipeline would be laid on the surface immediately adjacent to the access road. The Project OEC is air cooled and will not require additional water resources. The Project will not require additional water from the Imperial Irrigation District (IID) for operations and will be covered under the existing contract.

## 1.2 Construction Activities

Construction of the proposed facilities is anticipated to take up to 35 months, beginning in the first quarter 2025. Facility construction would include site preparation activities, but no demolition of existing structures/buildings will occur. **Table 2** below provides a breakdown of the proposed construction schedule by phase and duration. Some construction activities will occur concurrently as facilities are installed simultaneously, as noted by the Phase Duration column not summing Activity Durations perfectly.

Table 2. Project Construction Process/Phasing

Construction Phase	Construction Activity	Activity Duration	Phase Duration
Site Preparation	Construction Kick-off/Staging	1 week	2 months
	Demolition/Site Clearing	1 week	
	Site Preparation/Rough Grading	2 weeks	
	Fine/Pad Grading, Excavation for Underground Conduit/Utilities, Stormwater	1 month	
Project Construction	Well Pad Construction	3 months	16 months
	Parasitic Solar Construction	6 months	
	Gen-tie distribution cable	4 months	
	OEC Installation	6 months	
	Landscaping, Lighting, Architectural Finishes	1 month	
Well Drilling & Pipeline Interconnection	Well Drilling and Completion	4 months	12 months
	Flow Testing	4 months	
	Pipeline Install and Interconnection	4 Months	
Substation Development & Interconnection	Project substation Development	3 months	4 months
	Interconnection with grid	2 weeks	
	Testing	2 weeks	
Testing & Operational	Testing Phase	2 weeks	1 month
	All Facilities Operational	2 weeks	

ORMAT has estimated construction equipment and usage for the Project based on experience with similar projects as provided in **Table 3**. Similarly, based on construction activities associated with similar projects, ORMAT anticipates that up to 15 workers would be required for construction of Project components. Vehicle and truck trip generation rates for the Project provided in **Table 4** are estimated assuming roughly 3 trips/worker (assumed 50 percent of 15 workers leave/return once during the day) for a total of 46 trips, and 2 trips/vehicle (in/out) for vendor and haul trips. Trip lengths consist of default CalEEMod values with exception of vendors for delivery of Project equipment during construction, with deliveries of solar panels, geothermal equipment, etc. assumed to originate at Port of Long Beach, approximately 225 miles from Project site.

Table 3. Project Construction Equipment List by Project Activity

Construction Phase	Equipment <sup>1</sup>	Quantity <sup>1</sup>	Engine Horsepower <sup>1</sup>	No. Days Used <sup>1</sup>	No. Hours Operated Per Day <sup>1</sup>
<b>Site Preparation (Plant Site and Solar Fields) (2 Months)</b>	Heavy Duty Trucks	3	402	30	5
	Excavator	1	97	30	8
	Roller	2	200	30	8
	Light-Duty Truck	8	350	30	4
<b>Project Construction (16 Months)</b>	Aerial Man Lifts	8	63	160	6
	Excavator	1	97	40	8
	Crane	2	231	160	6
	Forklift	1	89	40	8
	Forklift	6	89	245	8
	Generator Set	1	84	320	8
	Grader	1	187	30	8
	Heavy Duty Trucks	2	402	90	8
	Rubber Tired Loader	1	203	30	8
	Backhoe	1	97	30	8
	Welders	15	46	245	6
	Light Duty Truck	1	350	40	4
	Light Duty Truck	15	350	245	4
<b>Well Drilling and Pipe Interconnection (12 Months)</b>	Light tower	2	27	90	12
	Drill Rig	1	500	180	24
	Rig Mud Pump	1	500	180	24
	Rig Generator	1	415	180	24
	Heavy Duty Trucks (Mob/Demob)	8	450	24	8
	Crane	2	231	24	5
	Backhoe	1	97	24	6
	Forklift	1	89	24	6
	Vacuum Truck	1	385	24	10
	Concrete Truck	1	428	3	4
	Concrete Pumper	1	100	3	4
	Light Duty Truck	4	350	24	4
<b>Substation Development and</b>	Crane	1	231	80	8
	Drill/Bore Rig	1	221	80	8
	Aerial Lift	2	63	80	8

Construction Phase	Equipment <sup>1</sup>	Quantity <sup>1</sup>	Engine Horsepower <sup>1</sup>	No. Days Used <sup>1</sup>	No. Hours Operated Per Day <sup>1</sup>
<b>Interconnection (4 Months)</b>	Heavy Duty Trucks (Delivery)	2	402	20	4
	Backhoe	1	97	14	8
	Forklift	1	89	80	8
	Ditch Digger	1	13	20	8
	Generator Set	2	84	80	8
	Light Duty Truck	5	350	80	4
<b>Testing (1 Month)</b>	Generator	1	671	30	24
	Light Tower (27 hp)	2	27	30	12
	Light Tower (9 hp)	2	9	30	12
	Pump (115 hp)	1	115	30	24
	Pump (415 hp)	1	415	30	24
	Light Duty Truck	1	350	30	4

Notes:

<sup>1</sup> Project equipment and use provided by ORMAT based on experience with construction of similar projects.

Table 4. Construction Vehicle Trips

Construction Phase	Trip Type	Number of One-Way Trips per Day	One-Way Trip Length (miles) <sup>2</sup>
<b>Site Preparation</b>	Workers <sup>1</sup>	46	10.2
	Vendor	10	11.9
	Haul	8	20
<b>Project Construction</b>	Workers <sup>1</sup>	46	10.2
	Vendor	40	225
	Haul	2	20
<b>Well Drilling and Pipe Interconnection</b>	Workers <sup>1</sup>	46	10.2
	Vendor	10	11.9
	Haul	0	20
<b>Substation Development and Interconnection</b>	Workers <sup>1</sup>	46	10.2
	Vendor	10	11.9
	Haul <sup>3</sup>	0	20
<b>Testing</b>	Workers <sup>1</sup>	46	10.2
	Vendor	4	11.9
	Haul	0	20

Notes:

<sup>1</sup> Trip generation rate is calculated at roughly 3 trips/worker (assumed 50 percent of 15 workers leave/return once during the day) for a total of 46 trips, and 2 trips/vehicle (in/out) for vendor and haul trips.

<sup>2</sup> Trip lengths consist of default CalEEMod values with exception of vendors for delivery of Project equipment during construction, with deliveries of solar panels, geothermal equipment, etc. assumed to originate at Port of Long Beach, approximately 225 miles from Project site.

<sup>3</sup> All truck trips are assigned to vendor deliveries.

### 1.3 Operation Activities

Once the proposed Project is complete, the site will be staffed with 1-2 onsite employees. The proposed Project would require routine maintenance and unscheduled maintenance as needed. The parasitic solar facilities will be monitored remotely with visitation on an as-needed basis, and security personnel will perform periodic site visits. 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.

Emergency response equipment at the site includes the following equipment and estimated operational hours per year:

- 400 kilowatt (kW) (540 horsepower [hp]) Emergency Diesel Generator with an estimated operation duration of 50 hours per year, and
- 300 hp Emergency Diesel Fire Pump with an estimated operation duration of 40 hours per year.

Both emergency engines will meet a minimum of U.S. Environmental Protection Agency (USEPA) Exhaust Emission Standards for Tier 3 nonroad compression-ignition engines.

The proposed substation includes new circuit breakers that would potentially be insulated with SF<sub>6</sub>. Note that CARB amended the *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV, January 1, 2029 for voltage between 145 and 245 kV, and January 1, 2031 for voltage greater than 245 kV). In the case that SF<sub>6</sub> alternative technology is available and approved prior to construction, the proposed Project would not require SF<sub>6</sub> for project operations. For the purpose of this analysis, it is assumed that a maximum of three circuit breakers will be insulated with SF<sub>6</sub> with an estimated 25 pounds of SF<sub>6</sub> gas per circuit breaker resulting in a total of 75 pounds of SF<sub>6</sub> gas required at the site. Consistent with the International Electrotechnical Commission (IEC) standard for new equipment leakage, a 0.5% per year leakage rate is assumed (United States Environmental Protection Agency [USEPA] 2016). Accordingly, an estimated 0.375 pounds of SF<sub>6</sub> would be released annually.

## SECTION 2 Existing Conditions

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The Project is located in Imperial County within the Salton Sea Air Basin (SSAB). The Imperial County portion of the SSAB is under the jurisdiction of the Imperial County Air Pollution Control District (ICAPCD). The SSAB encompasses the entirety of Imperial County and the southeast portion of Riverside County and is generally an arid desert region, with a significant land area located below sea level. The hot and dry conditions experienced in the region are a result of a large, semi-permanent high-pressure area that dominates the Imperial Valley and the presence of the coastal mountains to the west. The high pressure blocks most storms, except during the winter when the pressure is the weakest and tends to shift to the south.

The coastal mountains tend to block moist air from entering the valley resulting in hot temperatures during the summer and dry weather year-round. The SSAB contains relatively few major emissions sources, but may experience emissions transported from Mexicali, Mexico and from significant vehicular traffic, particularly near the two international ports of entry: Calexico West and Calexico East. Emissions sources within the SSAB consist of geothermal power generation, food processing, plaster and wallboard (gypsum) manufacturing, and other light industrial facilities.

The federal Clean Air Act (CAA), as amended, and the California Clean Air Act (CCAA) contain the primary provisions relating to air quality that apply to the Project. The EPA, CARB, and regional air districts have issued rules to implement the federal and state Clean Air Acts. The EPA uses “criteria pollutants” as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health and the environment may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). One set of limits (primary standard) protects health; another set of limits (secondary standard) is intended to prevent environmental and property damage. Under the CAA, the EPA has established NAAQS for seven criteria pollutants: ozone (O<sub>3</sub>), respirable particulate matter (PM<sub>10</sub>), fine particulate matter (PM<sub>2.5</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), lead (Pb), and sulfur dioxide (SO<sub>2</sub>). California has established State Ambient Air Quality Standards for the same criteria pollutants, plus an additional three pollutants (visibility reducing particulates, sulfates, and hydrogen sulfide [H<sub>2</sub>S]). States may have standards that are more restrictive than the federal thresholds, but they cannot be less restrictive. Although more stringent, the California standards have no specific dates for attainment, unlike federal standards. Under California law, designations are made by pollutant, rather than by averaging time. A geographic area that meets or exceeds the primary standard is called an attainment area; areas that do not meet the primary standard are called nonattainment areas.

### 2.1 Criteria Air Pollutants

A criteria air pollutant is any air pollutant for which ambient air quality standards (criteria) have been set by the USEPA (National Ambient Air Quality Standards [NAAQS]) or California Air Resources Board (CARB) (California Ambient Air Quality Standards [CAAQS]). The presence of these pollutants in ambient air is generally due to numerous diverse and widespread sources of emissions, and air quality standards have been established for these pollutants to protect public health. Criteria pollutants include ozone

(O<sub>3</sub>), fine particulate matter (PM<sub>2.5</sub>), respirable particulate matter (PM<sub>10</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), lead (Pb), sulfur dioxide (SO<sub>2</sub>), visibility-reducing particles, sulfates, and hydrogen sulfide (H<sub>2</sub>S).

**Table 5** shows the state and federal ambient air quality standards while **Table 6** presents the attainment status of the SSAB for the state and federal standards. As shown, the Imperial County portion of the SSAB is currently designated as nonattainment for O<sub>3</sub> and PM<sub>10</sub> under state standards. Under federal standards, the Imperial County portion of the SSAB is in nonattainment for O<sub>3</sub> and PM<sub>2.5</sub> and is in attainment for PM<sub>10</sub>. The area is currently in attainment or unclassified status for CO, NO<sub>2</sub>, and SO<sub>2</sub>.

Table 5. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Period	California Standard	Federal Standard
Ozone (O <sub>3</sub> )	1 hour	0.09 ppm (180 µg/m <sup>3</sup> )	Revoked
Ozone (O <sub>3</sub> )	8 hour	0.070 ppm (137 µg/m <sup>3</sup> )	0.07 ppm (137 µg/m <sup>3</sup> )
Respirable Particulate Matter (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
PM <sub>10</sub>	Annual	20 µg/m <sup>3</sup>	Revoked
Fine Particulate Matter (PM <sub>2.5</sub> )	24 hour	none	35 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )
CO	8 hour	9 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )
Nitrogen Dioxide (NO <sub>2</sub> )	1 hour	0.18 ppm (339 µg/m <sup>3</sup> )	0.100 ppm (188 µg/m <sup>3</sup> )
NO <sub>2</sub>	Annual	0.030 ppm (57 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )
Lead (Pb)	30 Day Average	1.5 µg/m <sup>3</sup>	--
Pb	Rolling three-month period, evaluated over a three-year period	--	0.15 µg/m <sup>3</sup>
Sulfur Dioxide (SO <sub>2</sub> )	1 hour	0.25 ppm (655 µg/m <sup>3</sup> )	0.075 ppm (196 µg/m <sup>3</sup> )
SO <sub>2</sub>	3 hour	--	0.5 ppm (1300 µg/m <sup>3</sup> )
SO <sub>2</sub>	24 hour	0.04 ppm (105 µg/m <sup>3</sup> )	0.14 ppm (for certain areas)



Pollutant	Averaging Period	California Standard	Federal Standard
Hydrogen Sulfide (H <sub>2</sub> S)	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	--
Sulfates	24 hour	25 µg/m <sup>3</sup>	--
Vinyl Chloride	24 hour	0.010 ppm (26 µg/m <sup>3</sup> )	--
Visibility-Reducing Particles	8 hour	Extinction coefficient of 0.23 per kilometer (visibility of ten miles or more due to particles when relative humidity is less than 70 percent)	--

Notes: ppm = parts per million; ppb = parts per billion; mg/m<sup>3</sup> = milligram per cubic meter; µg/m<sup>3</sup> = micrograms per cubic meter; "--" = no standard.

Table 6. Attainment Status – Imperial Valley Portion of the SSAB

Pollutant	California Designation	Federal Designation
Ozone (O <sub>3</sub> )	Nonattainment	Nonattainment
Respirable Particulate Matter (PM <sub>10</sub> )	Nonattainment	Attainment
Fine Particulate Matter (PM <sub>2.5</sub> )	Attainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Unclassified/Attainment
Nitrogen Dioxide (NO <sub>2</sub> )	Attainment	Unclassified/Attainment
Lead (Pb)	Attainment	Unclassified/Attainment
Sulfur Dioxide (SO <sub>2</sub> )	Attainment	Unclassified/Attainment
Hydrogen Sulfide (H <sub>2</sub> S)	Unclassified	No Federal Standards
Sulfates	Attainment	No Federal Standards
Visibility Reducing Particles	Unclassified	No Federal Standards

Source: CARB 2023

### 2.1.1 Ozone

O<sub>3</sub> is formed in the atmosphere by a series of complex chemical reactions and transformations in the presence of sunlight. Oxides of nitrogen (NO<sub>x</sub>) and reactive organic gases (ROGs) are the principal constituents in these reactions. O<sub>3</sub> is a pungent, colorless, toxic gas and is a primary component of smog.

O<sub>3</sub> is known as a secondary pollutant because it is formed in the atmosphere through a complex series of chemical reactions, rather than emitted directly into the air. The major sources of NO<sub>x</sub> in California are motor vehicles and other combustion processes. The major sources of ROG in California are motor vehicles and the evaporation of chemical solvents and fuels.

O<sub>3</sub> is a strong irritating gas that can chemically burn and cause narrowing of airways, forcing the lungs and heart to work harder to provide oxygen to the body. People most likely to be affected by O<sub>3</sub> include the elderly, the young, athletes, and those who suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis.

### 2.1.2 PM<sub>10</sub>

PM<sub>10</sub>, or fugitive dust, consists of particulate matter (fine dusts and aerosols) that is ten microns or smaller in aerodynamic diameter. For reference, ten microns is about one-seventh the width of a human hair. When inhaled, particles larger than 10 microns are generally caught in the nose and throat and do not enter the lungs. PM<sub>10</sub> gets into the large upper branches of the lungs just below the throat, where they are caught and removed (by coughing, spitting, or swallowing).

The primary sources of PM<sub>10</sub> include dust, paved and unpaved roads, diesel exhaust, acidic aerosols, construction and demolition operations, soil and wind erosion, agricultural operations, residential wood combustion, and smoke. Secondary sources of PM<sub>10</sub> include tailpipe emissions and industrial sources. These sources have different constituents and therefore, varying effects on health. Airborne particles absorb and adsorb toxic substances and can be inhaled and lodge in the lungs. Once in the lungs, the toxic substances can be absorbed into the bloodstream and carried throughout the body. PM<sub>10</sub> concentrations tend to be lower during the winter months because meteorology greatly affects PM<sub>10</sub> concentrations. During rainfall events, concentrations are relatively low, and on windy days, PM<sub>10</sub> levels can be high. Photochemical aerosols, formed by chemical reactions with manmade emissions, may also influence PM<sub>10</sub> concentrations.

Elevated ambient particulate levels are associated with premature death, an increased number of asthma attacks, reduced lung function, aggravation of bronchitis, respiratory disease, and cancer.

### 2.1.3 PM<sub>2.5</sub>

PM<sub>2.5</sub> is a mixture of particulate matter (fine dusts and aerosols) that is 2.5 microns or smaller in aerodynamic diameter. For reference, 2.5 micrometers is approximately 1/30 the size of a human hair, so small that several thousand of these particles could fit on the period at the end of this sentence. PM<sub>2.5</sub> can travel into the deepest portions of the lungs where gas exchange occurs between the air and the bloodstream. These particles are very dangerous because the deepest portions of the lungs have no efficient mechanisms for removing them. If these particles are soluble in water, they pass directly into the bloodstream within minutes. If they are not soluble in water, they are retained deep in the lungs and can remain there permanently.

PM<sub>2.5</sub> particles are emitted from activities such as industrial and residential combustion processes, wood burning, and from diesel and gasoline-powered vehicles. They are also formed in the atmosphere from gases such as SO<sub>2</sub>, NO<sub>x</sub>, ammonia, and volatile organic compounds that are emitted from combustion

activities, and then become particles as a result of chemical transformations in the air (secondary particles).

Exposure to  $PM_{2.5}$  increases the risks of long-term disease, including chronic respiratory disease, cancer, and increased and premature death. Other effects include increased respiratory stress and disease, decreased lung function, alterations in lung tissue and structure, and alterations in respiratory tract defense mechanisms.

#### 2.1.4 Carbon Monoxide

CO is a common colorless, odorless, highly toxic gas. It is produced by natural and anthropogenic combustion processes. The major source of CO in urban areas is incomplete combustion of carbon containing fuels (primarily gasoline, diesel fuel, and natural gas). However, it also results from combustion processes, including forest fires and agricultural burning. Over 80 percent of the CO emitted in urban areas is contributed by motor vehicles. Ambient CO concentrations are generally higher in the winter, usually on cold, clear days and nights with little or no wind. Low wind speeds inhibit horizontal dispersion, and surface inversions inhibit vertical mixing. Traffic-congested intersections have the potential to result in localized high levels of CO. These localized areas of elevated CO concentrations are termed CO “hotspots”. CO hotspots are defined as locations where ambient CO concentrations exceed the CAAQS (20 parts per million (ppm), 1-hour; 9 ppm, 8-hour).

When inhaled, CO does not directly harm the lungs; rather, it combines chemically with hemoglobin, the oxygen-transporting component of blood and diminishes the ability of blood to carry oxygen to the brain, heart, and other vital organs. Red blood cells have 220 times the attraction for CO than for oxygen. This affinity interferes with movement of oxygen to the body’s tissues. Effects from CO exposure include headaches, nausea, and death. High levels of CO in a concentrated area can result in asphyxiation.

#### 2.1.5 Nitrogen Dioxide

$NO_2$  is formed in the atmosphere primarily by the rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. It is a reddish-brown gas with an odor similar to that of bleach.  $NO_2$  participates in the photochemical reactions that result in  $O_3$ . The greatest source of NO, and subsequently  $NO_2$ , is the high-temperature combustion of fossil fuels such as in motor vehicle engines and power plant boilers.  $NO_2$  and NO are referred to collectively as  $NO_x$ .

$NO_2$  can irritate and damage the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections such as influenza. Negative health effects are apparent after exposure to  $NO_2$  levels as low as 0.11 ppm for a few minutes. This level of exposure may elicit or alter sensory responses. Higher concentrations (0.45 - 1.5 ppm) may cause impaired pulmonary function, increased incidence of acute respiratory disease, and difficult breathing for both bronchitis sufferers and healthy persons.

#### 2.1.6 Lead

Lead is a bluish-gray metal that occurs naturally in small quantities. Pure lead is insoluble in water. However, some lead compounds are water soluble. Lead and lead compounds in the atmosphere often come from fuel combustion sources, such as the burning of solid waste, coal, and oils. Historically, the

largest source of lead in the atmosphere resulted from the combustion of leaded gasoline in motor vehicles. However, with the phase-out of leaded gasoline, concentrations of lead in the air have substantially decreased. Industrial sources of atmospheric lead include steel and iron factories, lead smelting and refining, and battery manufacturing. Atmospheric lead may also result from lead in entrained dust and dirt contaminated with lead.

Acute health effects of lead include gastrointestinal distress (such as colic), brain and kidney damage, and even death. Lead also has numerous chronic health effects, including anemia, central nervous system damage, reproductive dysfunction, as well as effects on blood pressure, kidney function, and vitamin D metabolism. The USEPA's Office of Air Quality Planning and Standards ranks lead as a "high concern" pollutant based on its severe chronic toxicity.

### 2.1.7 Sulfur Dioxide

SO<sub>2</sub> is a colorless gas with a sharp, irritating odor. It can react in the atmosphere to produce sulfuric acid and sulfates, which contribute to acid deposition and atmospheric visibility reduction. It also contributes to the formation of PM<sub>10</sub>. Most of the SO<sub>2</sub> emitted into the atmosphere is from the burning of sulfur-containing fossil fuels by mobile sources, such as marine vessels and farm equipment, and stationary fuel combustion.

SO<sub>2</sub> irritates the mucous membranes of the eyes and nose, and may also affect the mouth, trachea, and lungs, causing sore throat, coughing, and breathing difficulties.

## 2.2 Toxic Air Contaminants

Toxic air contaminants (TACs), also referred to as hazardous air pollutants, are air pollutants (excluding O<sub>3</sub>, CO, SO<sub>2</sub>, and NO<sub>2</sub>) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunction, neurological disorders, heritable gene mutations, or other serious or irreversible acute or chronic health effects in humans. TACs are regulated under different federal and state regulatory processes than O<sub>3</sub> and the other criteria air pollutants. Health effects of TACs may occur at extremely low levels, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TACs generally consist of four types: 1) organic chemicals such as benzene, dioxins, toluene, and perchloroethylene; 2) inorganic chemicals such as chlorine and arsenic; 3) fibers such as asbestos; and 4) metals such as mercury, cadmium, chromium, and nickel. These air contaminants are defined by the USEPA, the State of California, and other governmental agencies. Currently, more than 900 substances are regulated TACs under federal, state, and local regulations.

TACs are produced by a variety of sources, including industrial facilities such as refineries, chemical plants, chrome plating operations, and surface coating operations; commercial facilities such as dry cleaners and gasoline stations; motor vehicles, especially diesel-powered vehicles; and consumer products. TACs can be released as a result of normal industrial operations, as well as from accidental releases during process upset conditions.

Health effects from TACs vary with the type of pollutant, the concentration of the pollutant, the duration of exposure, and the exposure pathway. TACs usually get into the body through inhalation, though they can also be ingested or absorbed through the skin. Adverse effects on people tend to be either acute or chronic. Acute effects result from short-term, high levels of airborne toxic substances.

These effects may include nausea, skin irritation, cardiopulmonary distress, and even death. Chronic effects result from long-term, low-level exposure to airborne toxic substances. Effects can range from relatively minor to life-threatening. Less serious chronic effects include skin rashes, dry skin, coughing throat irritation, and headaches. More serious chronic effects include lung, liver, and kidney damage; nervous system damage; miscarriages; genetic and birth defects; and cancer. Many TACs can have both carcinogenic and non-carcinogenic health effects.

## 2.3 Other Issues of Concern

### 2.3.1 Odors

Odors are substances in the air that pose a nuisance to nearby land uses such as residences, schools, daycare centers, and hospitals. Odors are typically not a health concern but can interfere with the use and enjoyment of nearby property. Odors may be generated by a wide variety of sources. The odor associated with decomposing organic material (such as plants removed from ponds and left to decay) may also be considered to be objectionable. Objectionable odors created by a facility or operation may cause a nuisance or annoyance to adjacent populations.

### 2.3.2 Fugitive Dust

Fugitive dust refers to solid particulate matter that becomes airborne because of wind action and human activities. Fugitive dust particles are mainly soil minerals, but can also be sea salt, pollen, spores, tire particles. About half of fugitive dust particles (by weight) are larger than 10 microns and settle quickly. Fugitive dust particles 10 microns or smaller (i.e.,  $PM_{10}$ ) can remain airborne for weeks.

The primary sources of fugitive dust are grading and excavation operations associated with road and building construction, aggregate mining and processing operations, and sanitary landfill operations. Unpaved roadways are also a large source of fugitive dust. Other sources of fugitive dust include demolition activities, unpaved roadway shoulders, vacant lots, material stockpiles, abrasive blasting operations, and off-road vehicle use. The amount of fugitive dust created by such activities is dependent largely on the type of soil, type of operation taking place, size of the area, degree of soil disturbance, soil moisture content, and wind speed.

When fugitive dust particles are inhaled, they can travel easily to the deep parts of the lungs and may remain there, causing respiratory illness, lung damage, and even premature death in sensitive people. Fugitive dust may also be a nuisance to those living and working nearby. Dust blown across roadways can lead to traffic accidents by reducing visibility. Fugitive dust can soil and damage materials and property, such as fabrics, vehicles, and buildings. Particulates deposited on agricultural crops can lower crop quality and yield. Additionally, fugitive dust can lead to the spread of San Joaquin Valley Fever, a potential health hazard caused by a fungus that lives in certain soil types throughout California.

## 2.4 Greenhouse Gas

Recent significant changes in global climate patterns have been associated with global warming, an average increase in the temperature of the atmosphere near Earth's surface. Global warming has been attributed to the accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat

in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities appears to be closely associated with global warming.

The standard state definition of GHG includes six substances: carbon dioxide (CO<sub>2</sub>); methane (CH<sub>4</sub>); nitrous oxide (N<sub>2</sub>O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulfur hexafluoride (SF<sub>6</sub>) (CARB 2014). Tropospheric O<sub>3</sub> (a short-lived, not-well-mixed gas) and black carbon are also important climate pollutants. CO<sub>2</sub> is the most abundant GHG, and collectively CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O amount to 80 percent of GHG effects.

For each GHG, a global warming potential (GWP) has been calculated to reflect how long emissions remain in the atmosphere and how strongly energy is absorbed on a per-kilogram basis relative to CO<sub>2</sub>. GWP is a metric that indicates the relative climate forcing of a kilogram of emissions when averaged over the period of interest (both 20-year and 100-year horizons are used for the GWPs shown in **Table 7**). To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent of CO<sub>2</sub>, denoted as CO<sub>2</sub>e. CO<sub>2</sub>e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect.

Table 7. Global Warming Potential for Selected Greenhouse Gases

Pollutant	Lifetime (Years)	Global Warming Potential (20-Year)	Global Warming Potential (100-Year)
Carbon Dioxide	100	1	1
Nitrous Oxide	121	264	265
Nitrogen Trifluoride	500	12,800	16,100
Sulfur Hexafluoride	3,200	17,500	23,500
Perfluorocarbons	3,000-50,000	5,000-8,000	7,000-11,000
Black Carbon	days to weeks	270-6,200	100-1,700
Methane	12	84	28
Hydrofluorocarbons	Uncertain	100-11,000	100-12,000

Source: CARB 2014

The primary effect of rising global concentrations of atmospheric GHG is a rise in the average global temperature of approximately 0.2 degrees Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using emission rates shows that further warming is likely to occur given the expected rise in global atmospheric GHG concentrations from innumerable sources of GHG emissions worldwide, which would induce further changes in the global climate system during the current century.

Scientific understanding of the fundamental processes responsible for global climate change has improved over the past decade. However, there remain significant scientific uncertainties. For example, uncertainties exist in predictions of local effects of climate change, occurrence of extreme weather



events, and effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the climate system, the uncertainty surrounding the implications of climate change may never be eliminated. Because of these uncertainties, there continues to be significant debate as to the extent to which increased concentrations of GHGs have caused or would cause climate change, and with respect to the appropriate actions to limit and/or respond to climate change. In addition, it may not be possible to link specific development projects to future specific climate change impacts, though estimating project-specific impacts is possible.

## 2.5 Sensitive Receptors

Some population groups, such as children, the elderly, and acutely and chronically ill persons are considered more sensitive to air pollution than others. Sensitive receptor locations typically include residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. The Project site is in a rural area surrounded by agricultural fields.

There are numerous sensitive receptors in proximity to Project components including residences and Heber Elementary School. **Table 8** summarizes the sensitive receptors in the Project area and distance to the nearest Project components.

Table 8. Sensitive Receptors in Proximity to Project Components.

Sensitive Receptor	Nearest Project Component	Distance to Nearest Project Component
Residence (104 E. Jasper Rd.)	Heber 2 Parasitic Solar Facility	540
Residence (600 Dogwood Rd.)	Dogwood Parasitic Facility	2,900
Residential Area (E. Fawcett Rd.)	Production Well	2,985
Heber Elementary School	Production Well	3,400
Residences (153, 185, 195 E. Cole Blvd.)	Dogwood Parasitic Facility	3,825

## SECTION 3 Regulatory Framework

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Federal, state, and local regulations and policies that may apply to the proposed Project emissions are described below.

### 3.1 Federal

#### 3.1.1 Clean Air Act

The Federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, is the primary federal law that governs air quality. The Federal CAA delegates primary responsibility for clean air to the U.S. EPA. The U.S. EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the U.S. EPA has established the 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<sub>2</sub>, SO<sub>2</sub>, Pb, and PM (Including both PM<sub>10</sub>, and PM<sub>2.5</sub>) are the six criteria air pollutants. Ozone is a secondary pollutant, nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) are of particular interest as they are precursors to ozone formation. In addition, national standards exist for Pb. The NAAQS standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision.

The Federal CAA requires 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 above in **Table 5**.

#### 3.1.2 Mandatory Reporting of Greenhouse Gases (Title 40, Part 98 of the Code of Federal Regulations)

Under Subpart DD, owners and operators of electric power system facilities with a total nameplate capacity that exceeds 17,820 lbs (7,838 kg) of sulfur hexafluoride (SF<sub>6</sub>) and/or perfluorocarbons (PFCs) must report emissions of SF<sub>6</sub> and/or PFCs from the use of electrical transmission and distribution equipment. Owners and operators are required to collect emissions data, calculate GHG emissions, and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting per the requirements of 40 CFR Part 98 Subpart DD – Electric Transmission and Distribution Equipment Use.

### 3.2 State

#### 3.2.1 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 5**, 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.

### 3.2.2 California State Implementation Plan

The CAA mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met. State law makes CARB the lead agency for all purposes related to the SIP.

Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items which are included in the California SIP.

### 3.2.3 Toxic Air Contaminants Regulation

Toxic Air Contaminant (TAC) sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources (i.e., Diesel Particulate Matter [DPM]).

In August 1998, ARB identified DPM emissions from diesel-fueled engines as a TAC. In September 2000, ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel fueled engines and vehicles. The goal of the plan is to reduce diesel PM<sub>10</sub> (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.).

### 3.2.4 Executive Order S-3-05

On June 1, 2005, Executive Order S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. It calls for the Secretary of CalEPA to be responsible for coordination of state agencies and progress reporting.

### 3.2.5 Executive Order B-30-15

In April 2015, Governor Edmund Brown issued an Executive Order establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Governor Brown's Executive Order S-03-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In

addition, the Executive Order aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

### 3.2.6 Assembly Bill 32 (AB 32)

In September 2006, the California Global Warming Solutions Act of 2006, also known as AB 32, was signed into law. AB 32 focuses on reducing GHG emissions in California and requires CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. CARB initially determined that the total statewide aggregated GHG 1990 emissions level and 2020 emissions limit was 427 MMTCO<sub>2</sub>e. The 2020 target reduction was estimated to be 174 MMTCO<sub>2</sub>e.

To achieve the goal, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved.

### 3.2.7 Senate Bill 32 (SB 32)

Senate Bill (SB) 32, signed September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires the state board to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

### 3.2.8 Senate Bill 375 (SB 375)

Acknowledging the relationship between land use planning and transportation sector GHG emissions, Senate Bill (SB) 375 was passed by the State Assembly on August 25, 2008, and signed by the Governor on September 30, 2008. This legislation links regional planning for housing and transportation with the GHG reduction goals outlined in AB 32. Reductions in GHG emissions would be achieved by, for example, locating employment opportunities close to transit.

Under SB 375, each Metropolitan Planning Organization (MPO) would be required to adopt a Sustainable Community Strategy (SCS) to encourage compact development that reduce passenger vehicle miles traveled (VMT) and trips so that the region will meet a target, created by CARB, for reducing GHG emissions. If the SCS is unable to achieve the regional GHG emissions reduction targets, then the MPO is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target could be achieved through alternative development patterns, infrastructure, and/or transportation measure.

### 3.2.9 Southern California Association of Governments

To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the *2020–2045 Regional Transportation Plan/Sustainable Communities Strategy* (2020–2045 RTP/SCS) on September 3, 2020. The 2020–2045 RTP/SCS reaffirms the land use policies that were incorporated into the 2016–2040 RTP/SCS. The 2020–2045 RTP/SCS describes how the region can attain the GHG emission-reduction targets set by CARB by achieving a 19 percent reduction by 2035 compared

to the 2005 level on a per capita basis. Compliance with and implementation of 2020 RTP/SCS policies and strategies would have co-benefits of reducing per capita criteria air pollutant emissions associated with reduced per capita VMT.

### 3.2.10 Climate Change Scoping Plan

In 2008, CARB approved the original Climate Change Scoping Plan as required by AB 32. Subsequently, CARB approved updates to the Climate Change Scoping Plan in 2014 (First Update) and 2017 (2017 Update), with the 2017 Update considering SB 32 (adopted in 2016) in addition to AB 32. In December 2022, CARB approved the final version of California's 2022 Climate Change Scoping Plan (2022 Scoping Plan Update), which outlines the proposed framework of action for achieving California's new AB 1279 2045 GHG target: an 85 percent reduction in GHG emissions by 2045 relative to 1990 levels. The original Climate Change Scoping Plan proposed 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. The original Climate Change Scoping Plan identified a range of GHG reduction actions that included direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a cap-and-trade system, and an AB 32 implementation fee to fund the program. The 2022 Scoping Plan Update focuses on strategies for reducing California's dependency on petroleum to provide customers with clean energy options that address climate change and support clean sector jobs. SB 350 and other regulations are expected to decarbonize the electricity sector over time.

### 3.2.11 California Green Building Standards (CALGreen Code)

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2017. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The 2019 CALGreen code updates were published July 1, 2019, with an effective date of January 1, 2020.

The California Energy Code (California Code of Regulations, Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California's energy consumption. These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards. Compliance with Title 24 is enforced through the building permit process.

### 3.2.12 Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear (Title 17, Sections 95350-95359 of the California Code of Regulations)

The California Air Resources Board (CARB) adopted this rule in 2011 to reduce SF<sub>6</sub> emissions from gas insulated switchgear (GIS) and circuit breakers that use SF<sub>6</sub> as an electrical insulating medium. In

response to emerging technologies using lower or zero GWP insulators, CARB amended the regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV; January 1, 2029 for voltage between 145 and 245 kV; and January 1, 2031 for voltage greater than 245 kV), coverage of other GHGs beyond sulfur hexafluoride used in gas-insulated equipment, and other changes that enhance accuracy of emissions accounting and reporting.

### 3.3 Regional

#### 3.3.1 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<sub>10</sub>
- 2013 Imperial County Plan for 2006 24-hour PM<sub>2.5</sub> for Moderate Nonattainment Area
- 2017 Imperial County Plan for 2008 8-hour Ozone Standard
- 2018 Imperial County Plan for PM<sub>10</sub>
- 2018 Redesignation Request and Maintenance Plan for PM<sub>10</sub>
- 2018 Imperial County Plan for PM<sub>2.5</sub>

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.

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. The ICAPCD has not adopted thresholds of significance for projects' GHG emissions.

### 3.3.2 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<sub>10</sub> and O<sub>3</sub>.

**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 (i.e., scale for measuring the apparent density or opacity of smoke) or obscure an observer's view to a degree equal to or greater than smoke does as compared to No. 1 on the Ringelmann Chart, for a period or aggregated period of more than three minutes in any hour.

**Rule 403 – General Limitations on the Discharge of Air Contaminants.** Rule 403 sets forth limitations on emissions of pollutants, including particulate matter, from individual sources.

**Rule 405 – Sulfur Compounds Emissions Standards, Limitations and Prohibitions.** Rule 405 applies to the discharge of sulfur compounds into the atmosphere and limits emissions of sulfur compounds (calculated as sulfur dioxide SO<sub>2</sub>) in excess of 0.2 percent by volume.

**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<sub>10</sub> 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<sub>10</sub> 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.

**Rule 900 – Procedures for Issuing Permits to Operate Sources Subject to Title V of the Federal Clean Air Act Amendments of 1990.** 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.

**Rule 903 – Potential to Emit.** Rule 903 applies to any stationary source that would have the potential to emit hazardous air pollutants (HAPs). Rule 903 provides *de minimis* emission levels of 20,000 MTCO<sub>2</sub>e per year of GHG, 5 tons per year of a regulated air pollutant (excluding HAPs and GHG), 2 tons per year of a single HAP, and 5 tons per year of any combination of HAPs, where if a stationary source produces less emissions less than the *de minimis* emission levels, the source is exempt from Rule 903 recordkeeping and reporting requirements.

**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.

### 3.3.3 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.

### 3.3.4 Imperial County Regional Climate Action Plan

Led by the Imperial County Transportation Commission (ICTC) through funding from SCAG, the Imperial Valley Regional Climate Action Plan (Regional CAP; 2021) was developed to address the impacts of climate change and reduce GHG emissions in the Imperial Valley region which includes the County of Imperial (County) and the cities of Brawley, Calexico, Calipatria, Holtville, El Centro, Imperial, and Westmorland. The Regional CAP is consistent with and complementary to statewide legislation and regulatory mandates, and establishes local strategies, measures, and actions aimed at reducing GHG emissions. Specifically, the Regional CAP is used as a regional guidance document for reducing GHG emissions and identifies:

- relevant state legislation requiring the documents preparation and target setting;
- actions that will be taken by the regional agencies to reduce emissions across all jurisdictions and support the funding of future emissions reducing activities; and
- measures and actions that will be taken by local governments to reduce GHG emission and meet local emissions gaps.

### 3.3.5 Imperial County General Plan

The Imperial County General Plan serves as the overall guiding policy for the County and contains goals, objectives, policies and/or programs to conserve the natural environment of Imperial County, including air quality and GHGs. The Imperial County General Plan does not contain any goals, objectives, policies or programs that directly pertain to GHGs at the project-level. 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. The following summarizes the goals and policies with respect to air quality applicable to the proposed Project:

**Goal 7:** The County shall actively seek to improve the quality of air in the region.

- Objective 7.1: Ensure that all project and facilities comply with current Federal, State, and local requirements for attainment of air quality objectives.
- Objective 7.2: Develop management strategies to mitigate fugitive dust. Cooperate with all Federal, State and local agencies in the effort to attain air quality objectives.
- Objective 7.3: Work cooperatively with the EPA and CARB in evaluating air quality monitoring in Imperial County.
- Objective 7.4: Enforce and monitor environmental mitigation measures relating to air quality.
- Objective 7.5: Coordinate efforts with Imperial County Transportation Commission (ICTC) and other appropriate agencies to reduce fugitive dust from unpaved streets.
- Objective 7.6: Explore and assess strategies to reduce greenhouse gas emissions in the County.

## SECTION 4 Environmental Impacts

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### 4.1 Methodology

This impacts analysis evaluates the potential for the Project and its varying components (described in **Section 1.0**) to impact the air quality resource within the Project area and GHGs. The Final Programmatic Environmental Impact Report, Imperial County Renewable Energy and Transmission Element Update was also consulted for project impact potential and appropriate mitigation measures approved by the County.

#### 4.1.1 Construction

Construction of the Project was assumed to commence in the first quarter of 2025 and was estimated to take up to 35 months to complete. The Project would result in both short-term and long-term emissions of air pollutants associated with construction and operations. 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.

Construction emissions were estimated using the latest version of California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model utilizes widely accepted federal and state models for emission estimates and default data from sources such as U.S. EPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as the California Energy Commission (CEC). CalEEMod inputs for construction activities consist of the data provided for offroad equipment operations detailed in **Table 2** and vehicle miles traveled detailed in **Table 3** above. Default CalEEMod inputs were used for modeling where Project-specific details were not readily ascertainable (e.g., fleet mix and trip length).

Consistent with the requirements identified in the ICAPCD CEQA Air Quality Handbook (2017) and emission calculation equations provided in ICAPCD Rule 214.2 (Paving Unpaved Public Roads Emission Reduction Credits [PERCs]), CalEEMod calculates fugitive dust from travel of construction vehicles on paved and unpaved roads using the methodology of Section 13.2.1 of USEPA's AP-42 (2011). Per ICAPCD Rule 214.2, the annual quantity of fugitive dust emissions emitted from roadway segments are calculated relative to the annual vehicle miles traveled. The estimated construction schedule and vehicle and truck trip counts associated with construction activities is detailed **Table 4**. Vehicle trips during operation would be limited to one to two workers traveling to/from the Project site daily with infrequent vendor trips for delivery of operational products and materials.

All worker, vendor, and hauling trips would occur on public roadways (i.e., not within the project construction boundary). The percentage of vehicle miles travel on paved roadways is based on the following travel routes:

- Vendors: Port of Long Beach to 855 Dogwood Road (0% Unpaved Roads)
  - I-710 to I-405
  - I-405 to I-805
  - Exit 17 B onto I-8 E
  - Exit 116 onto Dogwood Road
- Workers/Vendors: Heber to 855 Dogwood Road (0% Unpaved Roads)
  - I-86 to Dogwood Road
- Workers/Vendors: El Centro to 855 Dogwood Road (0% Unpaved Roads)
  - State Street to 8th Street
  - 8th Street to Clark Street
  - Clark Street to Heber Road
  - Heber Road to 855 Dogwood Road
- Workers/Vendors: Brawley to 855 Dogwood Road (0% Unpaved Roads)
  - Main Street to 8th Street
  - 8th Street to K Street
  - K Street to S. Imperial Avenue
  - S. Imperial Avenue to Dogwood Road
  - Dogwood Road to Schartz Road
  - Schartz Road to CA-111 S
  - CA-111 to Heber Road
  - Heber Road to CA-86/E. Main Street
  - E. Main Street to 855 Dogwood Road
- Workers: Ormat Heber Offices to 855 Dogwood Road (0% Unpaved Roads)
  - 947 Dogwood Road to 855 Dogwood Road

These routes are consistent with the statewide default assumption of 100 percent. However, an input value of 85% paved roads is utilized in the emissions model in accordance with guidance provided by the ICAPCD to account for additional fugitive dust generated on paved surfaces throughout Imperial County.

#### 4.1.2 Operations

Air emission sources associated with Project operations include the geothermal power generating unit (ITLU and OEC), VRMU, and emergency diesel equipment. The power generating unit will generate power by taking geothermal energy (e.g., heat) to vaporize liquid isopentane, which is the motive fluid that powers the turbines to create electricity. In addition, the proposed substation includes new circuit breakers that would potentially be insulated with SF<sub>6</sub>.

The primary air pollutant from the facility operations is isopentane, which is a VOC. Specifically, isopentane would be the motive fluid used to drive the turbines for the Project. Although the motive fluid system is a “closed loop” with no routine emissions into the atmosphere, nearly all of the Project’s operational ROG emissions comes from fugitive emissions of isopentane that leaks from pipes, seals, flanges, valves, and other connections and the vapor recovery system. Accordingly, the isopentane emissions due to maintenance, purging, and fugitive leaks are summarized as follows:

- **Maintenance Isopentane Emissions** - Occasionally, isopentane must be evacuated from a portion of an OEC for maintenance or repair. The OECs are divided into zones that can be



isolated and evacuated for maintenance while the isopentane remains in the rest of the system. To evacuate the isopentane from a zone for maintenance, the isopentane liquid and vapor are removed using the VRMU (with a 95% control efficiency) and held in the storage tanks. Any remaining vapors are purged from the zone using nitrogen and passes through the VRMU. The unit is not opened to the atmosphere until the vapor concentration is less than 20% of the lower explosion limit for isopentane. Maintenance isopentane emissions are estimated based on site-specific emission factors derived from previous actual emissions data.

- **Purging Isopentane Emissions** - Over time impurities build up in the motive fluid (MF). These impurities include non-condensable gases (NCG's) which decrease the operating efficiency of the units. NCGs are purged from the system using the existing VRMU. During the purging, vapors from the OECs pass through a knock-out drum and chiller to separate the condensable gases from the NCGs. The remaining gases are passed through an activated carbon bed to collect hydrocarbons before being vented to the atmosphere. The facility's current air permit requires the VRMU to achieve 95% hydrocarbon capture efficiency.
- **Fugitive Isopentane Emissions** - Fugitive isopentane emissions occur from leaks in seals, flanges, pumps, valves, and other components. It is not feasible to measure fugitive emissions directly, but fugitive emissions leaks can be quantified based on the addition of isopentane to the system to make up for the lost fluid. ORMAT tracks fluid additions, and the fluid additions that are not attributed to known non-fugitive cause are counted as fugitive emissions.

Per the Heber 2 Authority to Construct (ATC) #2217A-6 issued by the ICAPCD, site specific isopentane maintenance, purging, and fugitive emissions were calculated based on worst case quarterly emissions from the years 2019 and 2020. Maintenance and fugitive emissions were also adjusted for the decreased complexity of the new units as compared to the existing units associated with the 2019 and 2020 reported emissions (i.e., the number of seals, flanges, pumps, valves, etc. associated with the proposed Project equipment is significantly less than the existing equipment). As such, the ICAPCD applies a 50% reduction factor to 50% emission reduction factor to account for the approximately 50% fewer potential sites for leaks and equipment failure. The emissions have been converted into a per 1,000-gallon factor by using the existing system volume. As summarized in **Table 9**, the resulting Project-specific emission factors are 0.23 lbs/day/1,000 gallons for maintenance,  $1.45 \times 10^{-5}$  lbs/day/1,000 gal for purging and 0.60 lbs/day/1,000 gal for fugitive. These emission factors are assumed to be consistent with proposed Project operations.

Table 9. Project-Specific Isopentane Emission Factors

Emission Category	Site-Specific Emission Factor Based on 2019 and 2020 Emissions (lbs/day/1,000 gallons)	Emissions Reduction Due to Reduced Complexity	Project-Specific Emission Factor
Maintenance	0.45	50%	0.23
Purging	$2.9 \times 10^{-5}$	0%	$1.45 \times 10^{-5}$
Fugitive	1.20	50%	0.60

Source: ICAPCD ATC #2217A-6 (September 28, 2021)

The proposed OEC and ITLU have a combined volume of approximately 82,140 gallons, and the two isopentane storage tanks have a total capacity of 40,000 gallons. Isopentane emissions are related to

the size of the system, so emissions were estimated by multiplying the total isopentane volume at the facility (i.e., 122,140 gallons) by the emission factors detailed in **Table 9**.

With respect to SF<sub>6</sub> emissions associated with operation of the substation circuit breakers, CARB amended the *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV, January 1, 2029 for voltage between 145 and 245 kV, and January 1, 2031 for voltage greater than 245 kV). In the case that SF<sub>6</sub> alternative technology is available and approved prior to construction, the proposed Project would not require SF<sub>6</sub> for project operations. Consistent with the International Electrotechnical Commission (IEC) standard for new equipment leakage, a 0.5% per year leakage rate is assumed (United States Environmental Protection Agency [USEPA] 2016).

Emissions associated with the auxiliary emergency diesel generator and emergency diesel fire pump are estimated using CalEEMod 2022.1 default emission factors for diesel emergency generators and fire pumps with the operational year assumed to be 2027 in the emissions model.

As presented in **Section 1.3**, the Project site will be staffed with 1-2 onsite employees. Accordingly, annual operation and maintenance trips to the site are conservatively assumed to be up to six one-way trips during weekdays and three one-way trips during weekends. Such visits to the site include inspections, equipment servicing, site maintenance, and periodic washing of the photovoltaic modules at the solar plants. As noted above for construction emissions methodology, a 85% paved roads is utilized in the Project CalEEMod emissions model to account for fugitive dust generated on paved surfaces throughout Imperial County. Indirect sources of emissions include those associated with energy consumption, water use, wastewater treatment, and solid waste disposal. However, operation of the geothermal and solar facilities would offset greenhouse gas emissions by replacing energy generated by fossil fuel power plants (i.e., the Project would generate up to 47 MW of energy that would be added to the power grid and be used in place of electricity generated by fossil fuel sources). Once operating, up to approximately 325 gallons per day (0.36 acre-feet per year) of non-potable water will be required and provided by the applicant's existing IID contract/allocation. Indirect emissions associated with operational water use are estimated using CalEEMod 2022.1 default energy intensity factors for the Colorado River Hydrologic Region. Geothermal facilities and solar farms are not known to generate substantial quantities of solid waste or wastewater. As such, Project operations solid waste and wastewater emissions would not represent a measurable increase in GHG emissions and are considered to be negligible.

## 4.2 Thresholds of Significance

The ICAPCD has established significance thresholds based on the state CEQA significance criteria. adopted guidelines for implementation of CEQA in its CEQA Air Quality Handbook (ICAPCD 2017). The ICAPCD recommended thresholds of significance are discussed below.

During operations, any development with a potential to emit criteria pollutants below significance levels defined by the ICAPCD is referred to as a "Tier I Project," and is considered to have less than significant potential adverse impacts on local air quality. For Tier I projects, the project proponent must implement

a set of feasible “standard” mitigation measures (determined by the ICAPCD) to reduce the air quality impacts to an insignificant level. A “Tier II Project” is one whose emissions exceed any of the ICAPCD thresholds. Its impact is significant, and the project proponent must select and implement all feasible “discretionary” mitigation measures (as determined by the ICAPCD) in addition to the standard measures. Tier I and Tier II daily thresholds for operational emissions are shown in **Table 10**.

Table 10. ICAPCD Daily Operational Emission Thresholds

Pollutant	Tier I	Tier II
NO <sub>x</sub> and Reactive Organic Gases (ROG)	Less than 137 lbs/day	Greater than 137 lbs/day
PM <sub>10</sub> and SO <sub>x</sub>	Less than 150 lbs/day	Greater than 150 lbs/day
CO and PM <sub>2.5</sub>	Less than 550 lbs/day	Greater than 550 lbs/day

Source: ICAPCD 2017

The IPAPCD has also developed specific quantitative thresholds that apply to short-term construction activities as summarized in **Table 11**.

Table 11. ICAPCD Daily Construction Emission Thresholds

Pollutant	Threshold (lbs/day)
PM <sub>10</sub>	150
ROG	75
NO <sub>x</sub>	100
CO	550

Source: ICAPCD 2017

The ICAPCD does not have numeric thresholds for greenhouse gas (GHG) emissions. However, Imperial County is a member of the Southern California Association of Governments which is composed of several different counties including Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. Air districts responsible for managing air quality within the SCAG boundaries include the Antelope Valley Air Quality Management District, the Mojave Desert Air Pollution Control District, South Coast Air Pollution Control District, and the Ventura County Air Pollution Control District. Projects in Imperial County use the South Coast Air Quality Management District’s (SCAQMD’s) Interim Threshold of 10,000 MTCO<sub>2</sub>e screening level for industrial projects. In addition, based on guidance from the SCAQMD, total construction GHG emissions resulting from a project should be amortized over a period of 30 years and added to operational GHG emissions to account for their contribution to GHG emissions over the lifetime of a project.

## 4.3 Project Impacts and Mitigation Measures

### 4.3.1 Air Quality

**Impact a.** *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 Air Quality Attainment Plan [AQAP]) and SIP for PM<sub>10</sub>, 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 geothermal and 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 Renewable Portfolio Standard (RPS). 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 ICAPCD, determine compliance with the goals of the attainment plans in the region. As such, emissions below the ICAPCD thresholds presented in **Table 10** and **Table 11** 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*

The Project would emit criteria pollutants from the use of combustion sources such as diesel off-road equipment (e.g., tractors, cranes, generators, etc.), and on-road mobile sources associated with construction-related vehicle travel. Impacts to air quality would also occur during Project construction as a result of soil disturbance and fugitive dust emissions. 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.

Project construction is anticipated to take up to 35 months. Construction is anticipated to begin in the first quarter 2025. Project emissions were calculated in accordance with the ICAPCD's Air Quality Handbook (ICAPCD 2017). For the purposes of this analysis, short-term construction emissions were determined utilizing the latest version of the CalEEMod model (version 2022.1) based on the assumptions described in **Section 1.2** and utilizing CalEEMod defaults for calendar year average equipment emission factors as opposed to tier-specific rates (e.g., Tier 3) (refer to Attachment A for emission model results). The total unmitigated emissions generated within each year of project construction are shown in **Table 12**.

Table 12. Unmitigated Project Construction-Generated Emissions

Construction Year	Pollutant (lbs/day) <sup>1</sup>					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	27.52	246.06	268.98	0.80	2,243.9	231.29
2026	29.55	272.17	307.92	0.84	2,356.6	242.47
<b>Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	--	<b>150</b>	--
Exceed Threshold?	No	Yes	No	--	[Yes] <sup>2</sup>	--

Source: CalEEMod Results in Attachment A

Notes:

- <sup>1</sup> Emissions are representative of the maximum daily output (i.e., maximum of summer or winter results).
- <sup>2</sup> Guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided below.

As shown in **Table 12**, the Project's daily unmitigated construction emissions would exceed the ICAPCD thresholds for NO<sub>x</sub> and PM<sub>10</sub>. Incorporating **MM AIR-1** would ensure that the construction emissions of NO<sub>x</sub> remain below the applicable thresholds as shown in **Table 13**.

Table 13. Mitigated Project Construction-Generated Emissions

Construction Year	Pollutant (lbs/day) <sup>1</sup>					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2025	9.90	83.42	466.38	1.12	2,238.7	226.62
2026	10.72	87.08	520.46	1.30	2,351.7	238.04
<b>Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	--	<b>150</b>	--
Exceed Threshold?	No	No	No	--	[Yes] <sup>2</sup>	--

Source: CalEEMod Results in Attachment A

Notes:

- <sup>1</sup> Emissions are representative of the maximum daily output (i.e., maximum of summer or winter results).
- <sup>2</sup> Guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided below.

Specifically, **MM AIR-1** requires that all off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, meet, at a minimum, the Tier 4 Final California Emission Standards for Off-Road Compression-Ignition Engines as specified in C.C.R., Title 13, section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 4 Final engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide NO<sub>x</sub> and particulate matter emissions that are equivalent to Tier 4 engine (refer to Attachment A for emission model results).

Due to the assumption of 85% paved roads built into the Project CalEEMod model, construction activities are shown to exceed the ICAPCD threshold for PM<sub>10</sub>. Specifically, CalEEMod results for the maximum daily emissions of PM<sub>10</sub> attributed to fugitive dust is estimated at 2,349.4 lbs/day whereas the PM<sub>10</sub> attributed to combustion engine emissions is 2.27 lbs/day (which is below the ICAPCD threshold

for PM<sub>10</sub>). However, guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. Further, the ICAPCD recommends the implementation of effective and comprehensive mitigation inclusive of standard mitigation measures for construction equipment and fugitive PM<sub>10</sub> in accordance with ICAPCD Regulation VIII for the control of fugitive dust as detailed in **MM AQ-2**. Regulation VIII requires all unpaved roadways, on- and off-site, to be conditioned and maintained with soil stabilizers to reduce dust opacity to no more than 20 percent; all unpaved disturbed surfaces, on- and off-site, to be stabilized with a dust suppressant, watering, or soil stabilizers to reduce opacity to no greater than 20 percent. Compliance with Regulation VIII dust control measures as detailed in **MM AQ-2** would further minimize air quality impacts. In addition, the ICAPCD recommends implementation of additional discretionary mitigation measures for fugitive PM<sub>10</sub> control as applicable. Accordingly, implementation of **MM AQ-3** would require additional dust suppression methods (such as water or chemical stabilization) on all unpaved roads associated with construction activities, **MM AQ-4** requires development and implementation of a dust suppression management plan prior to any earthmoving activity, and **MM AQ-5** limits the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less. Accordingly, with implementation of **MM AQ-1**, **MM AQ-2**, **MM AQ-3**, **MM AQ-4**, and **MM AQ-5**, the Project would not exceed the ICAPCD's thresholds of significance during construction. 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, construction of the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. Impacts would be less than significant with mitigation.

### Operation

Implementation of the projects would result in long-term operational emissions of criteria air pollutants. Specifically, isopentane emissions will occur due to maintenance, purging, and fugitive leaks. Operation of auxiliary engines including the emergency diesel generator and emergency diesel fire pump will also result in emissions of criteria pollutants. **Table 14** summarizes the estimated emissions of isopentane at the facility.

Table 14. Isopentane Emission Estimate

Emission Category	System Motive Fluid Volume (Gallons)	Project-Specific Emission Factor (lbs/day/1000 gallons)	Isopentane Emissions (lbs/day)
Maintenance	82,140 (OEC/ITLU)	0.23	18.48
Purging	82,140 (OEC/ITLU)	$1.45 \times 10^{-5}$	0.001
Fugitive	122,140 (OEC/ITLU & Tanks)	0.60	49.28
<b>TOTAL</b>			<b>67.77</b>

With the exception of isopentane emissions detailed in **Table 14**, all other operational emissions were modeled utilizing CalEEMod 2022.1. Accordingly, long-term combined operational emissions attributable to the Project are summarized in **Table 15** and compared to the operational significance thresholds promulgated by the ICAPCD.



Table 15. Unmitigated Project Operational Emissions

Emission Source	Pollutant (lbs/day) <sup>1</sup>					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Area <sup>2</sup>	38.56	1.98	234.91	0.01	0.42	0.32
Mobile <sup>3</sup>	0.03	0.02	0.26	<0.005	6.87	0.69
Energy <sup>4</sup>	0.00	0.00	0.00	0.00	0.00	0.00
Stationary <sup>5</sup>	0.12	0.34	0.31	<0.005	0.02	0.02
Fugitive Isopentane <sup>6</sup>	67.77	0.00	0.00	0.00	0.00	0.00
<b>TOTAL</b>	<b>106.48</b>	<b>2.34</b>	<b>235.56</b>	<b>0.02</b>	<b>7.31</b>	<b>1.03</b>
<b>Threshold</b>	<b>137</b>	<b>137</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>550</b>
Exceed Threshold?	No	No	No	No	No	No

Source: CalEEMod Results in Attachment A

## Notes:

- Daily emissions are representative of the maximum daily output (i.e., maximum of summer or winter results).
- Area emissions are inclusive of landscape maintenance equipment using CalEEMod default factors.
- Mobile emissions are inclusive of daily estimate vehicle miles travels associated with operations (i.e., average of 6 one-way trips per weekday and 3 one-way trips per day on Saturdays and Sundays with an estimated trip length of 10.2 miles).
- The Project is a renewable energy project and does not require energy from the grid.
- Stationary emissions are associated with operation of emergency diesel generator (50 hours/year amortized over 365 days/year) and emergency diesel fire pump (40 hours/year amortized over 365 days/year)
- Isopentane emissions are reported as ROG.

Project-generated increases in emissions would be predominately associated with isopentane emissions and emissions related to landscape equipment use for routine maintenance work. As shown in **Table 15**, the Project's combined operational emissions would not exceed the ICAPCD thresholds for CO, ROG, NO<sub>x</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and PM<sub>2.5</sub>. Although no significant air quality impact would occur during operation, the Project would be required to comply with Regulation VIII as detailed in **MM AQ-2** that would further reduce fugitive dust emissions associated with the Project. In addition, implementation of **MM AQ-5** would limit the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less and **MM AQ-6** would ensure an Operational Dust Control Plan is implemented.

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 projects comply with local land use plans and population projections and would not exceed ICAPCD's regional mass daily emissions thresholds, operation of the Project would not conflict with or obstruct implementation of the applicable air quality plan. Impacts would be less than significant.

*Mitigation Measure(s)*

**MM AQ-1 (Construction Equipment).** All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 4 Final California Emission Standards for Off-road Compression-Ignition Engines as specified in C.C.R., Title 13, section 2423(b)(1) unless such engine is not available for a particular item of equipment. In the event a Tier 4 Final engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would

provide NO<sub>x</sub> and particulate matter emissions that are equivalent to Tier 4 engine. Drill rig engines shall meet a minimum of Tier 4 Interim California Emission Standards. A list of the construction equipment, including all off-road equipment utilized at the project site 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<sub>x</sub> analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed the significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.

**MM AQ-2 (Fugitive Dust Control).** Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII – Fugitive Dust Control Measures. 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<sub>10</sub>) 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).

**MM AQ-3 (Dust Suppression).** The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. All unpaved roads associated with construction shall be effectively stabilized of dust emissions using stabilizers/suppressant before the commencement of all construction phases. This will be conducted monthly at a rate of 0.1 gallon/ square yard of chemical dust suppressant. 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).

**MM AQ-4 (Dust Suppression Management Plan).** Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

**MM AQ-5 (Speed Limit).** During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on unpaved roads to 15 miles per hour or less.

**MM 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.

**Impact b. *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?***

#### *Construction*

As shown in **Table 6**, the criteria pollutants for which the project area is in state nonattainment under applicable air quality standards are O<sub>3</sub> and PM<sub>10</sub>. 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 and summarized in **Table 13**, with implementation of **MM AQ-1**, **MM AQ-2**, **MM AQ-3**, **MM AQ-4**, and **MM AQ-5**, the Project's daily mitigated construction emissions would not exceed the ICAPCD thresholds (note that although the CalEEMod results for PM<sub>10</sub> emissions are shown to exceed the ICAPCD threshold, the ICAPCD recommends analyzing construction particulate matter qualitatively rather than quantitatively as

discussed in detail above). Therefore, the Project's potential to result in a cumulatively considerable net increase of any criteria pollutant during construction is considered less than significant with mitigation.

### *Operations*

As discussed above and summarized in **Table 15**, the Project's daily operations emissions would not exceed the ICAPCD thresholds. In addition, the Project must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust as detailed in **MM AQ-2**, which would further reduce impacts associated with fugitive dust emissions as would implementation of **MM AQ-5** which would require implementation of an Operational Dust Control Plan and **MM AQ-6** which limits the speed on onsite unpaved roads. Therefore, the Project's potential to result in a cumulatively considerable net increase of any criteria pollutant during operations is considered less than significant.

### *Mitigation Measure(s)*

**MM AQ-1 (Construction Equipment)**

**MM AQ-2 (Fugitive Dust Control)**

**MM AQ-3 (Dust Suppression)**

**MM AQ-4 (Dust Suppression Management Plan)**

**MM AQ-5 (Speed Limit)**

**MM AQ-6 (Operational Dust Control Plan)**

**Impact c.      *Would the project expose sensitive receptors to substantial pollutant concentrations?***

### *Construction*

As summarized in **Table 8** above, the nearest sensitive land use to the Project area is a single-family residence located approximately 540 feet from the Hever 2 Parasitic Solar Facility. Construction of the Project would result in temporary, short-term project-generated emissions of DPM, ROG, NO<sub>x</sub>, CO, and PM<sub>10</sub> from the exhaust of offroad, heavy-duty diesel equipment and construction-related truck traffic. The portion of the SSAB which encompasses the project area is designated as a nonattainment area for federal O<sub>3</sub> and PM<sub>2.5</sub> standards and is also a nonattainment area for the state standards for O<sub>3</sub> and PM<sub>10</sub>. Thus, existing O<sub>3</sub> and PM<sub>10</sub> levels in the SSAB are at unhealthy levels during certain periods. However, as summarized above and shown in **Table 13**, with implementation of **MM AQ-1** through **MM AQ-5**, the Project would not exceed the ICAPCD significance thresholds for construction emissions. The health effects associated with O<sub>3</sub> are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O<sub>3</sub> precursor emissions (ROG or NO<sub>x</sub>) in excess of the ICAPCD thresholds, the Project is not anticipated to substantially contribute to regional O<sub>3</sub> concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve activities that would result in CO emissions in excess of the ICAPCD thresholds. Thus, the Project CO emissions during construction would not contribute to the health effects associated with this pollutant.

Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by CARB in 1998. For construction-type activity, DPM is the primary TAC of concern. PM<sub>10</sub> exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM. As with O<sub>3</sub> and NO<sub>x</sub>, with implementation of **MM AQ-1** through **MM AQ-5**, the Project would not generate emissions of PM<sub>10</sub> or PM<sub>2.5</sub> that would exceed the ICAPCD's thresholds, and thus are not expected to cause any increase in related health effects for these pollutants.

Additionally, fugitive dust can lead to the spread of San Joaquin Valley Fever (Valley Fever), a potential health hazard caused by a fungus that lives in certain soil types throughout California. The California Department of Public Health- Occupational Health Branch and the Division of Occupational Safety and Health of the Department of Industrial Relations (Cal/OSHA) provides recommendations to limit risk from Valley Fever. The measures required to comply with ICAPCD Regulation VIII are consistent with those recommended to limit risk to Valley Fever. For example, Cal/OSHA recommends the adoption of site plans and work practices that reduce worker exposure. Cal/OSHA further provides that measures that may be implemented include, but are not limited to, the following: minimize the area of soil disturbed; use of water or other soil stabilizer to reduce airborne dust; stabilize all spoils piles by tarping or other methods; cleaning tools, equipment, and vehicles before transporting offsite. These measures and work practices will be implemented at the Project site pursuant to compliance with ICAPCD Regulation VIII. As such, construction activities associated with the Project are not expected to cause any increase in Valley Fever to workers or sensitive receptors in the area.

In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant with mitigation.

### *Operation*

Operation of the proposed Project would not result in the development of any substantial sources of air toxics. Stationary sources associated with the Project include limited use of an emergency diesel generator and emergency diesel fire pump. Further, operation of the Project would not attract additional mobile sources that spend long periods queuing and idling at the site. With respect to isopentane, according to the Clean Air Act Section 112(b), Hazardous Air Pollutants, isopentane is not listed or considered a HAP. As such, onsite combined Project emissions would not result in significant concentrations of pollutants at nearby sensitive receptors as the predominant operational emissions associated with the proposed projects would be routine maintenance work. Therefore, the Project would not be a substantial source of TACs. The proposed Project would not result in a high carcinogenic or non-carcinogenic risk during operation.

CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of

high CO concentrations, or “hot spots,” are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. CO concentration in the SSAB is designated as an attainment area. Detailed modeling of Project-specific CO “hot spots” is not necessary and thus this potential impact is addressed qualitatively. The proposed Project is anticipated to result in no more than six daily traffic trips. Thus, the proposed Project would not generate traffic volumes at any intersection that would result in a likelihood of the Project traffic contributing to CO “hot spots”.

In summary, Project operations would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

#### *Mitigation Measure(s)*

##### **MM AQ-1 (Construction Equipment)**

##### **MM AQ-2 (Fugitive Dust Control)**

##### **MM AQ-3 (Dust Suppression)**

##### **MM AQ-4 (Dust Suppression Management Plan)**

##### **MM AQ-5 (Speed Limit)**

***Impact d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?***

#### *Construction*

Geothermal fluid can release various non-condensable gases such as H<sub>2</sub>S. Hot water, steam, particulate, and/or gases that could emanate from a typical geothermal well during drilling, testing, and cleanout in the Casa Diablo Geothermal Resource Area could contain several minerals and other naturally occurring chemicals. However, most of these chemicals are present only in trace amounts and would not pose a health hazard to the surrounding environment. H<sub>2</sub>S emissions would be the most important non-condensable gas from a health-risk and odor nuisance standpoint. The potential exists that this gas and other non-condensable gases may be emitted intermittently on a short-term and temporary basis during drilling. During well cleanout and flow testing, geothermal fluids would likely be pumped into large tanks. H<sub>2</sub>S may temporarily be released from the geothermal fluid for several hours to up to 30 days during these activities. The local H<sub>2</sub>S emissions during these activities could exceed the ICAPCD sulfur compound emission standard (Rule 405) of 0.2 percent by volume (calculated as SO<sub>2</sub> and measured at a point of discharge) and could produce an objectionable “rotten egg” odor in the immediate vicinity of each well. However, these concentrations would not be expected to pose a health hazard and would not reach far beyond the vicinity of the wells under normal conditions. In addition, potential H<sub>2</sub>S emissions resulting from these activities would be temporary at each well development site and would occur for a relatively short period of several hours to up to 45 days at each well site.

Construction of the Project components would also result in short-term diesel exhaust emissions from on-site heavy-duty equipment and from material deliveries and debris removal, which could result in the creation of objectionable odors. These activities would be temporary or periodic, and spatially dispersed, and any associated odors would dissipate quickly from the sources.



The closest sensitive receptor to the Project site is a resident located off Jasper Road, approximately 540 feet from the Heber 2 Parasitic Solar Facility and approximately 1,000 feet from the nearest producing well site. Therefore, given the temporary nature of construction activities and the lack of sensitive receptors in the immediate vicinity of Project components, odor nuisances that would be associated with the Project construction activities are expected to be negligible and impacts would be less than significant.

#### *Operation*

According to ICAPCD's Air Quality Handbook (2017), land uses associated with odor complaints include wastewater treatment plants, sanitary landfills, composting stations, feedlots, asphalt plants, painting/coating operations (auto body shops), and rendering plants. The proposed Project does not include any of these types of operations and would not be expected to be a major source of odor impacts. During normal operations, geothermal fluid would be contained within a closed-loop heat exchanger system and reinjected back into the geothermal reservoir. Thus, odors associated with geothermal fluids would not be expected during normal operations. Isopentane has a gasoline-like odor which could be considered objectionable. However, the closest residential sensitive receptors are located more than 3,000 feet from the proposed Dogwood power plant site. Any associated odors would dissipate quickly from the sources and is not expected to affect a substantial number of people. As such impacts during operations would be less than significant.

#### *Mitigation Measure(s)*

None Required

### 4.3.2 Greenhouse Gas

***Impact a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

#### *Construction Emissions*

Construction of the proposed Project would generate GHG emissions over a two-year construction period. Exhaust emissions would result from construction equipment and machinery as well as from vehicular traffic generated by construction activities. Construction and operation GHG emissions were estimated using SCAQMD's CalEEMod 2022.1 model (refer to Attachment A) based on assumptions detailed in **Section 1.2**, including the Project's construction schedule and operation activities. Short-term construction emissions (e.g., off-road equipment and vehicle trips) and annual operation emissions associated with the proposed Project were evaluated. For all GHG emissions assumptions and calculations, see Attachment A. Based on the results of this modeling, construction emissions would result in a maximum of 17,592 MTCO<sub>2</sub>e per year. Total project GHG emissions for construction are shown in **Table 16**.

Table 16. Estimated Project Construction GHG Emissions

Construction Year	GHG (MTCO <sub>2</sub> e/year)
2025	17,592
2026	7,606.1
<b>TOTAL</b>	<b>25,198</b>

Source: CalEEMod Results in Attachment A

*Operational and Maintenance Emissions*

As presented in **Section 1.3**, the proposed Project would be staffed by 1-2 personnel. Annual operation and maintenance trips to the Project site would be negligible, adding up to six trips per day to the existing operations at the plant. Additional sources of GHG emissions associated with operations include those related to landscape equipment use for routine maintenance work, water use, and operation of auxiliary stationary equipment (i.e., emergency diesel generator and emergency diesel fire pump) as estimated using CalEEMod. These emissions are estimated to contribute approximately 97 MTCO<sub>2</sub>e per year.

The proposed substation includes new circuit breakers that would potentially be insulated with SF<sub>6</sub>. Note that CARB amended the *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV, January 1, 2029 for voltage between 145 and 245 kV, and January 1, 2031 for voltage greater than 245 kV). In the case that SF<sub>6</sub> alternative technology is available and approved prior to construction, the proposed Project would not require SF<sub>6</sub> for project operations. For the purpose of this analysis, it is assumed that up to three circuit breakers will be insulated with SF<sub>6</sub> with an estimated 25 pounds of SF<sub>6</sub> gas per circuit breaker resulting in a total of 75 pounds of SF<sub>6</sub> gas required at the site. Consistent with the IEC standard for new equipment leakage, a 0.5% per year leakage rate is assumed (USEPA 2016). Accordingly, an estimated 0.375 pounds of SF<sub>6</sub> would be released annually. Using the GWP for SF<sub>6</sub> of 23,300 as summarized in **Table 7 (above)**, annual emissions of 0.375 pounds of SF<sub>6</sub> gas would be equivalent to approximately 3.96 metric tons carbon dioxide equivalent (MTCO<sub>2</sub>e).

*Amortized Annual Emissions*

As summarized in **Table 16** above, total GHG construction emissions would be approximately 25,198 MTCO<sub>2</sub>e. In accordance with industry standard, the total GHG emissions from construction were amortized (i.e., averaged annually) over a 30-year timeframe, with a resulting annual emission of 839.93 MTCO<sub>2</sub>e per year. **Table 17** presents the total annual GHG emissions for the proposed project are estimated to be 940.89 MTCO<sub>2</sub>e per year for the duration of the Project.

Table 17. Proposed Project Amortized Annual GHG Emissions

Emission Source	GHG (MTCO <sub>2</sub> e/year)
Construction (amortized over 30-year life of Project)	839.93
Operations (i.e., mobile, area, water)	97
Leaking SF <sub>6</sub>	3.96
<b>TOTAL</b>	<b>940.89</b>

As summarized in **Section 4.2**, the ICAPCD do not have numeric thresholds for GHG emissions for CEQA. Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "air quality attainment or maintenance plan and/or plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significance for GHG emissions if a project complies with regulatory programs to reduce GHG emissions.

In the absence of any adopted numeric threshold, the significance of the proposed project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b) by considering whether the proposed project complies with applicable plans, policies, regulations, and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The *Imperial Valley Regional Climate Action Plan* (Regional CAP; Ascent Environmental 2021) addresses the impacts of climate change and reduce GHG emissions in the Imperial Valley region which includes the County of Imperial (County) and the cities of Brawley, Calexico, Calipatria, Holtville, El Centro, Imperial, and Westmorland. The Regional CAP is consistent with and complementary to statewide legislation and regulatory mandates, and establishes local strategies, measures, and actions aimed at reducing GHG emissions. Accordingly, the proposed Project is evaluated against the Regional CAP and the CARB Scoping Plan. Measures included in the Regional CAP and CARB Scoping Plan would indirectly address GHG emission levels associated with construction activities, including the phasing-in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a low-carbon fuel standard. Policies formulated under the mandate of AB 32 that apply to construction-related activity either directly or indirectly, are assumed to be implemented statewide and would affect the Project should those policies be implemented before construction begins. Specifically, implementation of AB 32 control measures for reduced vehicle emissions would decrease GHG emissions from the Project. In addition, the Project is a renewable energy project which supports the Regional Plan GHG reduction measures to increase renewable and zero-carbon energy generation including installation of utility scale solar and geothermal energy as a particular focus of GHG Reduction Measures E-2.1 and -2.2.

Regarding management of proposed-project-related SF<sub>6</sub>, the applicant would be required to comply with CARB Regulation for *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (Title

17, Sections 95350-95359 of the California Code of Regulations). Compliance with this regulatory measure would ensure consistency with intent of Scoping Plan Measure H-6, *High Global Warming Potential Gas Reductions from Stationary Sources*. Inventories of SF<sub>6</sub> that would be associated with the proposed project would be documented and annually reported to USEPA and CARB. Accordingly, compliance with the Scoping Plan Measure H-6 requirements would ensure that the proposed Project would not conflict with AB 32 or SB 32.

Although not directly applicable to the proposed project, the proposed project would not conflict with population growth projections of the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), or its goals associated with GHG reductions. Specifically, the Project would not contribute to population growth outside of those projections. As such, the Project would be consistent with the current land use designation for the Project site and would not create housing or otherwise lead to substantial unplanned population growth in the vicinity and is considered consistent with the GHG reduction goals of the 2020-2045 RTP/SCS.

The plan consistency analysis demonstrates that the Project is consistent with plans, policies, regulations and GHG reduction actions/strategies outlined in the Regional CAP, CARB's Scoping Plan, SCAG's 2020-2045 RTP/SCS, and CARB Regulation for Reducing Sulfur Hexafluoride. As the proposed Project would not conflict with applicable plans, policies, and regulations adopted for the purpose of reducing emissions of GHGs, the proposed project's impacts related to GHG emissions would be less than significant. Further, based on the results of the quantitative analysis as described above, the Project would result in 940.89 MTCO<sub>2</sub>e emissions per year (with construction emissions amortized over 30 years). These emissions are significantly less than the screening threshold of 10,000 MTCO<sub>2</sub>e per year screening level for industrial projects often used for projects in Imperial County. Because the Project is consistent and does not conflict with the applicable plans, policies, and regulations, and because the Project's incremental increase in GHG emissions is below the 10,000 MTCO<sub>2</sub>e per year screening threshold for industrial projects, the Project's incremental increase in GHG emissions of 940.89 MTCO<sub>2</sub>e (construction emissions amortized over 30 years) would be less than significant.

#### *Mitigation Measure(s)*

None Required

#### ***Impact b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?***

As described above, California has enacted several pieces of legislation that relate to GHG emissions and climate change, much of which sets aggressive goals for GHG reductions within the state. The first and most far-reaching is AB 32, now followed by SB 32, in which CARB must ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. While AB 32 establishes control measures that would apply to light, medium, and heavy-duty vehicles, and the proposed project would operate those types of vehicles, these measures are being implemented at the state level and the proposed project would not interfere with the implementation of the control measures. Implementation of AB 32 control measures for reduced vehicle emissions would decrease GHG emissions from the Project.

As also described above, CARB approved additional regulation to reduce SF<sub>6</sub> emissions from gas insulated switchgear, implementing Measure H-6 of the AB 32 Scoping Plan. The Project is required to

comply with this regulation, thus reducing GHG emissions and being consistent with the AB 32 Scoping Plan, the Scoping Plan update, and the *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (Title 17, Sections 95350-95359 of the California Code of Regulations). Accordingly, the proposed Project would be conducted in compliance with applicable plans, policies and regulations adopted for the purpose of reducing the emissions of GHGs and impacts would be less than significant.

*Mitigation Measure(s)*

None Required

## SECTION 5 References

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# Attachment A CalEEMod Air Quality and GHG Emissions Data

# Dogwood v2 Detailed Report

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# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	Dogwood v2
Construction Start Date	1/10/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	4.80
Location	32.71374504137074, -115.53951194382259
County	Imperial
City	Unincorporated
Air District	Imperial County APCD
Air Basin	Salton Sea
TAZ	5611
EDFZ	19
Electric Utility	Imperial Irrigation District
Gas Utility	Southern California Gas
App Version	2022.1.1.26

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	5,401	1000sqft	124	5,401,440	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	35.6	29.5	270	308	0.84	7.38	2,349	2,357	6.82	236	242	—	84,068	84,068	2.54	4.17	80.7	85,446
Mit.	11.0	10.7	84.5	520	1.30	2.27	2,349	2,352	2.26	236	238	—	128,360	128,360	4.34	4.53	80.7	129,891
% Reduced	69%	64%	69%	-69%	-55%	69%	—	< 0.5%	67%	—	2%	—	-53%	-53%	-71%	-9%	—	-52%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	35.4	29.4	272	304	0.84	7.38	2,349	2,357	6.82	236	242	—	83,891	83,891	2.55	4.17	2.09	85,198
Mit.	10.8	10.5	87.1	517	1.30	2.27	2,349	2,352	2.26	236	238	—	128,184	128,184	4.34	4.53	2.09	129,643
% Reduced	69%	64%	68%	-70%	-55%	69%	—	< 0.5%	67%	—	2%	—	-53%	-53%	-71%	-9%	—	-52%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	31.2	25.9	230	250	0.73	6.89	1,832	1,839	6.37	184	190	—	75,117	75,117	2.33	3.43	28.7	76,226
Mit.	9.30	8.99	76.7	422	1.01	1.94	1,832	1,834	1.93	184	186	—	105,045	105,045	3.54	3.68	28.7	106,258
% Reduced	70%	65%	67%	-69%	-38%	72%	—	< 0.5%	70%	—	2%	—	-40%	-40%	-52%	-7%	—	-39%

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.69	4.72	41.9	45.6	0.13	1.26	334	336	1.16	33.6	34.7	—	12,436	12,436	0.39	0.57	4.75	12,620
Mit.	1.70	1.64	14.0	77.1	0.18	0.35	334	335	0.35	33.6	33.9	—	17,391	17,391	0.59	0.61	4.75	17,592
% Reduced	70%	65%	67%	-69%	-38%	72%	—	< 0.5%	70%	—	2%	—	-40%	-40%	-52%	-7%	—	-39%

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	33.2	27.5	243	269	0.80	7.38	2,237	2,244	6.82	224	231	—	83,285	83,285	2.49	4.13	80.7	84,658
2026	35.6	29.5	270	308	0.84	7.24	2,349	2,357	6.69	236	242	—	84,068	84,068	2.54	4.17	73.6	85,446
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	33.0	27.4	246	266	0.80	7.38	2,237	2,244	6.82	224	231	—	83,165	83,165	2.50	4.13	2.09	84,460
2026	35.4	29.4	272	304	0.84	7.24	2,349	2,357	6.69	236	242	—	83,891	83,891	2.55	4.17	1.91	85,198
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	31.2	25.9	230	250	0.73	6.89	1,832	1,839	6.37	184	190	—	75,117	75,117	2.33	3.43	28.7	76,226
2026	8.60	7.14	65.2	72.7	0.26	1.89	1,107	1,109	1.75	111	113	—	29,385	29,385	0.76	1.98	15.7	30,011
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	5.69	4.72	41.9	45.6	0.13	1.26	334	336	1.16	33.6	34.7	—	12,436	12,436	0.39	0.57	4.75	12,620
2026	1.57	1.30	11.9	13.3	0.05	0.34	202	202	0.32	20.3	20.6	—	4,865	4,865	0.13	0.33	2.59	4,969

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)



Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	10.3	9.90	80.7	466	1.12	2.16	2,237	2,239	2.15	224	227	—	117,867	117,867	3.89	4.41	80.7	119,359
2026	11.0	10.7	84.5	520	1.30	2.27	2,349	2,352	2.26	236	238	—	128,360	128,360	4.34	4.53	73.6	129,891
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	10.1	9.76	83.4	464	1.12	2.16	2,237	2,239	2.15	224	227	—	117,747	117,747	3.90	4.41	2.09	119,160
2026	10.8	10.5	87.1	517	1.30	2.27	2,349	2,352	2.26	236	238	—	128,184	128,184	4.34	4.53	1.91	129,643
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	9.30	8.99	76.7	422	1.01	1.94	1,832	1,834	1.93	184	186	—	105,045	105,045	3.54	3.68	28.7	106,258
2026	3.62	3.49	33.4	169	0.41	0.80	1,107	1,108	0.80	111	112	—	45,261	45,261	1.40	2.11	15.7	45,941
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.70	1.64	14.0	77.1	0.18	0.35	334	335	0.35	33.6	33.9	—	17,391	17,391	0.59	0.61	4.75	17,592
2026	0.66	0.64	6.10	30.8	0.08	0.15	202	202	0.15	20.3	20.4	—	7,494	7,494	0.23	0.35	2.59	7,606

## 2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	42.0	38.7	2.34	235	0.02	0.44	6.87	7.31	0.33	0.69	1.02	0.00	1,081	1,081	0.04	0.01	0.16	1,086
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.16	0.14	0.36	0.47	< 0.005	0.02	6.87	6.89	0.02	0.69	0.71	0.00	109	109	< 0.005	< 0.005	< 0.005	110

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	20.8	19.2	1.34	116	0.01	0.22	5.81	6.04	0.17	0.58	0.76	0.00	581	581	0.02	0.01	0.06	584
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.79	3.50	0.24	21.2	< 0.005	0.04	1.06	1.10	0.03	0.11	0.14	0.00	96.3	96.3	< 0.005	< 0.005	0.01	96.7

## 2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.03	0.02	0.24	< 0.005	< 0.005	6.87	6.87	< 0.005	0.69	0.69	—	53.0	53.0	< 0.005	< 0.005	0.16	53.9
Area	41.8	38.6	1.98	235	0.01	0.42	—	0.42	0.32	—	0.32	—	966	966	0.04	0.01	—	970
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Stationary	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.9	61.9	< 0.005	< 0.005	0.00	62.1
Total	42.0	38.7	2.34	235	0.02	0.44	6.87	7.31	0.33	0.69	1.02	0.00	1,081	1,081	0.04	0.01	0.16	1,086
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.03	0.16	< 0.005	< 0.005	6.87	6.87	< 0.005	0.69	0.69	—	46.6	46.6	< 0.005	< 0.005	< 0.005	47.4
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Stationary	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.9	61.9	< 0.005	< 0.005	0.00	62.1
Total	0.16	0.14	0.36	0.47	< 0.005	0.02	6.87	6.89	0.02	0.69	0.71	0.00	109	109	< 0.005	< 0.005	< 0.005	110
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.02	0.16	< 0.005	< 0.005	5.81	5.81	< 0.005	0.58	0.58	—	42.2	42.2	< 0.005	< 0.005	0.06	42.9
Area	20.6	19.0	0.97	116	0.01	0.21	—	0.21	0.16	—	0.16	—	476	476	0.02	< 0.005	—	478
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Stationary	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	62.4	62.4	< 0.005	< 0.005	0.00	62.6
Total	20.8	19.2	1.34	116	0.01	0.22	5.81	6.04	0.17	0.58	0.76	0.00	581	581	0.02	0.01	0.06	584
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	1.06	1.06	< 0.005	0.11	0.11	—	6.99	6.99	< 0.005	< 0.005	0.01	7.10
Area	3.76	3.47	0.18	21.1	< 0.005	0.04	—	0.04	0.03	—	0.03	—	78.9	78.9	< 0.005	< 0.005	—	79.2
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Stationary	0.02	0.02	0.06	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	10.3	10.3	< 0.005	< 0.005	0.00	10.4
Total	3.79	3.50	0.24	21.2	< 0.005	0.04	1.06	1.10	0.03	0.11	0.14	0.00	96.3	96.3	< 0.005	< 0.005	0.01	96.7

## 2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.03	0.02	0.24	< 0.005	< 0.005	6.87	6.87	< 0.005	0.69	0.69	—	53.0	53.0	< 0.005	< 0.005	0.16	53.9
Area	41.8	38.6	1.98	235	0.01	0.42	—	0.42	0.32	—	0.32	—	966	966	0.04	0.01	—	970
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Stationary	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.9	61.9	< 0.005	< 0.005	0.00	62.1
Total	42.0	38.7	2.34	235	0.02	0.44	6.87	7.31	0.33	0.69	1.02	0.00	1,081	1,081	0.04	0.01	0.16	1,086
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.03	0.16	< 0.005	< 0.005	6.87	6.87	< 0.005	0.69	0.69	—	46.6	46.6	< 0.005	< 0.005	< 0.005	47.4
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Stationary	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.9	61.9	< 0.005	< 0.005	0.00	62.1
Total	0.16	0.14	0.36	0.47	< 0.005	0.02	6.87	6.89	0.02	0.69	0.71	0.00	109	109	< 0.005	< 0.005	< 0.005	110
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.02	0.16	< 0.005	< 0.005	5.81	5.81	< 0.005	0.58	0.58	—	42.2	42.2	< 0.005	< 0.005	0.06	42.9
Area	20.6	19.0	0.97	116	0.01	0.21	—	0.21	0.16	—	0.16	—	476	476	0.02	< 0.005	—	478
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Stationary	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	62.4	62.4	< 0.005	< 0.005	0.00	62.6
Total	20.8	19.2	1.34	116	0.01	0.22	5.81	6.04	0.17	0.58	0.76	0.00	581	581	0.02	0.01	0.06	584
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	1.06	1.06	< 0.005	0.11	0.11	—	6.99	6.99	< 0.005	< 0.005	0.01	7.10
Area	3.76	3.47	0.18	21.1	< 0.005	0.04	—	0.04	0.03	—	0.03	—	78.9	78.9	< 0.005	< 0.005	—	79.2
Energy	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
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Stationary	0.02	0.02	0.06	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	10.3	10.3	< 0.005	< 0.005	0.00	10.4
Total	3.79	3.50	0.24	21.2	< 0.005	0.04	1.06	1.10	0.03	0.11	0.14	0.00	96.3	96.3	< 0.005	< 0.005	0.01	96.7

### 3. Construction Emissions Details

#### 3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.87	3.25	22.8	23.3	0.09	0.84	—	0.84	0.77	—	0.77	—	9,387	9,387	0.38	0.08	—	9,419

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.54	3.82	3.89	0.01	0.14	—	0.14	0.13	—	0.13	—	1,569	1,569	0.06	0.01	—	1,574
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.70	0.71	< 0.005	0.03	—	0.03	0.02	—	0.02	—	260	260	0.01	< 0.005	—	261
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.21	1.93	0.00	0.00	104	104	0.00	10.4	10.4	—	334	334	0.02	0.01	0.04	339



Vendor	0.02	0.01	0.43	0.18	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	365	365	< 0.005	0.05	0.03	380
Hauling	0.01	0.01	0.58	0.14	< 0.005	0.01	31.0	31.0	0.01	3.11	3.12	—	476	476	< 0.005	0.08	0.03	499
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.39	0.00	0.00	17.1	17.1	0.00	1.72	1.72	—	59.9	59.9	< 0.005	< 0.005	0.10	60.8
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	4.35	4.35	< 0.005	0.44	0.44	—	61.0	61.0	< 0.005	0.01	0.07	63.6
Hauling	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	5.12	5.12	< 0.005	0.51	0.52	—	79.5	79.5	< 0.005	0.01	0.07	83.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	3.13	3.13	0.00	0.31	0.31	—	9.92	9.92	< 0.005	< 0.005	0.02	10.1
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.79	0.79	< 0.005	0.08	0.08	—	10.1	10.1	< 0.005	< 0.005	0.01	10.5
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.93	0.93	< 0.005	0.09	0.09	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8

3.2. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	1.54	30.3	68.8	0.13	0.26	—	0.26	0.26	—	0.26	—	13,837	13,837	0.56	0.11	—	13,885
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.26	5.07	11.5	0.02	0.04	—	0.04	0.04	—	0.04	—	2,313	2,313	0.09	0.02	—	2,320
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.93	2.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	383	383	0.02	< 0.005	—	384
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.21	1.93	0.00	0.00	104	104	0.00	10.4	10.4	—	334	334	0.02	0.01	0.04	339
Vendor	0.02	0.01	0.43	0.18	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	365	365	< 0.005	0.05	0.03	380
Hauling	0.01	0.01	0.58	0.14	< 0.005	0.01	31.0	31.0	0.01	3.11	3.12	—	476	476	< 0.005	0.08	0.03	499
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.39	0.00	0.00	17.1	17.1	0.00	1.72	1.72	—	59.9	59.9	< 0.005	< 0.005	0.10	60.8

Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	4.35	4.35	< 0.005	0.44	0.44	—	61.0	61.0	< 0.005	0.01	0.07	63.6
Hauling	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	5.12	5.12	< 0.005	0.51	0.52	—	79.5	79.5	< 0.005	0.01	0.07	83.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	3.13	3.13	0.00	0.31	0.31	—	9.92	9.92	< 0.005	< 0.005	0.02	10.1
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.79	0.79	< 0.005	0.08	0.08	—	10.1	10.1	< 0.005	< 0.005	0.01	10.5
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.93	0.93	< 0.005	0.09	0.09	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8

3.3. Project Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.79	8.18	60.7	80.2	0.19	2.28	—	2.28	2.10	—	2.10	—	19,552	19,552	0.79	0.16	—	19,619
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.79	8.18	60.7	80.2	0.19	2.28	—	2.28	2.10	—	2.10	—	19,552	19,552	0.79	0.16	—	19,619
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm ent	7.91	6.62	49.1	64.8	0.15	1.84	—	1.84	1.70	—	1.70	—	15,802	15,802	0.64	0.13	—	15,857
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	1.44	1.21	8.95	11.8	0.03	0.34	—	0.34	0.31	—	0.31	—	2,616	2,616	0.11	0.02	—	2,625
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.28	0.17	3.19	0.00	0.00	104	104	0.00	10.4	10.4	—	394	394	0.02	0.01	1.38	401
Vendor	0.64	0.43	21.9	6.52	0.20	0.40	1,994	1,994	0.40	200	201	—	26,711	26,711	0.20	3.58	76.6	27,860
Hauling	< 0.005	< 0.005	0.15	0.04	< 0.005	< 0.005	8.86	8.87	< 0.005	0.89	0.89	—	136	136	< 0.005	0.02	0.29	143
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.21	1.93	0.00	0.00	104	104	0.00	10.4	10.4	—	334	334	0.02	0.01	0.04	339
Vendor	0.63	0.42	24.5	6.35	0.20	0.40	1,994	1,994	0.40	200	201	—	26,712	26,712	0.20	3.58	1.99	27,786
Hauling	< 0.005	< 0.005	0.17	0.04	< 0.005	< 0.005	8.86	8.87	< 0.005	0.89	0.89	—	136	136	< 0.005	0.02	0.01	143
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.16	1.88	0.00	0.00	82.8	82.8	0.00	8.30	8.30	—	290	290	0.02	0.01	0.48	294
Vendor	0.51	0.35	19.6	5.28	0.16	0.32	1,590	1,590	0.32	160	160	—	21,589	21,589	0.17	2.89	26.8	22,482
Hauling	< 0.005	< 0.005	0.13	0.03	< 0.005	< 0.005	7.07	7.07	< 0.005	0.71	0.71	—	110	110	< 0.005	0.02	0.10	115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.34	0.00	0.00	15.1	15.1	0.00	1.51	1.51	—	48.0	48.0	< 0.005	< 0.005	0.08	48.7

Vendor	0.09	0.06	3.58	0.96	0.03	0.06	290	290	0.06	29.1	29.2	—	3,574	3,574	0.03	0.48	4.44	3,722
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.29	1.29	< 0.005	0.13	0.13	—	18.2	18.2	< 0.005	< 0.005	0.02	19.1

3.4. Project Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	4.57	4.57	33.1	247	0.44	0.88	—	0.88	0.88	—	0.88	—	46,745	46,745	1.90	0.38	—	46,906
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	4.57	4.57	33.1	247	0.44	0.88	—	0.88	0.88	—	0.88	—	46,745	46,745	1.90	0.38	—	46,906
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	3.69	3.69	26.8	200	0.36	0.71	—	0.71	0.71	—	0.71	—	37,780	37,780	1.53	0.31	—	37,910
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.67	0.67	4.89	36.5	0.07	0.13	—	0.13	0.13	—	0.13	—	6,255	6,255	0.25	0.05	—	6,276
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.28	0.17	3.19	0.00	0.00	104	104	0.00	10.4	10.4	—	394	394	0.02	0.01	1.38	401
Vendor	0.64	0.43	21.9	6.52	0.20	0.40	1,994	1,994	0.40	200	201	—	26,711	26,711	0.20	3.58	76.6	27,860
Hauling	< 0.005	< 0.005	0.15	0.04	< 0.005	< 0.005	8.86	8.87	< 0.005	0.89	0.89	—	136	136	< 0.005	0.02	0.29	143
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.21	1.93	0.00	0.00	104	104	0.00	10.4	10.4	—	334	334	0.02	0.01	0.04	339
Vendor	0.63	0.42	24.5	6.35	0.20	0.40	1,994	1,994	0.40	200	201	—	26,712	26,712	0.20	3.58	1.99	27,786
Hauling	< 0.005	< 0.005	0.17	0.04	< 0.005	< 0.005	8.86	8.87	< 0.005	0.89	0.89	—	136	136	< 0.005	0.02	0.01	143
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.16	1.88	0.00	0.00	82.8	82.8	0.00	8.30	8.30	—	290	290	0.02	0.01	0.48	294
Vendor	0.51	0.35	19.6	5.28	0.16	0.32	1,590	1,590	0.32	160	160	—	21,589	21,589	0.17	2.89	26.8	22,482
Hauling	< 0.005	< 0.005	0.13	0.03	< 0.005	< 0.005	7.07	7.07	< 0.005	0.71	0.71	—	110	110	< 0.005	0.02	0.10	115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.34	0.00	0.00	15.1	15.1	0.00	1.51	1.51	—	48.0	48.0	< 0.005	< 0.005	0.08	48.7
Vendor	0.09	0.06	3.58	0.96	0.03	0.06	290	290	0.06	29.1	29.2	—	3,574	3,574	0.03	0.48	4.44	3,722
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.29	1.29	< 0.005	0.13	0.13	—	18.2	18.2	< 0.005	< 0.005	0.02	19.1

3.5. Project Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	9.36	7.83	56.9	79.7	0.19	2.02	—	2.02	1.86	—	1.86	—	19,555	19,555	0.79	0.16	—	19,622
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	9.36	7.83	56.9	79.7	0.19	2.02	—	2.02	1.86	—	1.86	—	19,555	19,555	0.79	0.16	—	19,622
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	4.74	3.97	28.8	40.4	0.10	1.02	—	1.02	0.94	—	0.94	—	9,912	9,912	0.40	0.08	—	9,946
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.87	0.72	5.26	7.37	0.02	0.19	—	0.19	0.17	—	0.17	—	1,641	1,641	0.07	0.01	—	1,647
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.27	0.26	0.16	2.94	0.00	0.00	104	104	0.00	10.4	10.4	—	387	387	0.02	0.01	1.26	393
Vendor	0.64	0.43	20.5	5.53	0.20	0.40	1,994	1,994	0.40	200	201	—	26,206	26,206	0.20	3.58	68.4	27,346
Hauling	< 0.005	< 0.005	0.15	0.04	< 0.005	< 0.005	8.86	8.87	< 0.005	0.89	0.89	—	133	133	< 0.005	0.02	0.28	140
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.18	1.78	0.00	0.00	104	104	0.00	10.4	10.4	—	328	328	0.02	0.01	0.03	332
Vendor	0.63	0.42	22.9	5.35	0.20	0.40	1,994	1,994	0.40	200	201	—	26,207	26,207	0.20	3.58	1.78	27,280
Hauling	< 0.005	< 0.005	0.16	0.04	< 0.005	< 0.005	8.86	8.87	< 0.005	0.89	0.89	—	133	133	< 0.005	0.02	0.01	139
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.09	1.09	0.00	0.00	52.0	52.0	0.00	5.20	5.20	—	178	178	0.01	0.01	0.28	181
Vendor	0.32	0.22	11.5	2.81	0.10	0.20	997	997	0.20	100	100	—	13,283	13,283	0.10	1.81	15.0	13,841
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	4.43	4.43	< 0.005	0.45	0.45	—	67.4	67.4	< 0.005	0.01	0.06	70.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	9.48	9.48	0.00	0.95	0.95	—	29.5	29.5	< 0.005	< 0.005	0.05	30.0
Vendor	0.06	0.04	2.10	0.51	0.02	0.04	182	182	0.04	18.3	18.3	—	2,199	2,199	0.02	0.30	2.48	2,292
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.08	—	11.2	11.2	< 0.005	< 0.005	0.01	11.7

3.6. Project Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.57	4.57	33.1	247	0.44	0.88	—	0.88	0.88	—	0.88	—	46,778	46,778	1.90	0.38	—	46,939

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	4.57	4.57	33.1	247	0.44	0.88	—	0.88	0.88	—	0.88	—	46,778	46,778	1.90	0.38	—	46,939
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	2.32	2.32	16.8	125	0.22	0.45	—	0.45	0.45	—	0.45	—	23,709	23,709	0.96	0.19	—	23,791
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.42	0.42	3.07	22.9	0.04	0.08	—	0.08	0.08	—	0.08	—	3,925	3,925	0.16	0.03	—	3,939
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.26	0.16	2.94	0.00	0.00	104	104	0.00	10.4	10.4	—	387	387	0.02	0.01	1.26	393
Vendor	0.64	0.43	20.5	5.53	0.20	0.40	1,994	1,994	0.40	200	201	—	26,206	26,206	0.20	3.58	68.4	27,346
Hauling	< 0.005	< 0.005	0.15	0.04	< 0.005	< 0.005	8.86	8.87	< 0.005	0.89	0.89	—	133	133	< 0.005	0.02	0.28	140
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.21	0.20	0.18	1.78	0.00	0.00	104	104	0.00	10.4	10.4	—	328	328	0.02	0.01	0.03	332
Vendor	0.63	0.42	22.9	5.35	0.20	0.40	1,994	1,994	0.40	200	201	—	26,207	26,207	0.20	3.58	1.78	27,280
Hauling	< 0.005	< 0.005	0.16	0.04	< 0.005	< 0.005	8.86	8.87	< 0.005	0.89	0.89	—	133	133	< 0.005	0.02	0.01	139
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.09	1.09	0.00	0.00	52.0	52.0	0.00	5.20	5.20	—	178	178	0.01	0.01	0.28	181
Vendor	0.32	0.22	11.5	2.81	0.10	0.20	997	997	0.20	100	100	—	13,283	13,283	0.10	1.81	15.0	13,841
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	4.43	4.43	< 0.005	0.45	0.45	—	67.4	67.4	< 0.005	0.01	0.06	70.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	9.48	9.48	0.00	0.95	0.95	—	29.5	29.5	< 0.005	< 0.005	0.05	30.0
Vendor	0.06	0.04	2.10	0.51	0.02	0.04	182	182	0.04	18.3	18.3	—	2,199	2,199	0.02	0.30	2.48	2,292
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.08	—	11.2	11.2	< 0.005	< 0.005	0.01	11.7

3.7. Well Drilling and Pipeline (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	22.1	18.3	160	176	0.41	4.69	—	4.69	4.32	—	4.32	—	35,732	35,732	1.45	0.29	—	35,855
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm ent	22.1	18.3	160	176	0.41	4.69	—	4.69	4.32	—	4.32	—	35,732	35,732	1.45	0.29	—	35,855
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	21.6	17.9	156	171	0.40	4.58	—	4.58	4.21	—	4.21	—	34,851	34,851	1.41	0.28	—	34,970
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	3.93	3.26	28.5	31.3	0.07	0.83	—	0.83	0.77	—	0.77	—	5,770	5,770	0.23	0.05	—	5,790
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.28	0.17	3.19	0.00	0.00	104	104	0.00	10.4	10.4	—	394	394	0.02	0.01	1.38	401
Vendor	0.02	0.01	0.39	0.17	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	365	365	< 0.005	0.05	1.01	381
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.21	1.93	0.00	0.00	104	104	0.00	10.4	10.4	—	334	334	0.02	0.01	0.04	339
Vendor	0.02	0.01	0.43	0.18	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	365	365	< 0.005	0.05	0.03	380
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.19	2.27	0.00	0.00	100.0	100.0	0.00	10.0	10.0	—	350	350	0.02	0.01	0.58	355
Vendor	0.02	0.01	0.42	0.17	< 0.005	0.01	25.4	25.4	0.01	2.55	2.55	—	356	356	< 0.005	0.05	0.43	371
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.41	0.00	0.00	18.2	18.2	0.00	1.83	1.83	—	57.9	57.9	< 0.005	< 0.005	0.10	58.8
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	4.63	4.63	< 0.005	0.46	0.47	—	59.0	59.0	< 0.005	0.01	0.07	61.4
Hauling	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	0.00

3.8. Well Drilling and Pipeline (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.42	4.33	24.8	206	0.48	0.88	—	0.88	0.87	—	0.87	—	43,121	43,121	1.75	0.35	—	43,269
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.42	4.33	24.8	206	0.48	0.88	—	0.88	0.87	—	0.87	—	43,121	43,121	1.75	0.35	—	43,269
Onsite truck	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	0.00



Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	4.31	4.22	24.2	201	0.46	0.86	—	0.86	0.85	—	0.85	—	42,058	42,058	1.71	0.34	—	42,202
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.79	0.77	4.42	36.6	0.08	0.16	—	0.16	0.15	—	0.15	—	6,963	6,963	0.28	0.06	—	6,987
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.28	0.17	3.19	0.00	0.00	104	104	0.00	10.4	10.4	—	394	394	0.02	0.01	1.38	401
Vendor	0.02	0.01	0.39	0.17	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	365	365	< 0.005	0.05	1.01	381
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.21	1.93	0.00	0.00	104	104	0.00	10.4	10.4	—	334	334	0.02	0.01	0.04	339
Vendor	0.02	0.01	0.43	0.18	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	365	365	< 0.005	0.05	0.03	380
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.19	2.27	0.00	0.00	100.0	100.0	0.00	10.0	10.0	—	350	350	0.02	0.01	0.58	355
Vendor	0.02	0.01	0.42	0.17	< 0.005	0.01	25.4	25.4	0.01	2.55	2.55	—	356	356	< 0.005	0.05	0.43	371
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.04	0.03	0.41	0.00	0.00	18.2	18.2	0.00	1.83	1.83	—	57.9	57.9	< 0.005	< 0.005	0.10	58.8
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	4.63	4.63	< 0.005	0.46	0.47	—	59.0	59.0	< 0.005	0.01	0.07	61.4
Hauling	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	0.00

3.9. Well Drilling and Pipeline (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	20.8	17.2	154	175	0.41	4.06	—	4.06	3.73	—	3.73	—	35,741	35,741	1.45	0.29	—	35,863
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.11	2.39	0.01	0.06	—	0.06	0.05	—	0.05	—	490	490	0.02	< 0.005	—	491
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.38	0.44	< 0.005	0.01	—	0.01	0.01	—	0.01	—	81.1	81.1	< 0.005	< 0.005	—	81.3

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.18	1.78	0.00	0.00	104	104	0.00	10.4	10.4	—	328	328	0.02	0.01	0.03	332
Vendor	0.02	0.01	0.41	0.16	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	358	358	< 0.005	0.05	0.02	373
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	1.40	1.40	0.00	0.14	0.14	—	4.82	4.82	< 0.005	< 0.005	0.01	4.89
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	4.91	4.91	< 0.005	< 0.005	0.01	5.12
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.26	0.26	0.00	0.03	0.03	—	0.80	0.80	< 0.005	< 0.005	< 0.005	0.81
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.85
Hauling	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	0.00

3.10. Well Drilling and Pipeline (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	4.40	4.31	24.6	206	0.48	0.87	—	0.87	0.86	—	0.86	—	43,138	43,138	1.75	0.35	—	43,286
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	0.34	2.82	0.01	0.01	—	0.01	0.01	—	0.01	—	591	591	0.02	< 0.005	—	593
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.51	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	97.8	97.8	< 0.005	< 0.005	—	98.2
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.18	1.78	0.00	0.00	104	104	0.00	10.4	10.4	—	328	328	0.02	0.01	0.03	332
Vendor	0.02	0.01	0.41	0.16	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	358	358	< 0.005	0.05	0.02	373
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	1.40	1.40	0.00	0.14	0.14	—	4.82	4.82	< 0.005	< 0.005	0.01	4.89
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	4.91	4.91	< 0.005	< 0.005	0.01	5.12
Hauling	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.26	0.26	0.00	0.03	0.03	—	0.80	0.80	< 0.005	< 0.005	< 0.005	0.81
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.85
Hauling	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	0.00

3.11. Substation Development (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.74	3.13	24.9	28.0	0.08	0.79	—	0.79	0.73	—	0.73	—	8,384	8,384	0.34	0.07	—	8,413
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.74	3.13	24.9	28.0	0.08	0.79	—	0.79	0.73	—	0.73	—	8,384	8,384	0.34	0.07	—	8,413
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.24	1.04	8.24	9.29	0.03	0.26	—	0.26	0.24	—	0.24	—	2,779	2,779	0.11	0.02	—	2,789

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.23	0.19	1.50	1.70	< 0.005	0.05	—	0.05	0.04	—	0.04	—	460	460	0.02	< 0.005	—	462
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.26	0.16	2.94	0.00	0.00	104	104	0.00	10.4	10.4	—	387	387	0.02	0.01	1.26	393
Vendor	0.02	0.01	0.37	0.16	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	358	358	< 0.005	0.05	0.90	374
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.18	1.78	0.00	0.00	104	104	0.00	10.4	10.4	—	328	328	0.02	0.01	0.03	332
Vendor	0.02	0.01	0.41	0.16	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	358	358	< 0.005	0.05	0.02	373
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.06	0.71	0.00	0.00	34.0	34.0	0.00	3.40	3.40	—	117	117	0.01	< 0.005	0.18	118
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	8.62	8.63	< 0.005	0.87	0.87	—	119	119	< 0.005	0.02	0.13	124
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	6.20	6.20	0.00	0.62	0.62	—	19.3	19.3	< 0.005	< 0.005	0.03	19.6
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.57	1.57	< 0.005	0.16	0.16	—	19.7	19.7	< 0.005	< 0.005	0.02	20.5
Hauling	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	0.00



## 3.12. Substation Development (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	1.10	7.53	55.5	0.10	0.22	—	0.22	0.22	—	0.22	—	10,523	10,523	0.43	0.09	—	10,559
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	1.10	7.53	55.5	0.10	0.22	—	0.22	0.22	—	0.22	—	10,523	10,523	0.43	0.09	—	10,559
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.37	2.50	18.4	0.03	0.07	—	0.07	0.07	—	0.07	—	3,488	3,488	0.14	0.03	—	3,500
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.07	0.46	3.36	0.01	0.01	—	0.01	0.01	—	0.01	—	578	578	0.02	< 0.005	—	580

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.26	0.16	2.94	0.00	0.00	104	104	0.00	10.4	10.4	—	387	387	0.02	0.01	1.26	393
Vendor	0.02	0.01	0.37	0.16	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	358	358	< 0.005	0.05	0.90	374
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.18	1.78	0.00	0.00	104	104	0.00	10.4	10.4	—	328	328	0.02	0.01	0.03	332
Vendor	0.02	0.01	0.41	0.16	< 0.005	0.01	26.4	26.4	0.01	2.65	2.65	—	358	358	< 0.005	0.05	0.02	373
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.06	0.71	0.00	0.00	34.0	34.0	0.00	3.40	3.40	—	117	117	0.01	< 0.005	0.18	118
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	8.62	8.63	< 0.005	0.87	0.87	—	119	119	< 0.005	0.02	0.13	124
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	6.20	6.20	0.00	0.62	0.62	—	19.3	19.3	< 0.005	< 0.005	0.03	19.6
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.57	1.57	< 0.005	0.16	0.16	—	19.7	19.7	< 0.005	< 0.005	0.02	20.5
Hauling	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	0.00

3.13. Testing and Operational (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	21.0	17.4	166	186	0.36	4.02	—	4.02	3.69	—	3.69	—	28,147	28,147	1.14	0.23	—	28,244
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	21.0	17.4	166	186	0.36	4.02	—	4.02	3.69	—	3.69	—	28,147	28,147	1.14	0.23	—	28,244
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	1.78	1.47	14.1	15.8	0.03	0.34	—	0.34	0.31	—	0.31	—	2,391	2,391	0.10	0.02	—	2,399
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.33	0.27	2.58	2.88	0.01	0.06	—	0.06	0.06	—	0.06	—	396	396	0.02	< 0.005	—	397
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.27	0.26	0.16	2.94	0.00	0.00	104	104	0.00	10.4	10.4	—	387	387	0.02	0.01	1.26	393
Vendor	0.01	0.01	0.13	0.06	< 0.005	< 0.005	9.04	9.04	< 0.005	0.91	0.91	—	124	124	< 0.005	0.02	0.31	129
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.18	1.78	0.00	0.00	104	104	0.00	10.4	10.4	—	328	328	0.02	0.01	0.03	332
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	9.04	9.04	< 0.005	0.91	0.91	—	124	124	< 0.005	0.02	0.01	129
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.18	0.00	0.00	8.71	8.71	0.00	0.87	0.87	—	29.9	29.9	< 0.005	< 0.005	0.05	30.3
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.76	0.76	< 0.005	0.08	0.08	—	10.5	10.5	< 0.005	< 0.005	0.01	10.9
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	1.59	1.59	0.00	0.16	0.16	—	4.95	4.95	< 0.005	< 0.005	0.01	5.02
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.14	0.14	< 0.005	0.01	0.01	—	1.74	1.74	< 0.005	< 0.005	< 0.005	1.81
Hauling	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	0.00

### 3.14. Testing and Operational (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.82	3.82	22.3	203	0.55	0.76	—	0.76	0.76	—	0.76	—	43,078	43,078	1.75	0.35	—	43,226

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	3.82	3.82	22.3	203	0.55	0.76	—	0.76	0.76	—	0.76	—	43,078	43,078	1.75	0.35	—	43,226
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.32	0.32	1.89	17.2	0.05	0.06	—	0.06	0.06	—	0.06	—	3,659	3,659	0.15	0.03	—	3,671
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.06	0.06	0.35	3.15	0.01	0.01	—	0.01	0.01	—	0.01	—	606	606	0.02	< 0.005	—	608
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.26	0.16	2.94	0.00	0.00	104	104	0.00	10.4	10.4	—	387	387	0.02	0.01	1.26	393
Vendor	0.01	0.01	0.13	0.06	< 0.005	< 0.005	9.04	9.04	< 0.005	0.91	0.91	—	124	124	< 0.005	0.02	0.31	129
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.21	0.20	0.18	1.78	0.00	0.00	104	104	0.00	10.4	10.4	—	328	328	0.02	0.01	0.03	332
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	9.04	9.04	< 0.005	0.91	0.91	—	124	124	< 0.005	0.02	0.01	129
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.18	0.00	0.00	8.71	8.71	0.00	0.87	0.87	—	29.9	29.9	< 0.005	< 0.005	0.05	30.3
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.76	0.76	< 0.005	0.08	0.08	—	10.5	10.5	< 0.005	< 0.005	0.01	10.9
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	1.59	1.59	0.00	0.16	0.16	—	4.95	4.95	< 0.005	< 0.005	0.01	5.02
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.14	0.14	< 0.005	0.01	0.01	—	1.74	1.74	< 0.005	< 0.005	< 0.005	1.81
Hauling	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	0.00

## 4. Operations Emissions Details

### 4.1. Mobile Emissions by Land Use

#### 4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

#### 4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

### 4.2. Energy

#### 4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Total	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Total	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Total	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

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Total	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Total	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Total	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

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	41.8	38.6	1.98	235	0.01	0.42	—	0.42	0.32	—	0.32	—	966	966	0.04	0.01	—	970
Total	41.8	38.6	1.98	235	0.01	0.42	—	0.42	0.32	—	0.32	—	966	966	0.04	0.01	—	970
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	3.76	3.47	0.18	21.1	< 0.005	0.04	—	0.04	0.03	—	0.03	—	78.9	78.9	< 0.005	< 0.005	—	79.2
Total	3.76	3.47	0.18	21.1	< 0.005	0.04	—	0.04	0.03	—	0.03	—	78.9	78.9	< 0.005	< 0.005	—	79.2

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	41.8	38.6	1.98	235	0.01	0.42	—	0.42	0.32	—	0.32	—	966	966	0.04	0.01	—	970
Total	41.8	38.6	1.98	235	0.01	0.42	—	0.42	0.32	—	0.32	—	966	966	0.04	0.01	—	970
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landsca Equipment	3.76	3.47	0.18	21.1	< 0.005	0.04	—	0.04	0.03	—	0.03	—	78.9	78.9	< 0.005	< 0.005	—	79.2
Total	3.76	3.47	0.18	21.1	< 0.005	0.04	—	0.04	0.03	—	0.03	—	78.9	78.9	< 0.005	< 0.005	—	79.2

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)



Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06

## 4.5. Waste Emissions by Land Use

### 4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emerge Generator	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.7	61.7	< 0.005	< 0.005	0.00	61.9
Fire Pump	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	0.28	0.28	< 0.005	< 0.005	0.00	0.28
Total	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.9	61.9	< 0.005	< 0.005	0.00	62.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergen cy Generator	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.7	61.7	< 0.005	< 0.005	0.00	61.9
Fire Pump	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	0.28	0.28	< 0.005	< 0.005	0.00	0.28
Total	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.9	61.9	< 0.005	< 0.005	0.00	62.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergen cy Generator	0.02	0.02	0.06	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	10.3	10.3	< 0.005	< 0.005	0.00	10.3
Fire Pump	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	0.05	0.05	< 0.005	< 0.005	0.00	0.05
Total	0.02	0.02	0.06	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	10.3	10.3	< 0.005	< 0.005	0.00	10.4

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Emergen cy Generat or	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.7	61.7	< 0.005	< 0.005	0.00	61.9
Fire Pump	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	0.28	0.28	< 0.005	< 0.005	0.00	0.28
Total	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.9	61.9	< 0.005	< 0.005	0.00	62.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergen cy Generat or	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.7	61.7	< 0.005	< 0.005	0.00	61.9
Fire Pump	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	0.28	0.28	< 0.005	< 0.005	0.00	0.28
Total	0.13	0.12	0.34	0.31	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	61.9	61.9	< 0.005	< 0.005	0.00	62.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergen cy Generat or	0.02	0.02	0.06	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	10.3	10.3	< 0.005	< 0.005	0.00	10.3
Fire Pump	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	0.05	0.05	< 0.005	< 0.005	0.00	0.05
Total	0.02	0.02	0.06	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	10.3	10.3	< 0.005	< 0.005	0.00	10.4

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
-----------------------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetati on	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
---------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

### 5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/10/2025	3/11/2025	7.00	61.0	Site Preparation
Project Construction	Building Construction	3/12/2025	7/4/2026	7.00	480	Project Construction
Well Drilling and Pipeline	Building Construction	1/10/2025	1/5/2026	7.00	361	Well Drilling and Pipeline Interconnection
Substation Development	Building Construction	1/6/2026	5/6/2026	7.00	121	Substation Development & Interconnection
Testing and Operational	Building Construction	3/27/2026	4/26/2026	7.00	31.0	Testing and Operational

### 5.2. Off-Road Equipment

#### 5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Off-Highway Trucks	Diesel	Average	3.00	5.00	402	0.38
Site Preparation	Excavators	Diesel	Average	1.00	8.00	97.0	0.38
Site Preparation	Rollers	Diesel	Average	2.00	8.00	200	0.38
Site Preparation	Off-Highway Trucks	Diesel	Average	8.00	4.00	350	0.38
Project Construction	Aerial Lifts	Diesel	Average	8.00	6.00	160	0.31

Project Construction	Excavators	Diesel	Average	1.00	8.00	97.0	0.38
Project Construction	Cranes	Diesel	Average	2.00	6.00	160	0.29
Project Construction	Forklifts	Diesel	Average	7.00	8.00	89.0	0.20
Project Construction	Generator Sets	Diesel	Average	1.00	8.00	84.0	0.74
Project Construction	Graders	Diesel	Average	1.00	8.00	187	0.41
Project Construction	Off-Highway Trucks	Diesel	Average	2.00	8.00	402	0.38
Project Construction	Rubber Tired Loaders	Diesel	Average	1.00	8.00	203	0.36
Project Construction	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	97.0	0.37
Project Construction	Welders	Diesel	Average	15.0	6.00	46.0	0.45
Project Construction	Off-Highway Trucks	Diesel	Average	1.00	4.00	350	0.38
Project Construction	Off-Highway Trucks	Diesel	Average	15.0	4.00	245	0.38
Well Drilling and Pipeline	Generator Sets	Diesel	Average	2.00	12.0	27.0	0.74
Well Drilling and Pipeline	Bore/Drill Rigs	Diesel	Average	1.00	24.0	500	0.50
Well Drilling and Pipeline	Pumps	Diesel	Average	1.00	24.0	500	0.74
Well Drilling and Pipeline	Generator Sets	Diesel	Average	1.00	24.0	415	0.74
Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Average	8.00	1.00	450	0.38
Well Drilling and Pipeline	Cranes	Diesel	Average	2.00	5.00	231	0.29
Well Drilling and Pipeline	Tractors/Loaders/Back hoes	Diesel	Average	1.00	6.00	97.0	0.37
Well Drilling and Pipeline	Forklifts	Diesel	Average	1.00	6.00	89.0	0.20
Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Average	1.00	10.0	385	0.38
Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Average	1.00	4.00	428	0.38

Well Drilling and Pipeline	Other Material Handling Equipment	Diesel	Average	1.00	4.00	100	0.40
Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Average	4.00	4.00	350	0.38
Substation Development	Cranes	Diesel	Average	1.00	8.00	231	0.29
Substation Development	Bore/Drill Rigs	Diesel	Average	1.00	8.00	221	0.50
Substation Development	Aerial Lifts	Diesel	Average	2.00	8.00	63.0	0.31
Substation Development	Off-Highway Trucks	Diesel	Average	2.00	4.00	402	0.38
Substation Development	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	97.0	0.37
Substation Development	Forklifts	Diesel	Average	1.00	8.00	89.0	0.20
Substation Development	Trenchers	Diesel	Average	1.00	8.00	13.0	0.50
Substation Development	Generator Sets	Diesel	Average	2.00	8.00	84.0	0.74
Substation Development	Off-Highway Trucks	Diesel	Average	5.00	4.00	350	0.38
Testing and Operational	Generator Sets	Diesel	Average	1.00	24.0	671	0.74
Testing and Operational	Generator Sets	Diesel	Average	2.00	12.0	27.0	0.74
Testing and Operational	Generator Sets	Diesel	Average	2.00	12.0	9.00	0.74
Testing and Operational	Pumps	Diesel	Average	1.00	24.0	115	0.74
Testing and Operational	Pumps	Diesel	Average	1.00	24.0	415	0.74
Testing and Operational	Off-Highway Trucks	Diesel	Average	1.00	4.00	350	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Off-Highway Trucks	Diesel	Tier 4 Interim	8.00	5.00	402	0.38
Site Preparation	Excavators	Diesel	Tier 4 Final	1.00	8.00	97.0	0.38
Site Preparation	Rollers	Diesel	Tier 4 Final	2.00	8.00	200	0.38
Site Preparation	Off-Highway Trucks	Diesel	Tier 4 Interim	8.00	4.00	350	0.38
Project Construction	Aerial Lifts	Diesel	Tier 4 Final	8.00	6.00	160	0.31
Project Construction	Excavators	Diesel	Tier 4 Final	1.00	8.00	97.0	0.38
Project Construction	Cranes	Diesel	Tier 4 Final	2.00	6.00	160	0.29
Project Construction	Forklifts	Diesel	Tier 4 Final	7.00	8.00	89.0	0.20
Project Construction	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	84.0	0.74
Project Construction	Graders	Diesel	Tier 4 Final	1.00	8.00	187	0.41
Project Construction	Off-Highway Trucks	Diesel	Tier 4 Final	15.0	8.00	402	0.38
Project Construction	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	203	0.36
Project Construction	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.00	8.00	97.0	0.37
Project Construction	Welders	Diesel	Tier 4 Final	15.0	6.00	46.0	0.45
Project Construction	Off-Highway Trucks	Diesel	Tier 4 Final	15.0	4.00	350	0.38
Project Construction	Off-Highway Trucks	Diesel	Tier 4 Final	15.0	4.00	245	0.38
Well Drilling and Pipeline	Generator Sets	Diesel	Average	1.00	12.0	27.0	0.74
Well Drilling and Pipeline	Generator Sets	Diesel	Tier 4 Final	1.00	12.0	27.0	0.74
Well Drilling and Pipeline	Bore/Drill Rigs	Diesel	Tier 4 Final	1.00	24.0	500	0.50
Well Drilling and Pipeline	Pumps	Diesel	Tier 4 Final	1.00	24.0	500	0.74
Well Drilling and Pipeline	Generator Sets	Diesel	Tier 4 Final	1.00	24.0	415	0.74

Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Average	4.00	1.00	450	0.38
Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Tier 4 Final	4.00	1.00	450	0.38
Well Drilling and Pipeline	Cranes	Diesel	Tier 4 Final	2.00	5.00	231	0.29
Well Drilling and Pipeline	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.00	6.00	97.0	0.37
Well Drilling and Pipeline	Forklifts	Diesel	Tier 4 Final	1.00	6.00	89.0	0.20
Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Tier 4 Final	4.00	10.0	385	0.38
Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Tier 4 Final	4.00	4.00	428	0.38
Well Drilling and Pipeline	Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	4.00	100	0.40
Well Drilling and Pipeline	Off-Highway Trucks	Diesel	Tier 4 Final	4.00	4.00	350	0.38
Substation Development	Cranes	Diesel	Tier 4 Final	1.00	8.00	231	0.29
Substation Development	Bore/Drill Rigs	Diesel	Tier 4 Final	1.00	8.00	221	0.50
Substation Development	Aerial Lifts	Diesel	Tier 4 Final	2.00	8.00	63.0	0.31
Substation Development	Off-Highway Trucks	Diesel	Tier 4 Final	5.00	4.00	402	0.38
Substation Development	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.00	8.00	97.0	0.37
Substation Development	Forklifts	Diesel	Tier 4 Final	1.00	8.00	89.0	0.20
Substation Development	Trenchers	Diesel	Average	1.00	8.00	13.0	0.50
Substation Development	Generator Sets	Diesel	Tier 4 Final	2.00	8.00	84.0	0.74

Substation Development	Off-Highway Trucks	Diesel	Tier 4 Final	5.00	4.00	350	0.38
Testing and Operational	Generator Sets	Diesel	Tier 4 Final	2.00	24.0	671	0.74
Testing and Operational	Generator Sets	Diesel	Tier 4 Final	2.00	12.0	27.0	0.74
Testing and Operational	Generator Sets	Diesel	Tier 4 Final	2.00	12.0	9.00	0.74
Testing and Operational	Pumps	Diesel	Tier 4 Final	1.00	24.0	115	0.74
Testing and Operational	Pumps	Diesel	Tier 4 Final	1.00	24.0	415	0.74
Testing and Operational	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	4.00	350	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	46.0	10.2	LDA,LDT1,LDT2
Site Preparation	Vendor	10.0	11.9	HHDT,MHDT
Site Preparation	Hauling	7.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Well Drilling and Pipeline	—	—	—	—
Well Drilling and Pipeline	Worker	46.0	10.2	LDA,LDT1,LDT2
Well Drilling and Pipeline	Vendor	10.0	11.9	HHDT,MHDT
Well Drilling and Pipeline	Hauling	0.00	20.0	HHDT
Well Drilling and Pipeline	Onsite truck	—	—	HHDT
Project Construction	—	—	—	—
Project Construction	Worker	46.0	10.2	LDA,LDT1,LDT2



Project Construction	Vendor	40.0	225	HHDT,MHDT
Project Construction	Hauling	2.00	20.0	HHDT
Project Construction	Onsite truck	—	—	HHDT
Substation Development	—	—	—	—
Substation Development	Worker	46.0	10.2	LDA,LDT1,LDT2
Substation Development	Vendor	10.0	11.9	HHDT,MHDT
Substation Development	Hauling	0.00	20.0	HHDT
Substation Development	Onsite truck	—	—	HHDT
Testing and Operational	—	—	—	—
Testing and Operational	Worker	46.0	10.2	LDA,LDT1,LDT2
Testing and Operational	Vendor	4.00	10.2	HHDT,MHDT
Testing and Operational	Hauling	0.00	20.0	HHDT
Testing and Operational	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	46.0	10.2	LDA,LDT1,LDT2
Site Preparation	Vendor	10.0	11.9	HHDT,MHDT
Site Preparation	Hauling	7.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Well Drilling and Pipeline	—	—	—	—
Well Drilling and Pipeline	Worker	46.0	10.2	LDA,LDT1,LDT2
Well Drilling and Pipeline	Vendor	10.0	11.9	HHDT,MHDT
Well Drilling and Pipeline	Hauling	0.00	20.0	HHDT
Well Drilling and Pipeline	Onsite truck	—	—	HHDT
Project Construction	—	—	—	—
Project Construction	Worker	46.0	10.2	LDA,LDT1,LDT2

Project Construction	Vendor	40.0	225	HHDT,MHDT
Project Construction	Hauling	2.00	20.0	HHDT
Project Construction	Onsite truck	—	—	HHDT
Substation Development	—	—	—	—
Substation Development	Worker	46.0	10.2	LDA,LDT1,LDT2
Substation Development	Vendor	10.0	11.9	HHDT,MHDT
Substation Development	Hauling	0.00	20.0	HHDT
Substation Development	Onsite truck	—	—	HHDT
Testing and Operational	—	—	—	—
Testing and Operational	Worker	46.0	10.2	LDA,LDT1,LDT2
Testing and Operational	Vendor	4.00	10.2	HHDT,MHDT
Testing and Operational	Hauling	0.00	20.0	HHDT
Testing and Operational	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
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5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	457	0.03	< 0.005
2026	0.00	457	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	6.00	3.00	3.00	1,877	61.2	30.6	30.6	19,147

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	6.00	3.00	3.00	1,877	61.2	30.6	30.6	19,147

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	2.00

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	0.00	457	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	0.00	457	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	0.00	118,625

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	0.00	118,625

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)

General Heavy Industry	0.00	—
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5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.00	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.00	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	0.14	50.0	540	0.73
Fire Pump	Diesel	1.00	0.11	40.0	3.00	0.73



5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
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5.17. User Defined

Equipment Type	Fuel Type
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5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.2	annual days of extreme heat
Extreme Precipitation	0.10	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

## 7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	65.7
AQ-PM	48.7
AQ-DPM	30.1
Drinking Water	57.2
Lead Risk Housing	30.7
Pesticides	89.5
Toxic Releases	46.0
Traffic	8.75
Effect Indicators	—
CleanUp Sites	50.3
Groundwater	74.8
Haz Waste Facilities/Generators	86.6
Impaired Water Bodies	99.5
Solid Waste	95.0
Sensitive Population	—
Asthma	68.5
Cardio-vascular	89.4
Low Birth Weights	20.3
Socioeconomic Factor Indicators	—
Education	73.4
Housing	39.7
Linguistic	85.2
Poverty	72.1
Unemployment	65.6

## 7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	24.4193507
Employed	22.93083537
Median HI	21.92993712
Education	—
Bachelor's or higher	23.23880405
High school enrollment	14.0639035
Preschool enrollment	58.10342615
Transportation	—
Auto Access	48.80020531
Active commuting	25.67688952
Social	—
2-parent households	77.12049275
Voting	20.99319902
Neighborhood	—
Alcohol availability	67.0986783
Park access	38.22661363
Retail density	7.955857821
Supermarket access	24.95829591
Tree canopy	1.424355191
Housing	—
Homeownership	51.98254844
Housing habitability	38.4832542
Low-inc homeowner severe housing cost burden	37.62350828
Low-inc renter severe housing cost burden	23.55960477

Uncrowded housing	28.33311947
Health Outcomes	—
Insured adults	30.39907609
Arthritis	0.0
Asthma ER Admissions	42.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	90.7
Cognitively Disabled	19.2
Physically Disabled	15.4
Heart Attack ER Admissions	7.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	39.5
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0



Children	33.8
Elderly	39.7
English Speaking	4.1
Foreign-born	93.6
Outdoor Workers	18.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	72.6
Traffic Density	16.8
Traffic Access	23.0
Other Indices	—
Hardship	80.6
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	84.0
Healthy Places Index Score for Project Location (b)	26.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.  
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

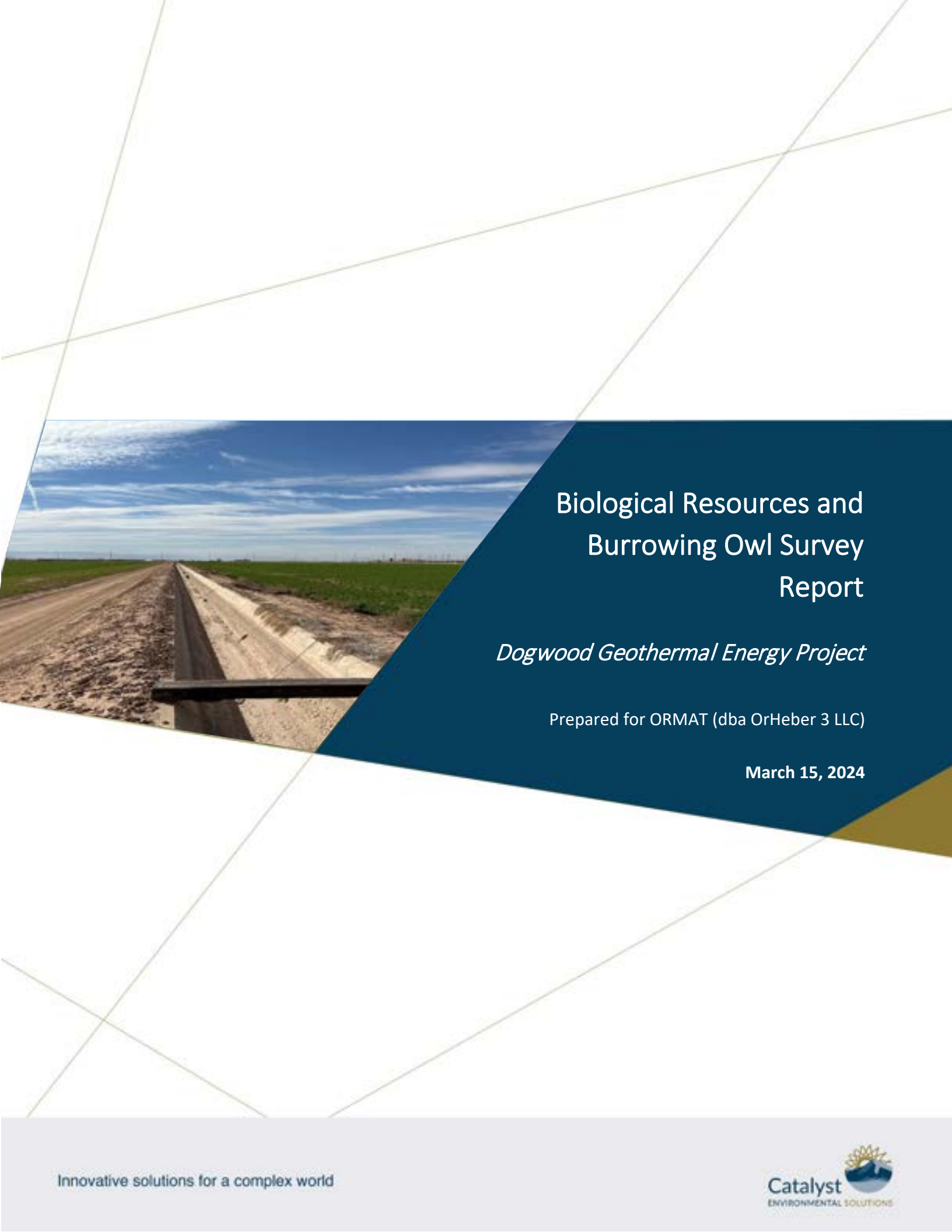
## 7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

## 8. User Changes to Default Data

Screen	Justification
Land Use	—
Construction: Construction Phases	Project schedule per ORMAT 7/8/2024 - overlapping phases with work assumed to be conducted 7 days/week
Construction: Off-Road Equipment	Project equipment and usage per ORMAT Project description based on experience with similar projects. Building Construction-"Well Drilling and Pipeline" - note that "Other Material Handling Equipment" is specified for Concrete Pumper
Construction: Trips and VMT	Vehicle trips per ORMAT Project Description based on experience with similar projects. Vendor/haul trips based on amount of material and equipment expected to be delivered/hailed to/from Project site. Delivery of materials for geothermal plant assumed to be sourced from Port of Long Beach area approximately 225 miles away. All other trip lengths are CalEEMod defaults for project area. Worker trips generation rate is calculated for the expected maximum of 15 workers traveling to/from the Project site on any given day at roughly 3 trips/worker (assumed 50 percent of 15 workers leave/return once during the day) for a total of 46 trips, and 2 trips/vehicle (in/out) for vendor and haul trips.
Construction: On-Road Fugitive Dust	All travel routes to Project site are paved, only onsite work is unpaved. Per discussions with ICAPCD, a maximum of 85% paved is input for all construction activities (note that all access routes to project site are paved)
Operations: Road Dust	All travel routes to project site area paved - only onsite access is unpaved. Per discussions with ICAPCD, 85% paved access to Project areas is assumed - note that all access routes to project site are paved.
Operations: Consumer Products	The Project does not include additional use of consumer products, is not a city park/golf course, and does not have any paved parking areas
Operations: Architectural Coatings	Assume no architectural coating reapplication required for Project operations.
Operations: Energy Use	All electricity required for operations would be generated by solar plants and geothermal energy production. No energy from the grid would be required.
Operations: Water and Waste Water	Per Project description, 325 gpd of non-potable water is required for operations and sourced from existing IID allocation. Non-potable water from IID does not require treatment - assume 0 kWh/Mgal for Treat and Treatment. Wastewater to wastewater treatment system is assumed to be negligible.

Operations: Solid Waste	Project operations solid waste generation is negligible.
Operations: Refrigerants	No refrigerants proposed as part of Project operations.
Operations: Emergency Generators and Fire Pumps	Per ORMAT based on expected onsite project emergency equipment sizing and usage to comply with maintenance regulations.



# Biological Resources and Burrowing Owl Survey Report

*Dogwood Geothermal Energy Project*

Prepared for ORMAT (dba OrHeber 3 LLC)

March 15, 2024

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## SECTION 1 Introduction

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The OrHeber 3 (OH), LLC, Heber Field Company, LLC (HFC), and the Second Imperial Geothermal Company (collectively, Applicants, subsidiaries of Ormat Technologies, Inc. [ORMAT]), are proposing to develop a new 25-megawatt (MW; net generation) geothermal energy facility (hereinafter, Dogwood Project), a 7-MW parasitic solar facility to support the Dogwood Project, a 15-MW solar facility to support the existing Heber 2 facility, one new injection well, and three new geothermal production wells in southern Imperial County, California. Collectively, the new geothermal and solar facilities and their components are referred to as the “proposed project” or “Project”.

Catalyst Environmental Solutions (Catalyst) performed biological surveys for the Project. This biological report was prepared through both desktop analysis and reconnaissance-level biological survey. The purpose of the field survey was to characterize existing biological communities and to determine if suitable habitat for special status plant and animal species is present, including a survey protocol specific to burrowing owl (*Athene cunicularia*). A photo log is provided in **Appendix A**.

The burrowing owl is a California Species of Special Concern. It is not listed by either the federal or state Endangered Species Act; however, its potentially compromised status prompted a proposal for state listing in 2003. The species was not listed at that time; however, burrowing owl remains a high-profile species with resource agencies. It is also legally protected under the federal Migratory Bird Treaty Act and California Fish and Game Codes 3503, 3503.5, and 3513 (Native Bird Protection). To determine the presence or potential absence of burrowing owls and their habitat within the Project site, a focused burrowing owl survey was conducted on February 21, 2023. The results of the survey will be used to determine whether and to what extent this species would be affected by Project development.

### 1.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires public agencies in California to analyze and disclose potential environmental impacts associated with a project that the agency will carry out, fund, or approve. Any potentially significant impacts must be mitigated to the extent feasible. Project-specific CEQA mitigation is important for burrowing owls because most populations exist on privately owned parcels that, when proposed for development or modification, may be subject to the environmental review requirements of CEQA.

This biological and burrowing owl survey report will be included as supporting material during preparation of the Dogwood Geothermal Power Project Environmental Impact Report.

### 1.2 Project Location and Description

The proposed Project is located on private lands owned by ORMAT in southern Imperial County, as observed on **Figure 1**. The proposed project is situated in Township 17 South, Range 14 East of the U.S. Geographical Survey (USGS) Heber 7.5-minute topographic quadrangle. A geothermal power plant with new pipelines and an injection well would be built within the existing Heber 2 Geothermal Energy Complex (HGE) fence line. The proposed new geothermal facility is referred to as the “Dogwood

Project” in this report. Two supplemental solar photovoltaic fields (herein referred to as “solar energy facilities”), substation, and gen-tie line with connection to Dogwood and the existing Heber 2 geothermal plant would be built in and outside of HGEC. The proposed facility footprints are shown in **Figure 2**.

The 25-megawatt geothermal power plant will occur within the existing HGEC footprint located at 855 Dogwood Road, Heber, CA. The proposed Dogwood geothermal energy facilities would be located within the existing fence line that accommodates existing ORMAT facilities. The geothermal plant site is north of Jasper Road and west of South Dogwood Road. The proposed geothermal development site is currently maintained as a materials storage area. Surrounding land uses in the Project vicinity are dominated by agricultural cultivation with solar facilities directly west, a construction/aggregates company to the south, and geothermal well pads and pipelines present throughout the local vicinity.

The accompanying solar photovoltaic fields (7 MW and 15 MW) are located south of East Willoughby Road and east of S. Dogwood Road on approximately 105 acres. The solar energy facilities will be constructed in an area that is currently used for agricultural crops (alfalfa). One new geothermal injection well will be used for the Project located in the HGEC. Three new production wells will be developed, two in the solar field and one directly east of the HGEC in an agricultural field.

The energy generated by the Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the site adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays.

Interstate 8 (I-8; Kumeyaay Highway), located approximately 4.5 miles directly north, provides primary highway access to the Project site. Dogwood Road stems off of I-8 and provides immediate site access. From the south, Willoughby Road runs west-east approximately 1,700 feet from the site and connects to Dogwood Road, providing immediate site access.



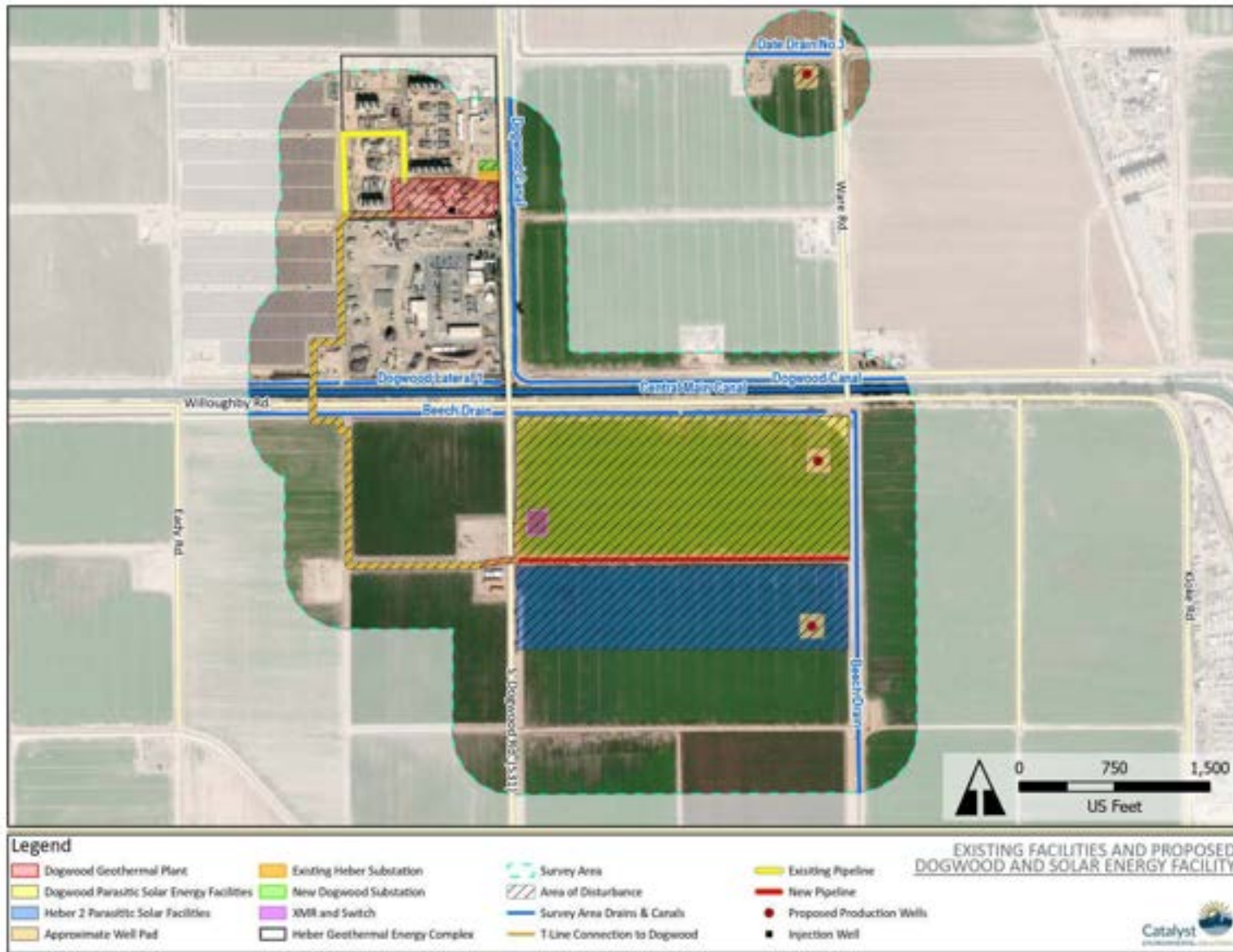


Figure 2. Existing Facilities and Proposed Dogwood Geothermal and Solar Facilities

## SECTION 2

# Field Methods

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### 2.1 Desktop Review

Catalyst staff reviewed available data sets and information to perform a desktop review of the soils, vegetation, and water resources present on the Project site as well as recent species occurrences within the vicinity. Catalyst staff reviewed data from the following sources:

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) (USFWS 2023)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB) (CDFW 2023; **Appendix B**)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps (USFWS 2023)
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil profile (NRCS 2023)

### 2.2 Reconnaissance Level Habitat Survey

Catalyst biologists performed a pedestrian survey to photograph and document the general habitat present on the site as well as to record wildlife and vegetation observed during the visit. The Project area as well as a 500-foot buffer area were surveyed (survey area). When not accessible due to private land, binoculars were used to survey the buffer area. No sampling was included as part of the survey. The reconnaissance-level survey included:

- Recording all plant and animal species observed within the boundaries of the Project site and immediate vicinity;
- Recording signs of animal presence, such as burrows, scat, tracks, vocalizations, etc.;
- Characterizing plant communities present in the Project site;
- Photographs of the Project site; and
- Recording weather data (time, temperature, cloud cover, wind speed).

### 2.3 Burrowing Owl Survey Methods

Burrows are the essential component of burrowing owl habitat, and both natural and artificial burrows provide protection, shelter, and nests. Burrowing owls typically use burrows made by fossorial mammals (e.g., ground squirrels), but also may use cement culverts, wood debris piles, or openings beneath pavement. A site should be assumed occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years (CBOC 1993).



The California Department of Fish and Wildlife (CDFW) generally requires protocol surveys for burrowing owls that are consistent with the California Burrowing Owl Consortium (CBOC) Survey Protocol and Mitigation Guidelines (CBOC 1993). The guidelines recommend a set of consecutive surveys, each following the previous based on the results:

**PHASE I: HABITAT ASSESSMENT** – The “first step in the survey process is to assess the presence of burrowing owl habitat on the Project site, including an approximately 500-ft buffer zone around the Project boundary...”

A “Phase II burrow survey is required if burrowing owl habitat occurs on the sites. If burrowing owl habitat is not present on the Project site and within the buffer zones, the Phase II survey is not necessary.”

**PHASE II: BURROW SURVEY** – “A survey for burrows and owls should be conducted by walking through suitable habitat over the entire Project site and in areas within 500 feet of the Project impact zone. This 500-ft buffer zone is included to account for adjacent burrows and foraging habitat outside the Project area and impacts from factors such as noise and vibration due to heavy equipment which could impact resources outside the Project area.”

**PHASE III: OWL PRESENCE** – “If the Project site contains burrows that could be used by burrowing owls, then...surveys in the breeding season are required to describe if, when, and how the site is used by burrowing owls. If no owls are observed using the site during the breeding season, a winter survey is required.”

The Phase III survey methodology requires four site visits, each on a separate day. Birds are observed from two hours before sunset to one hour after sunset, or from one hour before sunrise to two hours after sunrise. The four visits are initially conducted during the nesting season, February 1 to August 31, although it is preferable to survey at the height of the breeding season, between April 15 and July 15. If no owls are observed during the nesting season, then “winter surveys should be conducted between December 1 and January 31... (in order to) count and map all owl sightings, occupied burrows, and burrows with owl sign.”

In spring 2023, surveys were generally conducted according to the CBOC guidelines with the exception of buffer surveys, which could not be conducted in some areas due to access constraints (e.g., fields flooded for irrigation were too muddy to walk across). Catalyst biologists Hannah Donaghe, MS, and Emily Merickel, MS, conducted the Phase I survey on February 21, 2023. Surveyors determined that potential burrowing owl habitat was present within the Project survey area and vicinity due to the presence of sandy banks along drainage canals and burrowing activity of local communities of ground squirrels. Within the Project footprint, potential habitat for burrowing owl was only observed within the area proposed for solar facilities. Based on the assumption that potential habitat was present a Phase II survey was conducted concurrently with the Phase I survey. The adjoining areas within 500 feet were not surveyed on foot, but were visually assessed using binoculars. Surveyors mapped any potential burrows suitable for burrowing owls using a Juniper Systems Geode External GNSS Receiver global positioning system (GPS) and data were collected in Arc Field Maps. As no burrowing owl or sign was observed during the Phase II survey, Phase III nesting-season surveys were not conducted.

## SECTION 3

# Results and Discussion

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### 3.1 Survey Conditions

Field surveys were completed by two professional biologists on February 21, 2023. Weather conditions were generally clear with minimal cloud cover and temperatures around 75-79 degrees Fahrenheit (°F). Wind speed was minimal in the morning and early afternoon, approximately 5 mph, and increased up to a maximum of 15-20 mph in the late afternoon.

The weather conditions during the Phase I and Phase II survey for burrowing owl were within the recommended ranges for wind speed and temperature.

### 3.2 Existing Conditions

The Project is located within the Imperial Valley south of the Salton Sea in the Colorado Desert. Topography within the survey area is generally flat with an elevation of -7 feet below mean sea level (msl). The surrounding lands support solar facilities and agricultural cultivation in the west and southeast, a construction/aggregates company to the south, and geothermal well pads and pipelines present throughout the local Project vicinity. Unpaved and paved roads, irrigation ditches, and other farming infrastructure are present throughout. Lands within the Study Area are zoned General Agricultural with a Renewable Energy Geothermal Overlay (A-2-G-SPA).

The Project site is primarily characterized by disturbed/developed areas and agricultural fields. A full list of plant species observed during the field survey is included in **Table 1**.

Plant community descriptions generally follow the MCV II classification system which is described in the second edition of A Manual of California Vegetation (Sawyer et al. 2009). The survey area supports three land cover types: agricultural land, developed/disturbed land, and arrow weed thickets.

- **Agricultural Land:** This land cover type is not described within A Manual of California Vegetation (Sawyer et al. 2009). At the time of survey, this land cover type was observed to contain primarily active alfalfa (*Medicago sativa*) cultivation and harvest and associated irrigation canals were present adjacent to and bisecting fields. Approximately 105 acres of agricultural land would be converted to install the solar energy facilities.
- **Developed/Disturbed Land:** This land cover type is not described within A Manual of California Vegetation (Sawyer et al. 2009), but includes developed areas like roads and existing solar/geothermal facilities. These areas are predominantly devoid of vegetation, but can support ruderal herbaceous scrub, including non-native grasses and other weed species, and planted or landscape trees/shrubs.
- **Arrow Weed Thicket:** The *Pluchea sericea* Shrubland Alliance (arrow weed thickets) occur around springs, seeps, irrigation ditches, canyon bottoms, stream borders, and seasonally flooded washes (Sawyer et al. 2009). Arrow weed thickets are recognized by CDFW as a sensitive vegetation type. The canals fall within the 500-foot buffer of the project footprint and thus

within the survey area; however, none of the arrow weed thickets that occur within the survey area would be removed or disturbed by project activities with the exception of the thickets that would be spanned by the transmission line crossing of Beech Drain, Willoughby Road, Central Main Canal, and Dogwood Lateral 1.

Land cover within the survey area is shown in **Figure 3**. In the survey area, 59.3 percent of the land cover is agricultural (primarily alfalfa), 37.6 percent is developed/disturbed (including access roads), 0.2 percent is arrow weed thicket (along canals and drains below the ordinary high water mark), and 2.8 percent is water (canals and drains).

Overall, the survey area features many burrows likely excavated by ground squirrels and berms along drainages and field edges. Very few perching areas for burrowing owls (e.g., fences, posts, debris piles, high berms, wires, shrubs) were observed in the survey area. The majority of burrows observed along the edges of fields and canals/drains were less than 3 inches in diameter, which is smaller than the preferred burrows used by owls.

### 3.2.1 Proposed Geothermal Plant Site and New Substation Site

The proposed geothermal facilities and new substation are located within the existing Heber 2 Geothermal Energy Complex fence line. The area is currently being used as material storage, and a large soil stockpile is located in the middle of the area proposed for geothermal facilities. The Dogwood geothermal development site is developed/disturbed land cover type and is nearly devoid of vegetation. The perimeter fence supported narrow strips of vegetation, including apricot globemallow (*Sphaeralcea ambigua*), Mexican fan palm (*Washingtonia robusta*), and nettle-leaved goosefoot (*Chenopodium murale*). A few willow acacia (*Acacia salicina*) and a solitary mesquite (*Prosopis* sp.) were identified within the fenced area as well. Photos of this area are provided in **Appendix A** (Photos 1-4).

No habitat which would support burrowing owls was observed within the proposed geothermal plant or the new substation sites.

### 3.2.2 Proposed Solar Energy Facilities

The area proposed for the solar energy facilities consists of agricultural fields and associated irrigation canals adjacent to and bisecting fields. The alfalfa fields in the project area are graded for flood irrigation and some areas were undergoing irrigation during the survey and were either very muddy or had standing water. The ditches present in the solar energy field are all concrete lined. Unpaved access roads are also present within this area. Photos of this area are provided in **Appendix A** (Photos 5-13)

The Central Main Canal parallels E. Willoughby Road along the north edge of the proposed solar energy facility fields but is outside the project area. Just south of the Central Main Canal is Beech Drain, which is adjacent to the northern boundary of the proposed solar field site. Beech Drain has steep banks estimated to be approximately 15 feet from the top of bank to the bottom of the channel. Beech Drain has a natural sediment bottom and varying densities of riparian vegetation below the top of bank. Arrow weed (*Pluchea sericea*) is the dominant vegetation on the steep banks of Beech Drain. Other species such as cattails (*Typha* spp.) and saltcedar (*Tamarisk ramosissima*) are also present but in much smaller numbers. Beech Drain flows just outside of the solar energy field footprint along its eastern and northern edges (Photos 11-13).

Potentially suitable burrowing owl habitat was observed along the earthen banks of Beech Drain as well as the drainage ditch which runs through the existing alfalfa fields. Several burrows in these areas with openings greater than 4 inches in diameter were observed, which would support nesting burrowing owl (Photo 7). However, no sign of burrowing owl was observed in this area or at the individual burrow sites.

### 3.2.3 Transmission Line Connection

The energy generated by the Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the site adjacent to Dogwood Road. A medium voltage distribution cable would cross Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span (**Figure 2**). The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays. The pipeline is above ground except where it crosses Beech Drain, Willoughby Road, Central Main Canal, and Dogwood Lateral 1 (Photos 14-15). The transmission line would not be underground and would instead span these obstacles aerially. All three waterbodies are manmade channels excavated in previously upland areas and has a natural sediment bottom. The project disturbance area does not otherwise intersect the any drains or canals. Arrow weed thickets and salt cedar are present in the vicinity of the crossing; however, no vegetation would be removed for construction of the crossing.

Potential habitat for burrowing owls was observed in this area. Several small burrows were observed along the drainage ditch just south of the fenceline, but the openings were approximately 3 inches in diameter. None of the burrows in this area had openings with a diameter greater than 4 inches, which would support nesting burrowing owls. No sign of burrowing owl was observed in the vicinity of burrows in this area.

### 3.2.4 Northern Production Well Area

The existing Heber 1 production well site is a flat, unpaved well pad with gravel in some areas and associated infrastructure. The area is mostly surrounded by a small earthen berm and access is provided from an unpaved road north of the site. The area is surrounded by agricultural fields planted with alfalfa. At the time of the survey the alfalfa fields were flooded with water from the adjacent irrigation ditches. The northern production well area is shown in **Appendix A** (Photos 19-20).

No burrows which would support nesting burrowing owls were observed at the well site or the surrounding area.

Table 1: Plant Species Observed in the Project Area

Common Name	Scientific Name	Plant Indicator Status <sup>1</sup>
<b>Trees</b>		
Mesquite spp.	<i>Prosopis spp.</i>	FAC/FACU
Willow acacia	<i>Acacia salicina</i>	NA
<b>Shrubs, Forbs, and Grasses</b>		
Alfalfa	<i>Medicago sativa</i>	UPL

Arrow weed	<i>Pluchea sericea</i>	FACW
Cattail	<i>Typha spp.</i>	OBL
Common sow-thistle	<i>Sonchus oleraceus</i>	UPL
Desert globemallow	<i>Sphaeralcea ambigua</i>	NA
Nettle-leaved goosefoot	<i>Chenopodium murale</i>	FACU
Saltcedar	<i>Tamarix ramosissima</i>	FAC
Washington fan palm	<i>Washingtonia robusta</i>	FACW

Table Notes:

<sup>1</sup> National Wetland Plant List (USACE 2020)

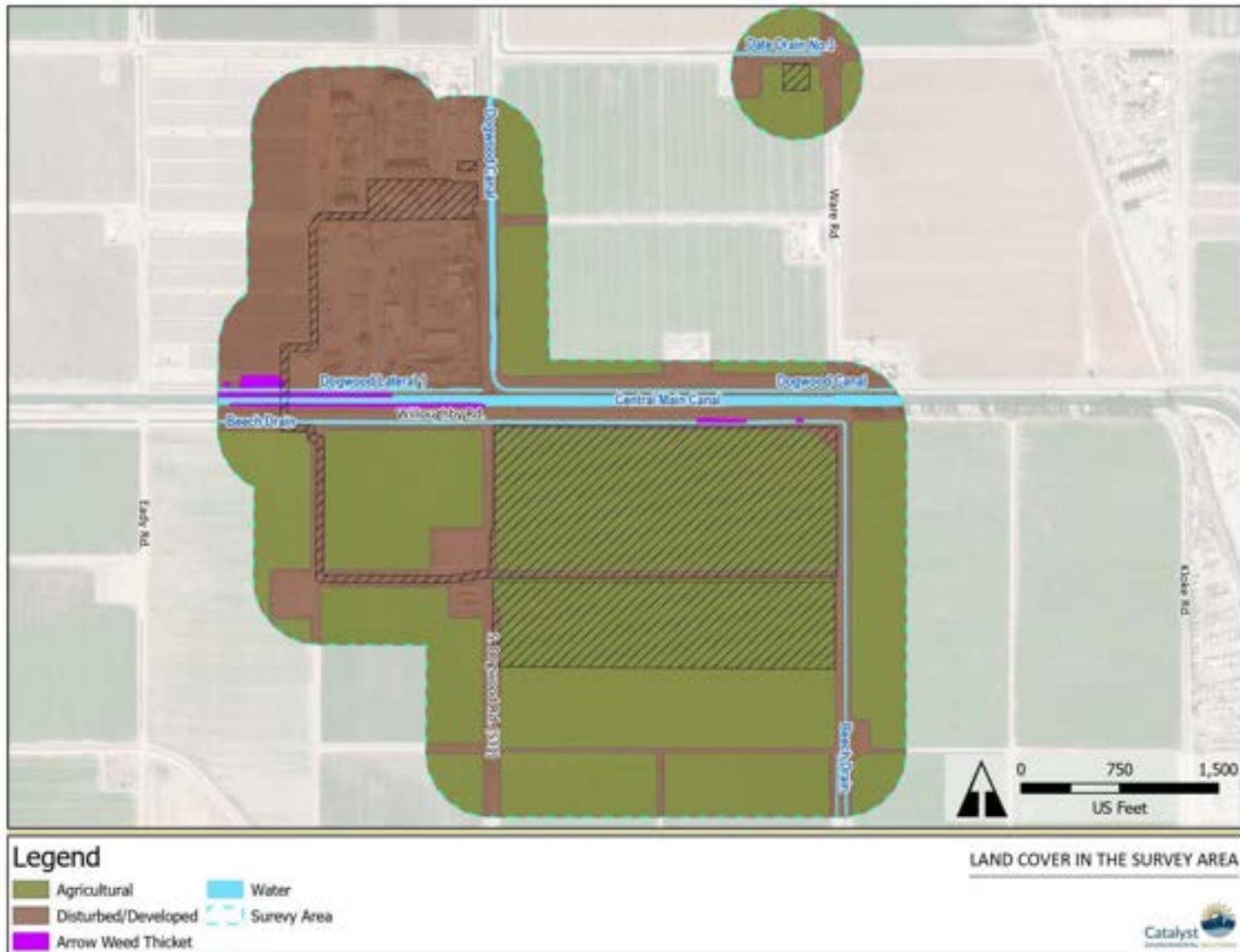


Figure 3. Land Cover in the Survey Area



### 3.3 Wildlife Species Observed

Common bird and mammal species for the area were observed or signs (scat, tracks) observed during the field survey. Birds were the most abundant and active animals observed during the field survey. The alfalfa fields flooded for irrigation provided forage habitat for numerous species of wading birds, including white-faced ibis (*Plegadis chihi*), long-billed curlew (*Numenius americanus*), greater yellowlegs (*Tringa melanoleuca*), and cattle egrets (*Bubulcus ibis*). Raptors, including American kestrel (*Falco sparverius*), northern harrier (*Circus hudsonius*), and white-tailed kite (*Elanus leucurus*) were observed circling over the alfalfa fields. No raptor nests were observed in the survey area. Some mammals or signs were also observed. Several reptiles and invertebrates were observed. A small population of western side-blotched lizard (*Uta stansburiana elegans*) occurs in the rubble piled up from the removal of the concrete v-ditch that once paralleled the south end of the existing solar field. Direct or indirect observations of wildlife within the Project area and the 500-foot buffer area are provided in **Table 2**.

No special status species were observed within the project area. Potentially suitable burrowing owl habitat was observed within the Project area, as described in the above sections. However, no habitat that would support other special status species was observed within the Project area.

Table 2: Wildlife Observed in the Project Area

Common Name	Scientific Name
<b>Birds</b>	
American coot	<i>Fulica americana</i>
American crow	<i>Corvus brachyrhynchos</i>
American kestrel	<i>Falco sparverius</i>
Black phoebe	<i>Sayornis nigricans</i>
Cattle egret	<i>Bubulcus ibis</i>
Eurasian collared-dove*	<i>Streptopelia decaocto</i>
Great egret	<i>Ardea alba</i>
Greater yellowlegs	<i>Tringa melanoleuca</i>
Great-tailed grackle	<i>Quiscalus mexicanus</i>
Killdeer	<i>Charadrius vociferus</i>
Long-billed curlew	<i>Numenius americanus</i>
Mallard	<i>Anas platyrhynchos</i>
Mourning dove	<i>Zenaida macroura</i>
Northern harrier	<i>Circus hudsonius</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>

Red-winged blackbird	<i>Agelaius phoeniceus</i>
Rock pigeon*	<i>Columba livia</i>
Snowy egret	<i>Egretta thula</i>
Song sparrow	<i>Melospiza melodia</i>
Turkey vulture	<i>Cathartes aura</i>
Western meadowlark	<i>Sturnella neglecta</i>
White-faced ibis	<i>Plegadis chihi</i>
White-tailed kite	<i>Elanus leucurus</i>
<b>Mammals</b>	
Round-tailed ground squirrel	<i>Xerospermophilus tereticaudus</i>
Raccoon (carcass)	<i>Procyon lotor</i>
<b>Reptiles</b>	
Western side-blotched lizard	<i>Uta stansburiana elegans</i>
Red-eared slider*	<i>Trachemys scripta elegans</i>
<b>Invertebrates</b>	
California harvester ant	<i>Pogonomyrmex californicus</i>
Checkered skipper	<i>Burnsius</i> sp.
Asian clam shells*	<i>Corbicula fluminea</i>
Wolf spider	Lycosidae

Table Notes:

\* Denotes non-native species

### 3.4 Burrowing Owl Survey

Although the surveyors did not observe any burrowing owls or sign during the 2023 survey, the Project site contains potentially suitable burrowing owl habitat, as described in the sections above. Burrowing owls occupy a wide range of habitats such as open, treeless areas within grassland, steppe, and desert biomes with low, sparse vegetation. The Project site has been most recently used to cultivate alfalfa; however, the irrigation canals and roads through the area provide sandy embankments where burrows may be present. Burrowing owls in agricultural environments nest along roadsides and water conveyance structures, including open canals, ditches, and drains, surrounded by crops (DeSante et al. 2004, Rosenberg and Haley 2004 as cited in Gervais et al. 2008).

Burrowing owls have been mapped previously in the vicinity of the project site. The closest occurrence was recorded in 1991, located approximately 0.7 miles north of the Project site. Additional occurrence records located within approximately 2 miles east and 3 miles northwest of the Project site were recorded in 2007 and 1991, respectively (CDFW 2023). Regardless of the lack of current occupation, it is possible that burrowing owls could inhabit the Project area in the future due to the presence of suitable habitat and the presence of recorded observations within 3 miles of the Project area.

## SECTION 4

# Impact Assessment and Recommendations

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Based on the lack of observations/sign of burrowing owls during the survey conducted, the potential for burrowing owls to occur within the Project site is low. However, if owls are found onsite prior to or during construction, they could be affected by Project activities. Impacts could include injury or fatality by construction equipment, which should be avoided and/or minimized by implementing appropriate avoidance and minimization measures and best management practices. Impacts on burrowing owl could also include loss of foraging and nesting habitat present along the ditches within the area proposed for solar field development. However, because there is similar and potentially higher quality foraging and nesting habitat present in the surrounding area, the loss of habitat due to Project development is not expected to result in population-level impacts on burrowing owl.

The following avoidance and minimization measures described by CDFW (2012) are recommended:

1. **Pre-construction avoidance surveys.** Surveys should be completed according to CDFW guidance within 14 days prior to site grading to detect any owls using the Project site at the time of construction and determine any additional avoidance measures required.
2. **Seasonal timing restrictions.** To the extent feasible, vegetation removal should take place outside of the breeding season, which is February 1 to August 31 (CDFW 2012). This would avoid harming owls during vegetation removal activities, which include grubbing, blading, and grading.
3. **Worker awareness program.** Develop and implement a worker awareness program to increase the onsite worker's recognition of and commitment to burrowing owl protection.

Other standard best management practices such as speed limits, limiting the area of disturbance, restoring temporarily disturbed areas, implementing weed management measures, and having a biological monitor present during construction would contribute to avoidance and minimization of any potential impacts to burrowing owl and their habitat.

Additionally, if any active burrowing owl nests are present within the Project construction area, they must be avoided by establishing a non-disturbance buffer until the young fledge or the nest fails (CDFW 2012). Any nesting owls that are adjacent to construction will also be avoided by establishing buffer areas. Buffer areas should be marked using flagging to facilitate avoidance. If burrowing owls are present and cannot be avoided, a Project-specific burrowing owl management plan should be developed in consultation with CDFW.

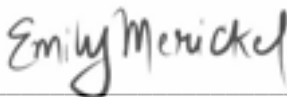
## SECTION 5

# Certification

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Certification: "I hereby certify that the statements provided above and in the appendix present the data and information required for this biological evaluation, and the facts, statements, and information presented are true and correct to the best of my knowledge and professional judgement. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have no financial interest in the project."

Date: May 11, 2023

Signed: 

Emily Merickel, MS  
Project Scientist  
Catalyst Environmental Solutions

Date: May 11, 2023

Signed: 

Hannah Donaghe, MS  
Senior Biologist  
Catalyst Environmental Solutions

## SECTION 6 References

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## Appendix A Photo Log



Photo 1: Proposed geothermal energy facilities area located within the existing fenceline, looking east toward Dogwood Rd.





Photo 2: Vegetation present within the fenceline and area proposed for geothermal energy facilities, looking north.



Photo 3: Taken from the southeast corner looking toward the area proposed for geothermal energy facilities with tree canopy shown on the left.



Photo 4: Proposed geothermal facility area looking north from the middle of the southern edge. Existing cooling towers in background.



Photo 5: New pipeline alignment, showing the middle of the proposed solar field with agricultural fields (alfalfa) on both sides and lined canal through the middle, looking west.



Photo 6: Existing agricultural field and canal located within the proposed solar field, looking northwest. Potential burrowing owl habitat.



Photo 7: Potential burrowing owl habitat located along canal berm in the middle of the proposed solar field site (greater than 3 inches in diameter).





Photo 8: Taken from the southwest corner of the proposed solar field, looking north.



Photo 9: Agricultural canal located on the eastern edge of the area proposed for solar field development.



Photo 10: Unnamed concrete lined irrigation ditches run east-west through the proposed solar energy fields which are currently planted with alfalfa. View looking east along the canal that bisects the alfalfa fields proposed for solar energy facility development.



Photo 11: Beech Drain located just north of the agricultural fields where the proposed solar field would be sited, looking west.



Photo 12: Beech Drain with arrow weed thickets occurring along the banks below OHWM. Cattails were present in small patches in the wetted channel and saltcedar. Many wading birds and a turtle were observed in this drain area.



Photo 13: Beech Drain, looking west towards Dogwood Road. Alfalfa field to the left of the canal is the proposed site of the solar energy facility and is physically separated from Beech Drain by an unpaved road. East Willoughby Road is to the right (north) and runs parallel to Beech Drain.





Photo 14: Drainage ditch located south of the existing solar field which is adjacent to the proposed geothermal site. Potential burrowing owl habitat, no burrows greater than 3 inches in diameter observed in this area. Located near the transmission line crossing.



Photo 15: Existing pipeline location south of the geothermal site and adjacent to existing solar field, looking west. Old drainage ditch is shown on the left. Transmission line would span the road and canals/drains aerially, then rejoin the existing pipeline using trays.



Photo 16: Existing transmission line looking south along Dogwood Rd., with Dogwood Canal to the left and agricultural fields to the left of access road.



Photo 17: Central Main Canal looking south toward proposed solar energy facility fields. Dogwood Road crosses the Central Main Canal on the right side of the photo. Existing transmission lines currently span the canal.



Photo 18: Existing Heber substation and transmission line located adjacent to the proposed geothermal facilities area.





Photo 19: Heber 1 production well site, surrounded by access roads and agricultural fields, looking south.



Photo 20: Alfalfa field located east of Heber 1 production well, looking west toward well site.



Photo 21: Concrete-lined v-ditch and existing pipeline, looking south. Proposed transmission line would be mounted to the green pipeline on the left side of the frame. Wading birds congregated in the irrigated field on the right (west) field during site visit in February 2023.



Photo 22: Dogwood Lateral 1, looking east. Taken from just west and south of the solar field.



# Appendix B   California Department of Fish and Wildlife California Natural Diversity Database Occurrence Report



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Map Index Number: 58808

Key Quad: El Centro (3211575)

Occurrence Number: 8

EO Index: 74659

Element Code: AAABH01170

Occurrence Last Updated: 2009-02-27

Scientific Name: *Lithobates pipiens*

Common Name: northern leopard frog

Listing Status: Federal: None

Rare Plant Rank:

State: None

Other Lists: CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern

CNDDB Element Ranks: Global: G5

State: S2

#### General Habitat:

NATIVE RANGE IS EAST OF SIERRA NEVADA-CASCADE CREST. NEAR PERMANENT OR SEMI-PERMANENT WATER IN A VARIETY OF HABITATS.

#### Micro Habitat:

HIGHLY AQUATIC SPECIES. SHORELINE COVER, SUBMERGED AND EMERGENT AQUATIC VEGETATION ARE IMPORTANT HABITAT CHARACTERISTICS.

Last Date Observed: 1929-04-15

Occurrence Type: Transplant Outside of Native Hab./Range

Last Survey Date: 1929-04-15

Occurrence Rank: Unknown

Owner/Manager: UNKNOWN

Trend: Unknown

Presence: Presumed Extant

#### Location:

EL CENTRO.

#### Detailed Location:

LOCATION GIVEN AS, "EL CENTRO, IMPERIAL CO, CALIF".

#### Ecological:

#### Threats:

#### General:

2 INDIVIDUALS (CAS #3052-53) COLLECTED ON 15 APR 1929 BY G.M. KRANZTHOR AND G.S. MYERS. TRANSPLANT OUTSIDE OF NATIVE RANGE.

PLSS: T16S, R14E, Sec. 06 (S)

Accuracy: 1 mile

Area (acres): 0

UTM: Zone-11 N3629101 E634594

Latitude/Longitude: 32.79162 / -115.56261

Elevation (feet): -40

#### County Summary:

#### Quad Summary:

Imperial

El Centro (3211575)

#### Sources:

HER07S0001 HERPNET - PRINTOUT OF RANA PIPIENS RECORDS FROM CALIFORNIA. 2007-08-08



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 49116  
**Key Quad:** Heber (3211565)  
**Occurrence Number:** 526

**EO Index:** 49116  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2002-10-23

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 1991-04-01  
**Last Survey Date:** 1991-04-01  
**Owner/Manager:** UNKNOWN  
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence  
**Occurrence Rank:** Excellent  
**Trend:** Unknown

**Location:**

0.3 MILE WEST OF DELIVERY GATE 23 OF THE DAHLIA MAIN CANAL, SOUTH OF EL CENTRO.

**Detailed Location:**

BURROW IS LOCATED ON THE PERIMETER OF AN ALFALFA FIELD ON THE NORTH AND A COUNTY ROAD AND TOMATO FIELD ON THE SOUTH.

**Ecological:**

**Threats:**

THREATENED BY AGRICULTURAL MACHINERY OPERATION.

**General:**

1 ADULT AND BURROW OBSERVED ON 1 APR 1991.

**PLSS:** T16S, R13E, Sec. 24 (S)

**Accuracy:** 2/5 mile

**Area (acres):** 0

**UTM:** Zone-11 N3623453 E633718

**Latitude/Longitude:** 32.74080 / -115.57279

**Elevation (feet):** -20

**County Summary:**

**Quad Summary:**

Imperial

Heber (3211565)

**Sources:**

REM91F0001 REMINGTON, M. (IMPERIAL IRRIGATION DISTRICT) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 1991-04-01



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 49169  
**Key Quad:** Heber (3211565)  
**Occurrence Number:** 533

**EO Index:** 49169  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2002-10-29

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 1991-04-01  
**Last Survey Date:** 1991-04-01  
**Owner/Manager:** UNKNOWN  
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence  
**Occurrence Rank:** Excellent  
**Trend:** Unknown

**Location:**

200 FEET EAST OF CENTRAL MAIN CANAL, ALONG MCCABE ROAD, 2.25 MILES SSW OF EL CENTRO.

**Detailed Location:**

BURROW IS LOCATED ALONG THE FARMER'S CONCRETE DELIVERY CANAL, EVERGREEN CANAL, GATE 13.

**Ecological:**

BURROW IS LOCATED ALONG A CANAL, ON THE PERIMETER OF AN ALFALFA FIELD ON THE NORTH AND A COUNTY ROAD AND ALFALFA FIELD ON THE SOUTH.

**Threats:**

**General:**

2 JUVENILES AND AN ACTIVE BURROW SITE OBSERVED ON 1 APR 1991.

**PLSS:** T16S, R13E, Sec. 23 (S)  
**UTM:** Zone-11 N3623905 E631973

**Accuracy:** 1/5 mile  
**Latitude/Longitude:** 32.74509 / -115.59135

**Area (acres):** 0  
**Elevation (feet):** -20

**County Summary:**

Imperial

**Quad Summary:**

Heber (3211565)

**Sources:**

REM91F0003 REMINGTON, M. (IMPERIAL IRRIGATION DISTRICT) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 1991-04-01



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 49174  
**Key Quad:** Heber (3211565)  
**Occurrence Number:** 534

**EO Index:** 49174  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2002-10-29

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 1991-04-01  
**Last Survey Date:** 1991-04-01  
**Owner/Manager:** UNKNOWN  
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence  
**Occurrence Rank:** Excellent  
**Trend:** Unknown

**Location:**

200' EAST OF DELIVERY GATE 8 OF EUCALYPTUS MAIN CANAL, ALONG FARMER'S CONCRETE DELIVERY CANAL, 3 MILES SW OF EL CENTRO.

**Detailed Location:**

**Ecological:**

BURROW IS LOCATED ON THE PERIMETER OF AN ALFALFA FIELD TO THE NORTH AND A SUDAN GRASS FIELD TO THE SOUTH.

**Threats:**

THREATENED BY AGRICULTURAL MACHINERY OPERATION.

**General:**

2 ADULTS AND AN ACTIVE BURROW OBSERVED ON 1 APR 1991.

**PLSS:** T16S, R13E, Sec. 23 (S)

**Accuracy:** 1/5 mile

**Area (acres):** 0

**UTM:** Zone-11 N3623097 E631165

**Latitude/Longitude:** 32.73790 / -115.60008

**Elevation (feet):** -20

**County Summary:**

Imperial

**Quad Summary:**

Heber (3211565)

**Sources:**

REM91F0004 REMINGTON, M. (IMPERIAL IRRIGATION DISTRICT) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 1991-04-01



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 51277  
**Key Quad:** Heber (3211565)  
**Occurrence Number:** 583

**EO Index:** 51277  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2003-05-14

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 1991-04-19  
**Last Survey Date:** 1991-04-19  
**Owner/Manager:** UNKNOWN  
**Presence:** Presumed Extant

**Occurrence Type:** Natural/Native occurrence  
**Occurrence Rank:** Excellent  
**Trend:** Unknown

**Location:**

SOUTH OF DOGWOOD LATERAL 2, GATE 8A, ALONG DATE DRAIN NO 3, SSW OF HEBER.

**Detailed Location:**

BURROW IS LOCATED ALONG A DRAIN BANK WITH A WHEAT FIELD TO THE WEST AND ALFALFA FIELD TO THE EAST.

**Ecological:**

HABITAT SURROUNDING BURROW IS PRIMARILY AGRICULTURAL.

**Threats:**

POSSIBLE THREAT OF BURROW DESTRUCTION DURING DRAIN MAINTENANCE.

**General:**

1 ADULT OBSERVED AT THE BURROW SITE.

**PLSS:** T16S, R14E, Sec. 29, SE (S)

**Accuracy:** 1/10 mile

**Area (acres):** 0

**UTM:** Zone-11 N3621748 E636564

**Latitude/Longitude:** 32.72508 / -115.54267

**Elevation (feet):** -15

**County Summary:**

Imperial

**Quad Summary:**

Heber (3211565)

**Sources:**

REM91F0001 REMINGTON, M. (IMPERIAL IRRIGATION DISTRICT) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 1991-04-01





# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 51610  
**Key Quad:** Heber (3211565)  
**Occurrence Number:** 598

**EO Index:** 51610  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2003-06-23

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2003-06-03

**Occurrence Type:** Natural/Native occurrence

**Last Survey Date:** 2003-06-03

**Occurrence Rank:** Excellent

**Owner/Manager:** UNKNOWN

**Trend:** Unknown

**Presence:** Presumed Extant

**Location:**

WEST SIDE OF ROCKWOOD ROAD, 0.1 MILE NORTH OF LYONS ROAD, SW OF EL CENTRO.

**Detailed Location:**

BURROW LOCATED BETWEEN DIRT ROAD AND VERY NARROW CONCRETE LINED IRRIGATION DITCH PARALLELING WEST SIDE OF ROAD.

**Ecological:**

BURROW SITES ARE SURROUNDED BY IRRIGATED CROPLAND, OATS TO THE WEST, AND GRASSY TO THE EAST.

**Threats:**

**General:**

1 ADULT AND 1 EGG VISIBLE AT THE BURROW MOUTH OBSERVED ON 3 JUN 2003.

**PLSS:** T16S, R13E, Sec. 34 (S)

**Accuracy:** 80 meters

**Area (acres):** 0

**UTM:** Zone-11 N3620854 E629270

**Latitude/Longitude:** 32.71789 / -115.62060

**Elevation (feet):** -20

**County Summary:**

**Quad Summary:**

Imperial

Heber (3211565)

**Sources:**

RES03F0007 RESSEGUIE, L. - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 2003-06-03



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 51611  
**Key Quad:** Heber (3211565)  
**Occurrence Number:** 599

**EO Index:** 51611  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2010-08-12

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2007-06-27

**Occurrence Type:** Natural/Native occurrence

**Last Survey Date:** 2007-06-27

**Occurrence Rank:** Excellent

**Owner/Manager:** UNKNOWN

**Trend:** Unknown

**Presence:** Presumed Extant

**Location:**

EAST SIDE OF ROCKWOOD RD, JUST N AND S OF INTERSECTIONS WITH PRESTON RD, 1 MI WSW OF LYONS CROSSING, CALEXICO.

**Detailed Location:**

SOUTHERN POLYGON: BURROW LOCATED IN BARE DIRT ON THE WEST BANK OF AN IRRIGATION DITCH, ON THE EAST SIDE OF ROCKWOOD ROAD. NORTHERN POLYGON HAS BLOCK CODE 3615-625 - LOCATION CODE C; MAPPED TO PROVIDED COORDINATES.

**Ecological:**

SOUTHERN POLYGON: BURROW SITES ARE SURROUNDED BY IRRIGATED CROPLAND, PROBABLE SUDAN GRASS TO THE WEST, AND ALFALFA TO THE EAST. NORTHERN POLYGON: BREEDING LOCATION IN LOWLAND ELEVATION SUBREGION.

**Threats:**

**General:**

1 ADULT OBSERVED AT A BURROW IN SOUTHERN POLYGON ON 3 JUN 2003. 1 ADULT OBSERVED AT BLOCK C AND ESTIMATED TO HAVE 1 BREEDING PAIR ON 27 JUN 2007.

**PLSS:** T16S, R13E, Sec. 34, SW (S)

**Accuracy:** specific area

**Area (acres):** 10

**UTM:** Zone-11 N3620010 E629308

**Latitude/Longitude:** 32.71028 / -115.62032

**Elevation (feet):** -10

**County Summary:**

**Quad Summary:**

Imperial

Heber (3211565)

**Sources:**

RES03F0008 RESSEGUIE, L. - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 2003-06-03

WIL09D0003 WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 69261 **EO Index:** 70041  
**Key Quad:** EI Centro (3211575) **Element Code:** ABNSB10010  
**Occurrence Number:** 922 **Occurrence Last Updated:** 2007-05-15

**Scientific Name:** *Athene cunicularia* **Common Name:** burrowing owl  
**Listing Status:** **Federal:** None **Rare Plant Rank:**  
**State:** None **Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern  
**CNDDB Element Ranks:** **Global:** G4  
**State:** S3

**General Habitat:** OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.  
**Micro Habitat:** SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2007-01-04 **Occurrence Type:** Natural/Native occurrence  
**Last Survey Date:** 2007-01-04 **Occurrence Rank:** Poor  
**Owner/Manager:** UNKNOWN **Trend:** Unknown  
**Presence:** Presumed Extant

**Location:** EL CENTRO, SOUTH OF I-8, EAST OF 8TH STREET/CLARK ROAD.  
**Detailed Location:** MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY SOURCE. ADULT OBSERVED JUST NORTH OF BURROW.  
**Ecological:** DISTURBED, UNVEGETATED ROADSIDE SLOPE.

**Threats:** RESIDENTIAL/COMMERICAL DEVELOPMENT.

**General:** UNOCCUPIED BURROW WITH FEATHERS AND WHITEWASH OBSERVED, 1 ADULT OBSERVED NEAR BURROW ON 4 JAN 2007.

**PLSS:** T16S, R14E, Sec. 07, SE (S) **Accuracy:** 80 meters **Area (acres):** 0  
**UTM:** Zone-11 N3626990 E634766 **Latitude/Longitude:** 32.77256 / -115.56108 **Elevation (feet):** -30

**County Summary:** Imperial  
**Quad Summary:** EI Centro (3211575)

**Sources:** GAL07F0001 GALLOWAY, M. (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2007-01-04



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Map Index Number:	69263	EO Index:	70043
Key Quad:	El Centro (3211575)	Element Code:	ABNSB10010
Occurrence Number:	925	Occurrence Last Updated:	2007-07-13

Scientific Name:	<i>Athene cunicularia</i>	Common Name:	burrowing owl
Listing Status:	Federal: None State: None	Rare Plant Rank:	
CNDDB Element Ranks:	Global: G4 State: S3	Other Lists:	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern

General Habitat:	Micro Habitat:
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.	SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Last Date Observed:	2006-11-21	Occurrence Type:	Natural/Native occurrence
Last Survey Date:	2006-11-21	Occurrence Rank:	Good
Owner/Manager:	UNKNOWN	Trend:	Unknown
Presence:	Presumed Extant		

**Location:**  
SE OF EL CENTRO, JUST WEST OF INTERSECTION OF I-111 AND MCCABE RD.

**Detailed Location:**  
MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY SOURCE. OWLS OBSERVED NEAR BURROWS IN BERMS ADJACENT TO CONCRETE-LINED IRRIGATION CHANNELS IN AGRICULTURAL FIELD. BURROW OBSERVED WEST OF SR 111 AND SOUTH OF MCCABE RD.

**Ecological:**  
**Threats:**  
FURTHER AGRICULTURAL DEVELOPMENT, ROADWAY WIDENING.

**General:**  
BURROW SITE. 1 PAIR AND 2 INDIVIDUALS OBSERVED ON 21 NOV 2006.

PLSS:	T16S, R14E, Sec. 14, SW (S)	Accuracy:	specific area	Area (acres):	12
UTM:	Zone-11 N3624835 E640327	Latitude/Longitude:	32.75243 / -115.50206	Elevation (feet):	-20

County Summary:	Quad Summary:
Imperial	Holtville West (3211574), El Centro (3211575)

**Sources:**  
GAL06F0022 GALLOWAY, M. (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 2006-11-21



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	70858	<b>EO Index:</b>	71840
<b>Key Quad:</b>	El Centro (3211575)	<b>Element Code:</b>	ABNSB10010
<b>Occurrence Number:</b>	1004	<b>Occurrence Last Updated:</b>	2010-10-14

<b>Scientific Name:</b>	<i>Athene cunicularia</i>	<b>Common Name:</b>	burrowing owl
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G4 <b>State:</b> S3	<b>Other Lists:</b>	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern

<b>General Habitat:</b>	<b>Micro Habitat:</b>
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.	SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

<b>Last Date Observed:</b>	2006-06-20	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	2006-06-20	<b>Occurrence Rank:</b>	Excellent
<b>Owner/Manager:</b>	PVT	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
0.8 MI NNE OF IMPERIAL COUNTY HOSPITAL, 1.1 MI S OF I-8 AND 0.3 MI W OF SR-86 (CORFMAN RD), S OF EL CENTRO.

**Detailed Location:**  
THE BURROWS ARE ON IMPERIAL IRRIGATION DISTRICT UNVEGETATED BERMS. BLOCK CODE 3625-635 - LOCATION CODES F (NORTH), G (CENTER) AND H (SOUTH).

**Ecological:**  
DEVELOPMENT TO THE NORTH AND AGRICULTURE TO ALL OTHER SIDES. SURROUNDING HABITAT AND LAND USE CONSISTS OF ALFALFA AND DRAIN DITCH. LOWLAND ELEVATION SUBREGION. NO GROUND SQUIRRELS DETECTED WITHIN 100 M RADIUS OF BREEDING LOCATIONS.

**Threats:**  
AREA TO THE EAST PROPOSED FOR DEVELOPMENT (DEVELOPED IN 2009 AERIAL). RESIDENTIAL DISTURBANCES- DOGS AND HUMANS.

**General:**  
A PAIR OF BUOWS WAS SEEN AT 1 BURROW (CENTER) & A SINGLE BUOW WAS SEEN AT ANOTHER BURROW (NORTH) ON 2 NOV 2005. 1 ADULT OBSERVED AT EACH BLOCK (F, G AND H), AND ESTIMATED THAT EACH REPRESENTED A BREEDING PAIR ON 20 JUN 2006.

<b>PLSS:</b>	T16S, R14E, Sec. 18, SE (S)	<b>Accuracy:</b>	specific area	<b>Area (acres):</b>	16
<b>UTM:</b>	Zone-11 N3625380 E635233	<b>Latitude/Longitude:</b>	32.75799 / -115.55634	<b>Elevation (feet):</b>	-20

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial	El Centro (3211575)

**Sources:**

ROM05F0005	ROMICH, M. (MICHAEL BRANDMAN ASSOCIATES) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2005-11-02
WIL09D0003	WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 70860 **EO Index:** 71842  
**Key Quad:** EI Centro (3211575) **Element Code:** ABNSB10010  
**Occurrence Number:** 1005 **Occurrence Last Updated:** 2008-02-26

**Scientific Name:** *Athene cunicularia* **Common Name:** burrowing owl  
**Listing Status:** **Federal:** None **Rare Plant Rank:**  
**State:** None **Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern  
**CNDDB Element Ranks:** **Global:** G4  
**State:** S3

**General Habitat:** OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.  
**Micro Habitat:** SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2005-11-02 **Occurrence Type:** Natural/Native occurrence  
**Last Survey Date:** 2005-11-02 **Occurrence Rank:** Excellent  
**Owner/Manager:** PVT **Trend:** Unknown  
**Presence:** Presumed Extant

**Location:** EL CENTRO, 1.2 MI NNE OF IMPERIAL COUNTY HOSPITAL.  
**Detailed Location:** THE BURROWS ARE ON IMPERIAL IRRIGATION DISTRICT UNVEGATED BERMS.  
**Ecological:** DEVELOPMENT TO THE NORTH AND AGRICULTURE TO ALL OTHER SIDES.

**Threats:** AREA TO THE EAST PROPOSED FOR DEVELOPMENT. RESIDENTIAL DISTURBANCES- DOGS AND HUMANS.

**General:** 2 PAIRS OF BUOW WERE SEEN AT 2 BURROWS ON 02 NOV 2005.

**PLSS:** T16S, R14E, Sec. 17 (S) **Accuracy:** specific area **Area (acres):** 10  
**UTM:** Zone-11 N3626015 E635408 **Latitude/Longitude:** 32.76370 / -115.55438 **Elevation (feet):** 30

**County Summary:** Imperial  
**Quad Summary:** EI Centro (3211575)

**Sources:** ROM05F0005 ROMICH, M. (MICHAEL BRANDMAN ASSOCIATES) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2005-11-02





# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 70867  
**Key Quad:** Calexico (3211564)  
**Occurrence Number:** 1008  
**EO Index:** 71847  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2008-02-26

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2007-01-23

**Occurrence Type:** Natural/Native occurrence

**Last Survey Date:** 2007-01-23

**Occurrence Rank:** Poor

**Owner/Manager:** UNKNOWN

**Trend:** Unknown

**Presence:** Presumed Extant

**Location:**

NW CORNER OF THE INTERSECTION OF JASPER RD AND STATE ROUTE 111, 2 MI. N OF CALEXICO.

**Detailed Location:**

**Ecological:**

**Threats:**

THREATENED BY AUTOMOBILES AND FUTURE ROADWAY WIDENING.

**General:**

A BUOW PAIR WAS OBSERVED IN A BURROW IN THE MIDDLE OF A GRAVEL PULL-OUT AREA. SEVERAL TIRE TRACKS WERE OBSERVED NEAR THE BURROW.

**PLSS:** T16S, R14E, Sec. 35 (S)

**Accuracy:** 80 meters

**Area (acres):** 0

**UTM:** Zone-11 N3620042 E640613

**Latitude/Longitude:** 32.70918 / -115.49972

**Elevation (feet):** 0

**County Summary:**

**Quad Summary:**

Imperial

Calexico (3211564)

**Sources:**

GAL07F0002 GALLOWAY, M. (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (BURROW SITE) 2007-01-23



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 79615  
**Key Quad:** Heber (3211565)  
**Occurrence Number:** 1289

**EO Index:** 80602  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2010-08-12

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2007-06-27

**Occurrence Type:** Natural/Native occurrence

**Last Survey Date:** 2007-06-27

**Occurrence Rank:** Unknown

**Owner/Manager:** UNKNOWN

**Trend:** Unknown

**Presence:** Presumed Extant

**Location:**

0.2 MI NNW JUNCTION OF ROCKWOOD RD AND HIGHWAY 98, 1 MI ENE MOUNT SIGNAL, CALEXICO ZC.

**Detailed Location:**

ALONG W SIDE OF GREESON DRAIN. BLOCK CODE 3615-625 - LOCATION CODE E. MAPPED TO PROVIDED COORDINATES.

**Ecological:**

LOWLAND ELEVATION SUBREGION.

**Threats:**

**General:**

1 ADULT OBSERVED AT E; 1 BREEDING PAIR ESTIMATED TO OCCUR IN AREA ON 27 JUN 2007.

**PLSS:** T17S, R13E, Sec. 10, SE (S)

**Accuracy:** 80 meters

**Area (acres):** 0

**UTM:** Zone-11 N3616808 E629214

**Latitude/Longitude:** 32.68141 / -115.62176

**Elevation (feet):** -10

**County Summary:**

Imperial

**Quad Summary:**

Heber (3211565)

**Sources:**

WIL09D0003 WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 79616  
**Key Quad:** Heber (3211565)  
**Occurrence Number:** 1290

**EO Index:** 80604  
**Element Code:** ABNSB10010  
**Occurrence Last Updated:** 2010-08-12

**Scientific Name:** *Athene cunicularia*

**Common Name:** burrowing owl

**Listing Status:**  
**Federal:** None  
**State:** None  
**CNDDB Element Ranks:**  
**Global:** G4  
**State:** S3

**Rare Plant Rank:**  
**Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern

**General Habitat:**

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

**Micro Habitat:**

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2007-06-27

**Occurrence Type:** Natural/Native occurrence

**Last Survey Date:** 2007-06-27

**Occurrence Rank:** Unknown

**Owner/Manager:** UNKNOWN

**Trend:** Unknown

**Presence:** Presumed Extant

**Location:**

0.6 MI SE KUBLER RD AT ROCKWOOD RD, 1.5 MI NE MOUNT SIGNAL, CALEXICO ZC.

**Detailed Location:**

BLOCK CODE 3615-625 - LOCATION CODE D. MAPPED TO PROVIDED COORDINATES.

**Ecological:**

LOWLAND ELEVATION SUBREGION.

**Threats:**

**General:**

1 ADULT OBSERVED AT D; 1 BREEDING PAIR ESTIMATED TO OCCUR IN AREA ON 27 JUN 2007.

**PLSS:** T17S, R13E, Sec. 11, NW (S)

**Accuracy:** 80 meters

**Area (acres):** 0

**UTM:** Zone-11 N3617642 E629858

**Latitude/Longitude:** 32.68886 / -115.61478

**Elevation (feet):** -10

**County Summary:**

**Quad Summary:**

Imperial

Heber (3211565)

**Sources:**

WIL09D0003 WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Map Index Number:** 79730 **EO Index:** 80725  
**Key Quad:** El Centro (3211575) **Element Code:** ABNSB10010  
**Occurrence Number:** 1301 **Occurrence Last Updated:** 2010-08-26

**Scientific Name:** *Athene cunicularia* **Common Name:** burrowing owl  
**Listing Status:** **Federal:** None **Rare Plant Rank:**  
**State:** None **Other Lists:** BLM\_S-Sensitive  
CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern  
USFWS\_BCC-Birds of Conservation Concern  
**CNDDB Element Ranks:** **Global:** G4  
**State:** S3

**General Habitat:** OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.  
**Micro Habitat:** SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

**Last Date Observed:** 2006-06-20 **Occurrence Type:** Natural/Native occurrence  
**Last Survey Date:** 2006-06-20 **Occurrence Rank:** Unknown  
**Owner/Manager:** PVT-IMPERIAL IRRIGATION DIST **Trend:** Unknown  
**Presence:** Presumed Extant

**Location:**  
0.3 MI SE STARK FIELD, 0.3 MI E SR-86 (S 4TH ST) AND 0.5 MI N I-8. W OF SOUTHERN PACIFIC RR, EL CENTRO.

**Detailed Location:**  
BLOCK CODE 3625-635 - LOCATION CODE A. MAPPED TO PROVIDED COORDINATES.

**Ecological:**  
ALFALFA AGRICULTURE AND DRAIN DITCH IN AREA. LOWLAND ELEVATION SUBREGION. NO GROUND SQUIRRELS DETECTED WITHIN 100 M RADIUS OF BREEDING LOCATION.

#### Threats:

#### General:

1 BREEDING PAIR ESTIMATED TO OCCUR IN AREA ON 20 JUN 2006. 1 ADULT OBSERVED AT LOCATION A.

**PLSS:** T16S, R14E, Sec. 08, NW (S) **Accuracy:** 80 meters **Area (acres):** 0  
**UTM:** Zone-11 N3627912 E636056 **Latitude/Longitude:** 32.78072 / -115.54718 **Elevation (feet):** -30

**County Summary:** Imperial **Quad Summary:** El Centro (3211575)

**Sources:**  
WIL09D0003 WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	79732	<b>EO Index:</b>	80727
<b>Key Quad:</b>	El Centro (3211575)	<b>Element Code:</b>	ABNSB10010
<b>Occurrence Number:</b>	1302	<b>Occurrence Last Updated:</b>	2010-08-26

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<b>Scientific Name:</b>	<i>Athene cunicularia</i>	<b>Common Name:</b>	burrowing owl
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G4 <b>State:</b> S3	<b>Other Lists:</b>	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern

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<b>General Habitat:</b>	<b>Micro Habitat:</b>
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.	SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

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<b>Last Date Observed:</b>	2006-06-20	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	2006-06-20	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	PVT-IMPERIAL IRRIGATION DIST	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
0.5 MI E HWY 86 & 0.6-0.9 MI S I-8. 1.5 MI NE IMPERIAL CO HOSPITAL, W OF SOUTHERN PACIFIC RR, S OF EL CENTRO.

**Detailed Location:**  
BETWEEN FARMSWORTH LN AND DATE DRAIN THREE (RUNS PARALLEL). BLOCK CODE 3625-635 - LOCATION CODES B (N OF NORTHERN POLYGON), C (S OF NORTHERN POLYGON), D (N OF SOUTHERN POLYGON) AND E (S OF SOUTHERN POLYGON). MAPPED TO PROVIDED COORDINATES.

**Ecological:**  
ALFALFA AGRICULTURE AND DRAIN DITCH IN AREA. LOWLAND ELEVATION SUBREGION. NO GROUND SQUIRRELS DETECTED WITHIN 100 M RADIUS OF BREEDING LOCATIONS. RESIDENTIAL DEVELOPMENT LOCATED ON THE WEST SIDE OF SOUTHERN POLYGON (AERIAL IMAGE, 2009).

**Threats:**

**General:**  
1 BREEDING PAIR ESTIMATED TO OCCUR AT EACH LOCATION B, C, D AND E ON 20 JUN 2006. 1 ADULT AND 2 JUVENILES OBSERVED AT B. 1 ADULT EACH OBSERVED AT C, D AND E.

<b>PLSS:</b>	T16S, R14E, Sec. 17, NE (S)	<b>Accuracy:</b>	specific area	<b>Area (acres):</b>	17
<b>UTM:</b>	Zone-11 N3625826 E636438	<b>Latitude/Longitude:</b>	32.76186 / -115.54341	<b>Elevation (feet):</b>	-30

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<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial	El Centro (3211575)

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**Sources:**  
WIL09D0003 WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	79733	<b>EO Index:</b>	80728
<b>Key Quad:</b>	El Centro (3211575)	<b>Element Code:</b>	ABNSB10010
<b>Occurrence Number:</b>	1303	<b>Occurrence Last Updated:</b>	2010-08-26

<b>Scientific Name:</b>	<i>Athene cucularia</i>	<b>Common Name:</b>	burrowing owl
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G4 <b>State:</b> S3	<b>Other Lists:</b>	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern

<b>General Habitat:</b>	<b>Micro Habitat:</b>
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.	SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

<b>Last Date Observed:</b>	2006-06-21	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	2006-06-21	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	PVT-IMPERIAL IRRIGATION DIST	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
JUST S OF I-8, 0.2 MI W SR-86 (CORFMAN RD), 1.8 MI NNE IMPERIAL CO HOSPITAL, 0.7 MI W OF SOUTHERN PACIFIC RR, EL CENTRO.

**Detailed Location:**  
BLOCK CODE 3625-635 - LOCATION CODE I. MAPPED TO PROVIDED COORDINATES.

**Ecological:**  
ALFALFA AGRICULTURE, DRAIN DITCH IN AREA. LOWLAND ELEVATION SUBREGION. NO GROUND SQUIRRELS DETECTED WITHIN 100 M RADIUS OF BREEDING LOCATION. INTERSTATE & RESIDENTIAL LOCATED TO THE N, PAVED PARKING LOT LOCATED TO S (AERIAL IMAGE, 2009).

**Threats:**  
**General:**  
1 BREEDING PAIR ESTIMATED TO OCCUR IN AREA ON 21 JUN 2006. 1 ADULT OBSERVED AT I.

<b>PLSS:</b>	T16S, R14E, Sec. 07, SE (S)	<b>Accuracy:</b>	80 meters	<b>Area (acres):</b>	0
<b>UTM:</b>	Zone-11 N3627053 E635269	<b>Latitude/Longitude:</b>	32.77307 / -115.55570	<b>Elevation (feet):</b>	-30

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial	El Centro (3211575)

**Sources:**  
WIL09D0003 WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29





# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	79734	<b>EO Index:</b>	80729
<b>Key Quad:</b>	El Centro (3211575)	<b>Element Code:</b>	ABNSB10010
<b>Occurrence Number:</b>	1304	<b>Occurrence Last Updated:</b>	2010-08-30

<b>Scientific Name:</b>	<i>Athene cucularia</i>	<b>Common Name:</b>	burrowing owl
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G4 <b>State:</b> S3	<b>Other Lists:</b>	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern

<b>General Habitat:</b>	<b>Micro Habitat:</b>
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.	SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

<b>Last Date Observed:</b>	2006-06-21	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	2006-06-21	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	PVT-IMPERIAL IRRIGATION DIST	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
JUST S OF I-8, N OF CHICK RD, W OF PITZER RD AND 0.5 MI E S DOGWOOD RD. 1 MI E OF SOUTHERN PACIFIC RR, SE EL CENTRO.

**Detailed Location:**  
BLOCK CODE 3625-635 - LOCATION CODES J (N OF NW POLYGON), K (CIRCLE), L (W OF E POLYGON), M (E OF E POLYGON), P (S OF S POLYGON), Q (N OF S POLYGON) AND R (S OF NW POLYGON). SE 1/4 SEC 9 AND SW 1/4 SEC 10. MAPPED TO PROVIDED COORDINATES.

**Ecological:**  
ALFALFA AGRICULTURE AND DRAIN DITCH IN AREA. LOWLAND ELEVATION SUBREGION. NO GROUND SQUIRRELS DETECTED WITHIN 100 M RADIUS OF BREEDING LOCATIONS.

**Threats:**  
**General:**  
1 BREEDING PAIR ESTIMATED TO OCCUR IN EACH LOCATION J, K, L, M, P, Q AND R ON 21 JUN 2006. 1 ADULT OBSERVED EACH AT J, M, P, Q AND R. 2 ADULTS AND 3 JUVENILES OBSERVED AT K. 2 ADULTS OBSERVED AT L.

<b>PLSS:</b>	T16S, R14E, Sec. 09, SE (S)	<b>Accuracy:</b>	specific area	<b>Area (acres):</b>	34
<b>UTM:</b>	Zone-11 N3627067 E638328	<b>Latitude/Longitude:</b>	32.77281 / -115.52305	<b>Elevation (feet):</b>	-30

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial	El Centro (3211575)

**Sources:**  
WIL09D0003 WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	79736	<b>EO Index:</b>	80730
<b>Key Quad:</b>	EI Centro (3211575)	<b>Element Code:</b>	ABNSB10010
<b>Occurrence Number:</b>	1305	<b>Occurrence Last Updated:</b>	2010-08-26

<b>Scientific Name:</b>	<i>Athene cucularia</i>	<b>Common Name:</b>	burrowing owl
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G4 <b>State:</b> S3	<b>Other Lists:</b>	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern

<b>General Habitat:</b>	<b>Micro Habitat:</b>
OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS, AND SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.	SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

<b>Last Date Observed:</b>	2006-06-21	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	2006-06-21	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	PVT-IMPERIAL IRRIGATION DIST	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
E SIDE OF HEBER DRAIN, ABOUT 0.25 MI E OF IMPERIAL VALLEY MALL, 0.8 MI S OF I-8, SE EL CENTRO.

**Detailed Location:**  
BLOCK CODE 3625-635 - LOCATION CODES N (SOUTH) AND O (NORTH). MAPPED TO PROVIDED COORDINATES.

**Ecological:**  
ALFALFA AGRICULTURE AND DRAIN DITCH IN AREA. LOWLAND ELEVATION SUBREGION. NO GROUND SQUIRRELS DETECTED WITHIN 100 M RADIUS OF BREEDING LOCATIONS.

**Threats:**  
**General:**  
1 BREEDING PAIR ESTIMATED TO OCCUR IN EACH LOCATION N AND O ON 21 JUN 2006. 2 ADULTS OBSERVED AT N. 1 ADULT OBSERVED AT O.

<b>PLSS:</b>	T16S, R14E, Sec. 16, NE (S)	<b>Accuracy:</b>	specific area	<b>Area (acres):</b>	9
<b>UTM:</b>	Zone-11 N3625871 E638041	<b>Latitude/Longitude:</b>	32.76207 / -115.52629	<b>Elevation (feet):</b>	-25

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial	EI Centro (3211575)

**Sources:**  
WIL09D0003 WILKERSON, R. & R. SIEGEL (THE INSTITUTE FOR BIRD POPULATIONS) - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY 2009-09-29



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	06328	<b>EO Index:</b>	24911
<b>Key Quad:</b>	Calexico (3211564)	<b>Element Code:</b>	ABPBX03010
<b>Occurrence Number:</b>	32	<b>Occurrence Last Updated:</b>	1989-08-10

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<b>Scientific Name:</b>	<i>Setophaga petechia</i>	<b>Common Name:</b>	yellow warbler
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G5 <b>State:</b> S3S4	<b>Other Lists:</b>	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern

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<b>General Habitat:</b>	<b>Micro Habitat:</b>
RIPARIAN PLANT ASSOCIATIONS IN CLOSE PROXIMITY TO WATER. ALSO NESTS IN MONTANE SHRUBBERY IN OPEN CONIFER FORESTS IN CASCADES AND SIERRA NEVADA.	FREQUENTLY FOUND NESTING AND FORAGING IN WILLOW SHRUBS AND THICKETS, AND IN OTHER RIPARIAN PLANTS INCLUDING COTTONWOODS, SYCAMORES, ASH, AND ALDERS.

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<b>Last Date Observed:</b>	1921-05-08	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1921-05-08	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		
<b>Location:</b>	CALEXICO.		
<b>Detailed Location:</b>			
<b>Ecological:</b>			
<b>Threats:</b>			
<b>General:</b>	UCLA #J648.		
<b>PLSS:</b>	T17S, R14E, Sec. 13, SE (S)	<b>Accuracy:</b>	1 mile
<b>UTM:</b>	Zone-11 N3615677 E641015	<b>Latitude/Longitude:</b>	32.66977 / -115.49610
<b>Area (acres):</b>	0		
<b>Elevation (feet):</b>	10		

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<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial, Mexico	Calexico (3211564), Heber (3211565)

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<b>Sources:</b>
BLM80S0001 BLM - DESERT PLAN STAFF - COMPILATION OF HISTORIC MUSEUM SPECIMEN INFORMATION FOR DENDROICA PETECHIA, COLLECTED DURING THE PREPARATION OF "THE CALIFORNIA DESERT PLAN" 1980-XX-XX



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	06328	<b>EO Index:</b>	58841
<b>Key Quad:</b>	Calexico (3211564)	<b>Element Code:</b>	AMACC05070
<b>Occurrence Number:</b>	2	<b>Occurrence Last Updated:</b>	2004-12-21

<b>Scientific Name:</b>	<i>Lasiurus xanthinus</i>	<b>Common Name:</b>	western yellow bat
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDDB Element Ranks:</b>	<b>Global:</b> G4G5 <b>State:</b> S3	<b>Other Lists:</b>	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern

<b>General Habitat:</b>	<b>Micro Habitat:</b>
FOUND IN VALLEY FOOTHILL RIPARIAN, DESERT RIPARIAN, DESERT WASH, AND PALM OASIS HABITATS.	ROOSTS IN TREES, PARTICULARLY PALMS. FORAGES OVER WATER AND AMONG TREES.

<b>Last Date Observed:</b>	1977-08-12	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1977-08-12	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
CALEXICO.

**Detailed Location:**  
EXACT LOCATION UNKNOWN. MAPPED IN THE VICINTY OF CALEXICO.

**Ecological:**

**Threats:**

**General:**  
ONE FEMALE SPECIMEN COLLECTED 12 AUG 1977 BY D. CONSTANTINE AT "CALEXICO." DEPOSITED AT MVZ #181868.

<b>PLSS:</b>	T17S, R14E, Sec. 13 (S)	<b>Accuracy:</b>	1 mile	<b>Area (acres):</b>	0
<b>UTM:</b>	Zone-11 N3615677 E641015	<b>Latitude/Longitude:</b>	32.66977 / -115.49610	<b>Elevation (feet):</b>	10

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial, Mexico	Calexico (3211564), Heber (3211565)

**Sources:**

MAN04S0014 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF LASIURUS XANTHINUS SPECIMEN RECORDS FROM MANIS. THIS INCLUDES RECORDS FROM LACM & MVZ. 2004-12-20



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	58808	<b>EO Index:</b>	58844
<b>Key Quad:</b>	El Centro (3211575)	<b>Element Code:</b>	AMACC05070
<b>Occurrence Number:</b>	3	<b>Occurrence Last Updated:</b>	2004-12-20

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<b>Scientific Name:</b>	<i>Lasiurus xanthinus</i>	<b>Common Name:</b>	western yellow bat
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G4G5 <b>State:</b> S3	<b>Other Lists:</b>	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern

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<b>General Habitat:</b>	<b>Micro Habitat:</b>
FOUND IN VALLEY FOOTHILL RIPARIAN, DESERT RIPARIAN, DESERT WASH, AND PALM OASIS HABITATS.	ROOSTS IN TREES, PARTICULARLY PALMS. FORAGES OVER WATER AND AMONG TREES.

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<b>Last Date Observed:</b>	1999-08-25	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1999-08-25	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		
<b>Location:</b>	EL CENTRO.		
<b>Detailed Location:</b>	EXACT LOCATION NOT GIVEN. MAPPED IN THE VICINTY OF EL CENTRO.		
<b>Ecological:</b>			
<b>Threats:</b>			
<b>General:</b>	ALL SPECIMENS COLLECTED IN "EL CENTRO." 1 FEMALE IN DEC 1980 (MVZ), 1 FEMALE IN JUL 1987 (MVZ), 5 FEMALES & 4 MALES IN JUN, AUG & SEP 1990 (LACM), 1 MALE IN SEP 1994 (MVZ), 1 FEMALE IN AUG 1999 (MVZ), 1 UNDATED FEMALE (LACM).		
<b>PLSS:</b>	T16S, R14E, Sec. 06 (S)	<b>Accuracy:</b>	1 mile
<b>UTM:</b>	Zone-11 N3629101 E634594	<b>Latitude/Longitude:</b>	32.79162 / -115.56261
<b>Area (acres):</b>	0		
<b>Elevation (feet):</b>	-40		
<b>County Summary:</b>	<b>Quad Summary:</b>		
Imperial	El Centro (3211575)		
<b>Sources:</b>			
MAN04S0014	MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF LASIURUS XANTHINUS SPECIMEN RECORDS FROM MANIS. THIS INCLUDES RECORDS FROM LACM & MVZ. 2004-12-20		



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Map Index Number: 45965  
Key Quad: Heber (3211565)  
Occurrence Number: 4

EO Index: 58845  
Element Code: AMACC05070  
Occurrence Last Updated: 2004-12-21

Scientific Name: *Lasiurus xanthinus*

Common Name: western yellow bat

Listing Status: Federal: None  
State: None  
CNDDB Element Ranks: Global: G4G5  
State: S3

Rare Plant Rank:  
Other Lists: CDFW\_SSC-Species of Special Concern  
IUCN\_LC-Least Concern

#### General Habitat:

FOUND IN VALLEY FOOTHILL RIPARIAN, DESERT RIPARIAN, DESERT WASH, AND PALM OASIS HABITATS.

#### Micro Habitat:

ROOSTS IN TREES, PARTICULARLY PALMS. FORAGES OVER WATER AND AMONG TREES.

Last Date Observed: 1985-06-17  
Last Survey Date: 1985-06-17  
Owner/Manager: UNKNOWN  
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence  
Occurrence Rank: Unknown  
Trend: Unknown

Location:  
HEBER, IMPERIAL VALLEY.

#### Detailed Location:

NON-SPECIFIC LOCALE, THUS MAPPED TO LAT/LONG COORDINATES PROVIDED BY MANIS. LOCATION UNCERTAINTY GIVEN AS 1400.1293 M (0.87 MI).

#### Ecological:

##### Threats:

##### General:

ONE MALE SPECIMEN COLLECTED 17 JUN 1985 BY D. CONSTANTINE AT "BETWEEN EL CENTRO & CALEXICO." DEPOSITED AT MVZ #181872.

PLSS: T16S, R14E, Sec. 28 (S)

Accuracy: 3/5 mile

Area (acres): 0

UTM: Zone-11 N3622409 E637770

Latitude/Longitude: 32.73088 / -115.52971

Elevation (feet): -10

#### County Summary:

#### Quad Summary:

Imperial

Heber (3211565)

#### Sources:

MAN04S0014 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF LASIURUS XANTHINUS SPECIMEN RECORDS FROM MANIS. THIS INCLUDES RECORDS FROM LACM & MVZ. 2004-12-20





# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Map Index Number:	58812	EO Index:	58848
Key Quad:	El Centro (3211575)	Element Code:	AMACC05070
Occurrence Number:	5	Occurrence Last Updated:	2004-12-20

Scientific Name:	<i>Lasiurus xanthinus</i>	Common Name:	western yellow bat
Listing Status:	Federal: None State: None	Rare Plant Rank:	
CNDDDB Element Ranks:	Global: G4G5 State: S3	Other Lists:	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern

General Habitat:	Micro Habitat:
FOUND IN VALLEY FOOTHILL RIPARIAN, DESERT RIPARIAN, DESERT WASH, AND PALM OASIS HABITATS.	ROOSTS IN TREES, PARTICULARLY PALMS. FORAGES OVER WATER AND AMONG TREES.

Last Date Observed:	1977-04-25	Occurrence Type:	Natural/Native occurrence
Last Survey Date:	1977-04-25	Occurrence Rank:	Unknown
Owner/Manager:	UNKNOWN	Trend:	Unknown
Presence:	Presumed Extant		

**Location:**  
LOCATED ABOUT 3 MILES SOUTHWEST OF EL CENTRO.

**Detailed Location:**  
MAPPED AT THE LAT-LONG COORDINATES GIVEN. LOCATION UNCERTAINTY GIVEN AS 1207.008 M (0.75 MI).

**Ecological:**

**Threats:**

**General:**  
ONE MALE SPECIMEN COLLECTED 25 APR 1977 BY D. CONSTANTINE AT "3 MI SW EL CENTRO." DEPOSITED AT MVZ #181871.

PLSS:	T16S, R13E, Sec. 14 (S)	Accuracy:	1 mile	Area (acres):	0
UTM:	Zone-11 N3626105 E630512	Latitude/Longitude:	32.76510 / -115.60662	Elevation (feet):	-25

County Summary:	Quad Summary:
Imperial	El Centro (3211575)

**Sources:**  
MAN04S0014 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF LASIURUS XANTHINUS SPECIMEN RECORDS FROM MANIS. THIS INCLUDES RECORDS FROM LACM & MVZ. 2004-12-20



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	06328	<b>EO Index:</b>	66376
<b>Key Quad:</b>	Calexico (3211564)	<b>Element Code:</b>	AMACD02011
<b>Occurrence Number:</b>	49	<b>Occurrence Last Updated:</b>	2007-03-26

<b>Scientific Name:</b>	<i>Eumops perotis californicus</i>	<b>Common Name:</b>	western mastiff bat
<b>Listing Status:</b>	<b>Federal:</b> None	<b>Rare Plant Rank:</b>	
	<b>State:</b> None	<b>Other Lists:</b>	BLM_S-Sensitive CDFW_SSC-Species of Special Concern
<b>CNDDDB Element Ranks:</b>	<b>Global:</b> G4G5T4		
	<b>State:</b> S3S4		

<b>General Habitat:</b>	<b>Micro Habitat:</b>
MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER AND DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL, ETC.	ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES AND TUNNELS.

<b>Last Date Observed:</b>	1996-10-07	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1996-10-07	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
CALEXICO.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**

1 MALE SPECIMEN COLLECTED BY DENNY G. CONSTANTINE FROM "CALEXICO", DEPOSITED AT MVZ #186385.

<b>PLSS:</b>	T17S, R14E, Sec. 13 (S)	<b>Accuracy:</b>	1 mile	<b>Area (acres):</b>	0
<b>UTM:</b>	Zone-11 N3615677 E641015	<b>Latitude/Longitude:</b>	32.66977 / -115.49610	<b>Elevation (feet):</b>	5

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial, Mexico	Calexico (3211564), Heber (3211565)

**Sources:**

MAN04S0027 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF EUMOPS PEROTIS CALIFORNICUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, TTU, ROM, LACM, KU, MSU AND FMNH. 2004-12-10



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	06328	<b>EO Index:</b>	68714
<b>Key Quad:</b>	Calexico (3211564)	<b>Element Code:</b>	AMACD04010
<b>Occurrence Number:</b>	13	<b>Occurrence Last Updated:</b>	2007-03-27

<b>Scientific Name:</b>	<i>Nyctinomops femorosaccus</i>	<b>Common Name:</b>	pocketed free-tailed bat
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDDB Element Ranks:</b>	<b>Global:</b> G5 <b>State:</b> S3	<b>Other Lists:</b>	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern

<b>General Habitat:</b>	<b>Micro Habitat:</b>
VARIETY OF ARID AREAS IN SOUTHERN CALIFORNIA; PINE-JUNIPER WOODLANDS, DESERT SCRUB, PALM OASIS, DESERT WASH, DESERT RIPARIAN, ETC.	ROCKY AREAS WITH HIGH CLIFFS.

<b>Last Date Observed:</b>	1995-10-03	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1995-10-03	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
CALEXICO.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**

1 MALE SPECIMEN (MVZ #186401) COLLECTED AT "CALEXICO" BY DENNY G. CONSTANTINE ON 3 OCT 1995.

<b>PLSS:</b>	T17S, R14E, Sec. 13 (S)	<b>Accuracy:</b>	1 mile	<b>Area (acres):</b>	0
<b>UTM:</b>	Zone-11 N3615677 E641015	<b>Latitude/Longitude:</b>	32.66977 / -115.49610	<b>Elevation (feet):</b>	5

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial, Mexico	Calexico (3211564), Heber (3211565)

**Sources:**

MAN05S0014	MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF NYCTINOMOPS FEMOROSACCUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM LACM, MVZ, FMNH AND KU. 2005-01-06
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# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Map Index Number:	58808	EO Index:	59560
Key Quad:	El Centro (3211575)	Element Code:	AMACD04020
Occurrence Number:	2	Occurrence Last Updated:	2005-01-21

Scientific Name:	<i>Nyctinomops macrotis</i>	Common Name:	big free-tailed bat
Listing Status:	Federal: None State: None	Rare Plant Rank:	
CNDDB Element Ranks:	Global: G5 State: S3	Other Lists:	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern

General Habitat:	Micro Habitat:
LOW-LYING ARID AREAS IN SOUTHERN CALIFORNIA.	NEED HIGH CLIFFS OR ROCKY OUTCROPS FOR ROOSTING SITES. FEEDS PRINCIPALLY ON LARGE MOTHS.

Last Date Observed:	1987-03-31	Occurrence Type:	Natural/Native occurrence
Last Survey Date:	1987-03-31	Occurrence Rank:	Unknown
Owner/Manager:	UNKNOWN	Trend:	Unknown
Presence:	Presumed Extant		

**Location:**  
EL CENTRO.

**Detailed Location:**  
EXACT LOCATION NOT GIVEN. LOCATION ONLY GIVEN AS "EL CENTRO". MAPPED IN THE VICINTY OF EL CENTRO. LAT/LONG COORDINATES PROVIDED BY MANIS FALL WITHIN THIS CIRCLE AND HAVE AN UNCERTAINTY OF 30 METERS (ABOUT 0.18 MILES).

**Ecological:**

**Threats:**

**General:**  
ONE MALE SPECIMEN COLLECTED 31 MAR 1987 BY D. CONSTANTINE AT "EL CENTRO." DEPOSITED AT MVZ #181981.

PLSS:	T16S, R14E, Sec. 06 (S)	Accuracy:	1 mile	Area (acres):	0
UTM:	Zone-11 N3629101 E634594	Latitude/Longitude:	32.79162 / -115.56261	Elevation (feet):	-40

County Summary:	Quad Summary:
Imperial	El Centro (3211575)

**Sources:**

MAN05S0005 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF NYCTINOMOPS MACROTIS SPECIMEN RECORDS FROM MANIS. THIS INCLUDES RECORDS FROM LACM & MVZ. 2005-01-06



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	06328	<b>EO Index:</b>	57376
<b>Key Quad:</b>	Calexico (3211564)	<b>Element Code:</b>	AMAJF04010
<b>Occurrence Number:</b>	258	<b>Occurrence Last Updated:</b>	2004-10-13

<b>Scientific Name:</b>	<i>Taxidea taxus</i>	<b>Common Name:</b>	American badger
<b>Listing Status:</b>	<b>Federal:</b> None	<b>Rare Plant Rank:</b>	
	<b>State:</b> None	<b>Other Lists:</b>	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G5		
	<b>State:</b> S3		

<b>General Habitat:</b>	<b>Micro Habitat:</b>
MOST ABUNDANT IN DRIER OPEN STAGES OF MOST SHRUB, FOREST, AND HERBACEOUS HABITATS, WITH FRIABLE SOILS.	NEEDS SUFFICIENT FOOD, FRIABLE SOILS AND OPEN, UNCULTIVATED GROUND. PREYS ON BURROWING RODENTS. DIGS BURROWS.

<b>Last Date Observed:</b>	1922-08-14	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1922-08-14	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
CALEXICO.

**Detailed Location:**

**Ecological:**

**Threats:**

**General:**

UNIVERSITY OF WASHINGTON BURKE MUSEUM #6889. SPECIMEN COLLECTED BY W. E. HUMPHREY ON 14 AUG 1922.

<b>PLSS:</b>	T17S, R14E, Sec. 13 (S)	<b>Accuracy:</b>	1 mile	<b>Area (acres):</b>	0
<b>UTM:</b>	Zone-11 N3615677 E641015	<b>Latitude/Longitude:</b>	32.66977 / -115.49610	<b>Elevation (feet):</b>	0

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial, Mexico	Calexico (3211564), Heber (3211565)

**Sources:**

MAN04S0002 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF TAXIDEA TAXUS SPECIMENS FOR CALIFORNIA FROM MANIS. THIS INCLUDES RECORDS FROM UWBM, LACM, CAS AND UMMZ. 2004-10-07



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	06328	<b>EO Index:</b>	82788
<b>Key Quad:</b>	Calexico (3211564)	<b>Element Code:</b>	ARACF12040
<b>Occurrence Number:</b>	218	<b>Occurrence Last Updated:</b>	2015-07-30

<b>Scientific Name:</b>	<i>Phrynosoma mcallii</i>	<b>Common Name:</b>	flat-tailed horned lizard
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G3 <b>State:</b> S3	<b>Other Lists:</b>	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened

<b>General Habitat:</b>	<b>Micro Habitat:</b>
RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.	CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

<b>Last Date Observed:</b>	1969-05-XX	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1969-05-XX	<b>Occurrence Rank:</b>	None
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Possibly Extirpated		

**Location:**  
VICINITY OF CALEXICO.

**Detailed Location:**  
TYPE LOCALITY GIVEN AS "GREAT DESERT OF THE COLORADO BETWEEN VALLECITA AND CAMP YUMA, ABOUT 160 MILES EAST OF SAN DIEGO;" KLAUBER (1932) PLACES THIS NEAR CALEXICO. 1967 AND 1969 COLLECTIONS DESCRIBE LOCALITIES AS "NEAR CALEXICO."

**Ecological:**

**Threats:**  
CALEXICO HAS BEEN DEVELOPED AND THE SURROUNDING AREA CONVERTED TO AGRICULTURE.

**General:**  
TYPE SPECIMEN CAUGHT IN 1852. 2 COLLECTED ON 20 MAY 1967. 2 COLLECTED DURING MAY 1969.

<b>PLSS:</b>	T17S, R14E, Sec. 13 (S)	<b>Accuracy:</b>	1 mile	<b>Area (acres):</b>	0
<b>UTM:</b>	Zone-11 N3615677 E641015	<b>Latitude/Longitude:</b>	32.66977 / -115.49610	<b>Elevation (feet):</b>	0

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial, Mexico	Calexico (3211564), Heber (3211565)

**Sources:**

HAL52A0001	HALLOWELL, E. - DESCRIPTIONS OF NEW SPECIES OF REPTILES INHABITING NORTH AMERICA. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA VOL 6, P177-182. 1852-10-XX
KLA32A0001	KLAUBER, L. - THE FLAT-TAILED HORNED TOAD IN LOWER CALIFORNIA. COPEIA 1932(2):100 1932-07-01
MAH67S0001	MAHRDT, C. - SDNHM #49068 & 49069 COLLECTED FROM NEAR CALEXICO 1967-05-20
MAH69S0002	MAHRDT, C. - SDNHM #49059 & 49060 COLLECTED FROM NEAR CALEXICO 1969-05-XX





# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	06328	<b>EO Index:</b>	45963
<b>Key Quad:</b>	Calexico (3211564)	<b>Element Code:</b>	PDEUP0D010
<b>Occurrence Number:</b>	1	<b>Occurrence Last Updated:</b>	2012-11-26

<b>Scientific Name:</b>	<i>Euphorbia abramsiana</i>	<b>Common Name:</b>	Abrams' spurge
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	2B.2
<b>CNDDB Element Ranks:</b>	<b>Global:</b> G4 <b>State:</b> S2	<b>Other Lists:</b>	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

<b>General Habitat:</b>	<b>Micro Habitat:</b>
MOJAVEAN DESERT SCRUB, SONORAN DESERT SCRUB.	SANDY SITES. -45-1445 M.

<b>Last Date Observed:</b>	1903-07-25	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1903-07-25	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
NEAR CALEXICO, IMPERIAL VALLEY.

**Detailed Location:**  
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS AROUND CALEXICO.

**Ecological:**

**Threats:**

**General:**

ONLY SOURCES OF INFORMATION FOR THIS SITE ARE A 1903 ABRAMS COLLECTION FROM "NEAR CALEXICO" AND A 1902 ABRAMS COLLECTION FROM "CALEXICO-IMPERIAL." NEEDS FIELDWORK.

<b>PLSS:</b>	T17S, R14E, Sec. 13 (S)	<b>Accuracy:</b>	1 mile	<b>Area (acres):</b>	0
<b>UTM:</b>	Zone-11 N3615677 E641015	<b>Latitude/Longitude:</b>	32.66977 / -115.49610	<b>Elevation (feet):</b>	

<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial, Mexico	Calexico (3211564), Heber (3211565)

**Sources:**

ABR02S0030	ABRAMS, L. - ABRAMS SN POM #161127 1902-09-27
ABR03S0041	ABRAMS, L. - ABRAMS #3995 DS #33274 1903-07-25



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Map Index Number:	45965	EO Index:	45965
Key Quad:	Heber (3211565)	Element Code:	PDEUP0D010
Occurrence Number:	3	Occurrence Last Updated:	2012-11-26

Scientific Name:	<i>Euphorbia abramsiana</i>	Common Name:	Abrams' spurge
Listing Status:	Federal: None State: None	Rare Plant Rank:	2B.2
CNDDDB Element Ranks:	Global: G4 State: S2	Other Lists:	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:	Micro Habitat:
MOJAVEAN DESERT SCRUB, SONORAN DESERT SCRUB.	SANDY SITES. -45-1445 M.

Last Date Observed:	1904-06-XX	Occurrence Type:	Natural/Native occurrence
Last Survey Date:	1904-06-XX	Occurrence Rank:	Unknown
Owner/Manager:	UNKNOWN	Trend:	Unknown
Presence:	Presumed Extant		

**Location:**  
HEBER, IMPERIAL VALLEY.

**Detailed Location:**  
MAPPED BY CNDDDB AS BEST GUESS AROUND THE TOWN OF HEBER.

**Ecological:**

**Threats:**

**General:**  
TYPE LOCALITY. SITE BASED ON A 1904 ABRAMS COLLECTION. A 1902 ABRAMS COLLECTION FROM "4 MILES NORTH OF CALEXICO" IS ALSO ATTRIBUTED TO THIS SITE. NEEDS FIELDWORK. INCLUDES FORMER OCCURRENCE #2.

PLSS:	T16S, R14E, Sec. 28 (S)	Accuracy:	3/5 mile	Area (acres):	0
UTM:	Zone-11 N3622409 E637770	Latitude/Longitude:	32.73088 / -115.52971	Elevation (feet):	

County Summary:	Quad Summary:
Imperial	Heber (3211565)

**Sources:**

ABR02S0005	ABRAMS, G. - ABRAMS SN DS #73634 1902-09-27
ABR04S0001	ABRAMS, L. - ABRAMS #4097 DS #33555, GH #47638 1904-06-XX



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	06328	<b>EO Index:</b>	85298
<b>Key Quad:</b>	Calexico (3211564)	<b>Element Code:</b>	PDFAB0F7R0
<b>Occurrence Number:</b>	1	<b>Occurrence Last Updated:</b>	2011-11-16

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<b>Scientific Name:</b>	<i>Astragalus sabulorum</i>	<b>Common Name:</b>	gravel milk-vetch
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	2B.2
<b>CNDDDB Element Ranks:</b>	<b>Global:</b> G4G5 <b>State:</b> S2	<b>Other Lists:</b>	

---

<b>General Habitat:</b>	<b>Micro Habitat:</b>
DESERT DUNES, MOJAVEAN DESERT SCRUB, SONORAN DESERT SCRUB.	SANDY OR GRAVELLY FLATS, WASHES, AND ROADSIDES. -60-885 M.

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<b>Last Date Observed:</b>	1902-01-13	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1902-01-13	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown

**Presence:** Presumed Extant

**Location:**  
CALEXICO.

**Detailed Location:**  
EXACT LOCATION UNKNOWN. MAPPED BY CNDDDB CENTERED ON THE CITY OF CALEXICO.

**Ecological:**

**Threats:**

**General:**  
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1902 COLLECTION BY ABRAMS. NEEDS FIELDWORK.

<b>PLSS:</b> T17S, R14E, Sec. 13 (S)	<b>Accuracy:</b> 1 mile	<b>Area (acres):</b> 0
<b>UTM:</b> Zone-11 N3615677 E641015	<b>Latitude/Longitude:</b> 32.66977 / -115.49610	<b>Elevation (feet):</b>

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<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial, Mexico	Calexico (3211564), Heber (3211565)

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**Sources:**  
ABR02S0032 ABRAMS, G. - ABRAMS SN POM #50469 1902-01-13



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b>	37025	<b>EO Index:</b>	32022
<b>Key Quad:</b>	Mount Signal (3211566)	<b>Element Code:</b>	PDLOA030K0
<b>Occurrence Number:</b>	1	<b>Occurrence Last Updated:</b>	1997-10-03

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<b>Scientific Name:</b>	<i>Mentzelia hirsutissima</i>	<b>Common Name:</b>	hairy stickleaf
<b>Listing Status:</b>	<b>Federal:</b> None <b>State:</b> None	<b>Rare Plant Rank:</b>	2B.3
<b>CNDDDB Element Ranks:</b>	<b>Global:</b> G4? <b>State:</b> S3	<b>Other Lists:</b>	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture

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<b>General Habitat:</b>	<b>Micro Habitat:</b>
SONORAN DESERT SCRUB.	WASHES, FANS, SLOPES; COARSE RUBBLE AND TALUS SLOPES; ROCKY SITES. -5-720 M.

---

<b>Last Date Observed:</b>	1961-03-04	<b>Occurrence Type:</b>	Natural/Native occurrence
<b>Last Survey Date:</b>	1961-03-04	<b>Occurrence Rank:</b>	Unknown
<b>Owner/Manager:</b>	UNKNOWN	<b>Trend:</b>	Unknown
<b>Presence:</b>	Presumed Extant		

**Location:**  
2 MILES NORTH OF MOUNT SIGNAL, WEST OF CALEXICO OFF OF HIGHWAY 98.

**Detailed Location:**  
ON DIRT ROAD.

**Ecological:**

**Threats:**

**General:**  
ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1961 COLLECTION BY CORFMAN; MENTIONED AS "NOT ABUNDANT."

<b>PLSS:</b>	T17S, R13E, Sec. 03 (S)	<b>Accuracy:</b>	1 mile	<b>Area (acres):</b>	0
<b>UTM:</b>	Zone-11 N3619803 E627488	<b>Latitude/Longitude:</b>	32.70862 / -115.63976	<b>Elevation (feet):</b>	-20

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<b>County Summary:</b>	<b>Quad Summary:</b>
Imperial	Heber (3211565), Mount Signal (3211566)

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**Sources:**  
COR61S0002 CORFMAN, N. - CORFMAN #47 UCSB #12479 1961-03-04



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Map Index Number:	06328	EO Index:	45033
Key Quad:	Calexico (3211564)	Element Code:	PDNYC010P1
Occurrence Number:	1	Occurrence Last Updated:	2010-06-29

Scientific Name:	<i>Abronia villosa</i> var. <i>aurita</i>	Common Name:	chaparral sand-verbena
Listing Status:	Federal: None State: None	Rare Plant Rank:	1B.1
CNDDDB Element Ranks:	Global: G5T2? State: S2	Other Lists:	BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive

General Habitat:	Micro Habitat:
CHAPARRAL, COASTAL SCRUB, DESERT DUNES.	SANDY AREAS. -60-1570 M.

Last Date Observed:	1912-10-19	Occurrence Type:	Natural/Native occurrence
Last Survey Date:	1912-10-19	Occurrence Rank:	Unknown
Owner/Manager:	UNKNOWN	Trend:	Unknown
Presence:	Presumed Extant		

Location:  
SALTON BASIN, CALEXICO.

Detailed Location:  
EXACT LOCATION UNKNOWN. MAPPED BY CNDDDB AS BEST GUESS AT THE TOWN OF CALEXICO.

Ecological:

Threats:

General:  
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1912 PARISH COLLECTION. NEEDS FIELDWORK.

PLSS:	T17S, R14E, Sec. 13 (S)	Accuracy:	1 mile	Area (acres):	0
UTM:	Zone-11 N3615677 E641015	Latitude/Longitude:	32.66977 / -115.49610	Elevation (feet):	10

County Summary:	Quad Summary:
Imperial, Mexico	Calexico (3211564), Heber (3211565)

Sources:

JEP09B0001	JEPSON, W. - FLORA OF CALIFORNIA, VOL. 1 1909-XX-XX
PAR12S0004	PARISH, S. - PARISH #8294 JEPS #61232, GH #376169 1912-10-19



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



Map Index Number: 69048  
Key Quad: Heber (3211565)  
Occurrence Number: 1

EO Index: 69816  
Element Code: PMPOA3D020  
Occurrence Last Updated: 2016-11-28

Scientific Name: *Imperata brevifolia*

Common Name: California satintail

Listing Status: Federal: None  
State: None  
CNDDB Element Ranks: Global: G3  
State: S3

Rare Plant Rank: 2B.1  
Other Lists: SB\_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden  
SB\_SBBG-Santa Barbara Botanic Garden  
USFS\_S-Sensitive

#### General Habitat:

COASTAL SCRUB, CHAPARRAL, RIPARIAN SCRUB, MOJAVEAN DESERT SCRUB, MEADOWS AND SEEPS (ALKALI), RIPARIAN SCRUB.

#### Micro Habitat:

MESIC SITES, ALKALI SEEPS, RIPARIAN AREAS. 3-1495 M.

Last Date Observed: 1963-06-05

Occurrence Type: Natural/Native occurrence

Last Survey Date: 1963-06-05

Occurrence Rank: Unknown

Owner/Manager: UNKNOWN

Trend: Unknown

Presence: Presumed Extant

#### Location:

WISTARIA 212, CIRCA 6 MILES NW OF CALEXICO.

#### Detailed Location:

EXACT LOCATION UNKNOWN. CANNOT LOCATE WISTARIA CANAL #212. MAPPED BY CNDDB AS A BEST GUESS 6 AIR MILES WNW OF CALEXICO BASED ON THE FACT THAT THE WISTARIA CANAL SYSTEM IS LOCATED BETWEEN NEW RIVER AND GREESON WASH.

#### Ecological:

##### Threats:

##### General:

ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1963 COLLECTION BY WAEGER. NEEDS FIELDWORK.

PLSS: T17S, R13E, Sec. 12 (S)

Accuracy: 1 mile

Area (acres): 0

UTM: Zone-11 N3617608 E631561

Latitude/Longitude: 32.68835 / -115.59663

Elevation (feet): 10

#### County Summary:

#### Quad Summary:

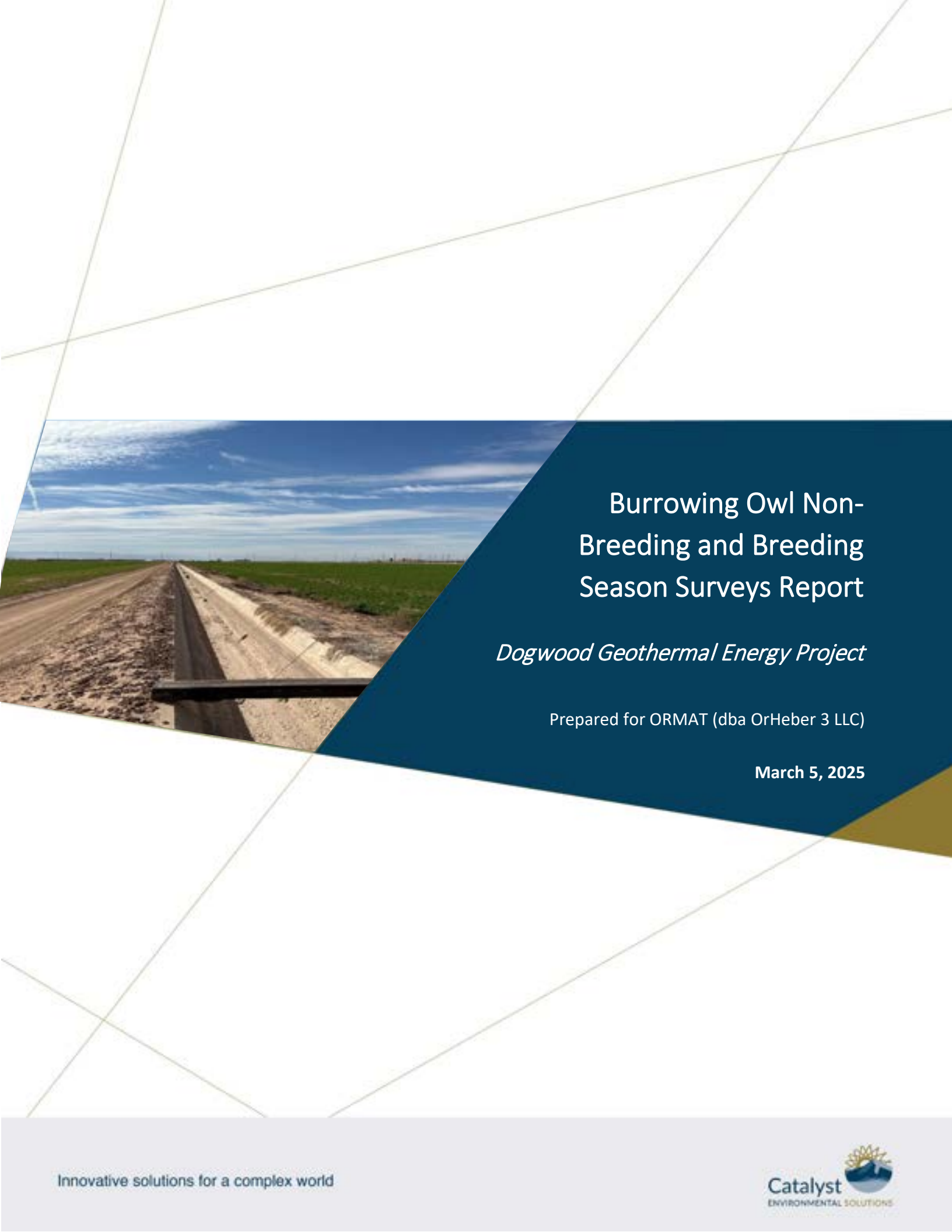
Imperial

Heber (3211565)

#### Sources:

WAE63S0001 WAEGER, C. - WAEGER SN CDA #32416 & #32417 1963-06-05





# Burrowing Owl Non-Breeding and Breeding Season Surveys Report

*Dogwood Geothermal Energy Project*

Prepared for ORMAT (dba OrHeber 3 LLC)

March 5, 2025

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## SECTION 1 Introduction

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The OrHeber 3 (OH), LLC, Heber Field Company, LLC (HFC), and the Second Imperial Geothermal Company (collectively, Applicants, subsidiaries of Ormat Technologies, Inc. [ORMAT]), are proposing to develop a new 25-megawatt (MW; net generation) geothermal energy facility (hereinafter, Dogwood Project), a 7-MW parasitic solar facility to support the Dogwood Project, a 15-MW solar facility to support the existing Heber 2 facility, one new injection well, and three new geothermal production wells in southern Imperial County, California. Collectively, the new geothermal and solar facilities and their components are referred to as the “proposed project” or “Project”.

The Project Site is part of the year-round range of the western burrowing owl (*Athene cunicularia hypugaea*) and suitable habitat for the species was identified during the Biological Reconnaissance Survey for the Project conducted in February 2023; therefore, focused surveys for burrowing owl were conducted in coordination with California Department of Fish and Wildlife (CDFW) and following the methods provided in the 2012 Staff Report on Burrowing Owl Mitigation (CDFG 2012).

Catalyst Environmental Solutions (Catalyst) biologists performed two burrowing owl surveys, a non-breeding season survey in January 2025 and a breeding season survey in February 2025 for the Project. These surveys were conducted per CDFW guidance because suitable habitat and burrowing owl presence was identified during reconnaissance-level biological surveys which included a survey protocol specific to burrowing owl conducted by Catalyst in the Spring of 2023. This report was prepared to present the findings of the non-breeding and breeding season burrowing owl surveys conducted in 2025 which followed the survey methods of CDFW’s Staff Report on Burrowing Owl Mitigation (CDFG 2012)<sup>1</sup>.

On October 10, 2024, the California Fish and Game Commission (Commission) approved naming the western burrowing owl as a candidate for potential listing as a protected species under the California Endangered Species Act (CESA). Prior to October 2024, burrowing owl was designated as a Species of Special Concern in California. The Commission provided public notice that burrowing owl is now a candidate species under CESA and as such, receives the same legal protection afforded to an endangered or threatened species. It is also legally protected under the federal Migratory Bird Treaty Act and California Fish and Game Codes 3503, 3503.5, and 3513 (Native Bird Protection). CDFW has initiated a status review for burrowing owl and a final listing decision is expected in late 2025 or early 2026. CDFW is expected to publish a “Report to the Fish and Game Commission California Endangered Species Act Status Review of Western Burrowing Owl (*Athene cunicularia hypugaea*)” in late 2025, at which time the Commission will make a final determination on whether to list western burrowing owl as threatened or endangered under CESA.

To determine the presence or potential absence of burrowing owls and their habitat within the Project site, two surveys were performed. In California, the breeding season for the burrowing owl is typically between February 1 and August 31 (CDFG 2012, Appendix A). The peak of the breeding season occurs

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<sup>1</sup> CDFW’s Staff Report on Burrowing Owl Mitigation recommends four surveys be completed during the breeding season. However, due to direct guidance received from CDFW staff for this Project, only one breeding season survey was required.

between April 15 and July 15. The remainder of the year (September 1 through January 31) constitutes the non-breeding season where burrowing owls may still be present within their year-round range.

In coordination with CDFW, Catalyst biologists conducted a non-breeding season burrowing owl survey on January 28-30, 2025 and a breeding season burrowing owl survey on February 18-20, 2025. The results of the surveys are reported herein.

## 1.1 Project Location and Description

The proposed Project is located on approximately 190 acres of private land owned by ORMAT in southern Imperial County (Figure 1). The proposed project is situated in Township 17 South, Range 14 East of the U.S. Geographical Survey (USGS) Heber 7.5-minute topographic quadrangle. A geothermal power plant with new pipelines and an injection well would be built within the existing Heber 2 Geothermal Energy Complex (HGEC) fence line. The proposed new geothermal facility is referred to as the “Dogwood Project” in this report. Two supplemental solar photovoltaic fields (herein referred to as “solar energy facilities”), substation, and gen-tie line with connection to Dogwood and the existing Heber 2 geothermal plant would be built in and outside of HGEC. The proposed facility footprints are shown in Figure 2. A 500-foot buffer around the footprint was included to form the survey area for burrowing owls per CDFG recommended survey methods (2012).

The 25-megawatt geothermal power plant will occur within the existing HGEC footprint located at 855 Dogwood Road, Heber, CA. The proposed Dogwood geothermal energy facilities would be located within the existing fence line that accommodates existing ORMAT facilities. The geothermal plant site is north of Jasper Road and west of Dogwood Road. The proposed geothermal development site is currently maintained as a materials storage area. Surrounding land uses in the Project vicinity are dominated by agricultural cultivation with solar facilities directly west, a construction/aggregates company to the south, and geothermal well pads and pipelines present throughout the local vicinity.

The accompanying solar photovoltaic fields (7 MW and 15 MW) are located south of East Willoughby Road and east of Dogwood Road on approximately 150 acres. The solar energy facilities will be constructed in an area that is currently used for agricultural crops (alfalfa). One new geothermal injection well will be used for the Project located in the HGEC. Three new production wells will be developed, two in the solar field and one directly east of the HGEC in an agricultural field.

Interstate 8 (I-8; Kumeyaay Highway), located approximately 4.5 miles directly north, provides primary highway access to the Project site. Dogwood Road stems off of I-8 and provides immediate site access. From the south, Willoughby Road runs west-east approximately 1,700 feet from the site and connects to Dogwood Road, providing immediate site access.





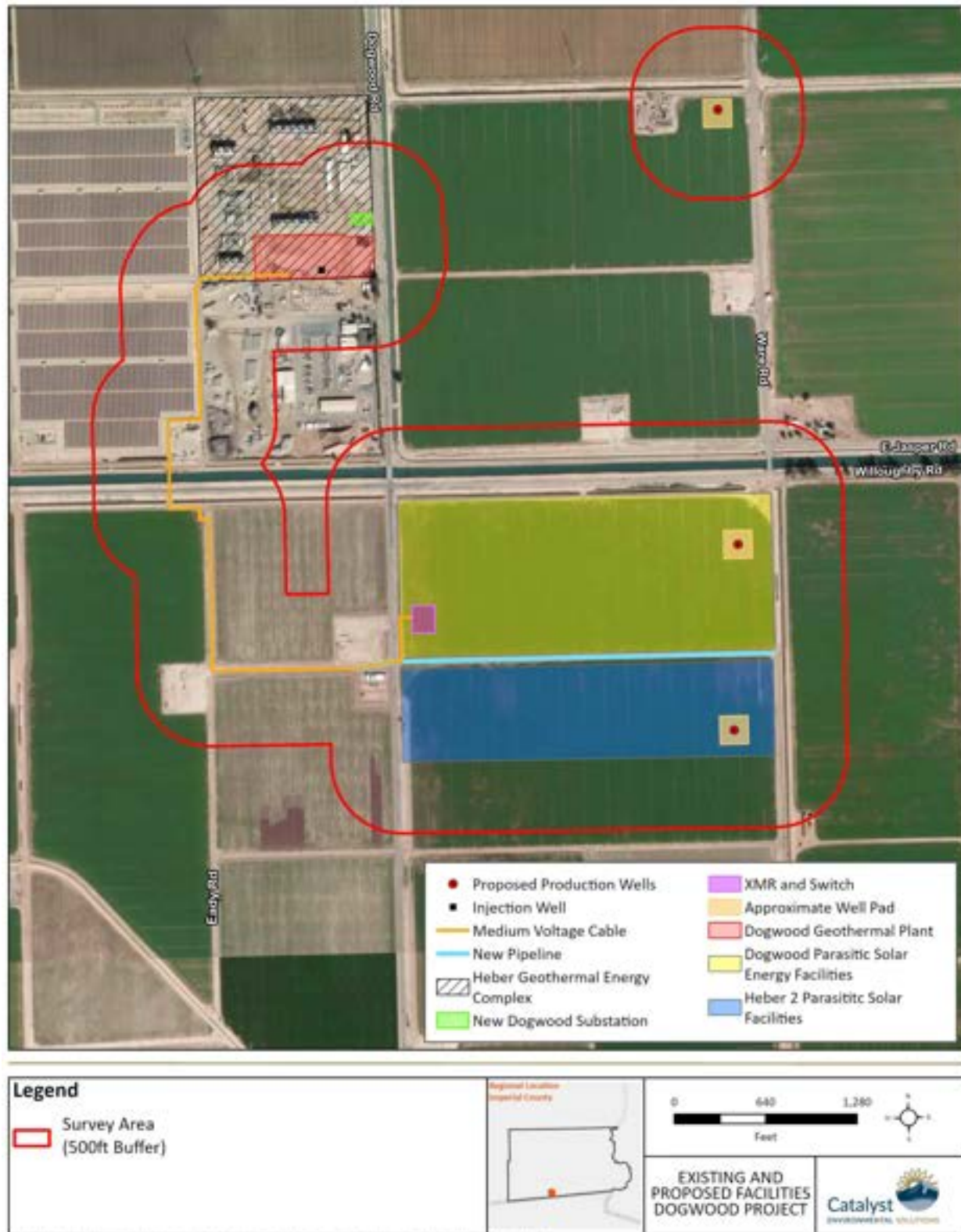


Figure 2. Existing Facilities and Proposed Dogwood Geothermal and Solar Facilities

## SECTION 2

# Field Methods

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### 2.1 Non-breeding Season Survey Methods (January 28-30, 2025)

A non-breeding season survey was completed on January 28-30, 2025. Surveys were completed by three Catalyst biologists: Hannah Donaghe, MS; Adrian Gonzalez, MS; and Olivia Hogan, BS. Prior to performing surveys, Ms. Donaghe submitted a resume to Lily Mu, a Senior Environmental Scientist with Region 6 of the California Department of Fish and Wildlife (CDFW) in order to receive authorization to complete the surveys. Ms. Mu replied in an email on January 8, 2025, that Ms. Donaghe was approved to complete focused burrowing owl surveys. Ms. Donaghe planned and led the focused burrowing owl surveys, with support from two Catalyst biologists.

Survey methods were consistent with CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). Catalyst also established pre-determined vantage points from which to observe the Project Site with a spotting scope, ensuring maximum visual Project Area coverage. Surveys were completed during peak detection periods. If weather conditions were favorable, surveys were extended slightly outside these peak detection periods. Peak detection period survey windows for the week of surveys were approximately 06:15 am to 10:00 am (morning window) and 3:00 pm to 5:40 pm (afternoon window). A 500-foot survey area buffer was applied to the project footprint.

At each vantage point, all three biologists started by scanning with binoculars in all directions looking for burrowing owls. One biologist set up a spotting scope and used binoculars to observe the survey area from the identified vantage point for approximately an hour. During this time, the two other biologists walked transects along all the berms located adjacent to access roads and canals within the survey area in the vicinity of the vantage point. Biologists stopped periodically to scan the surrounding areas and area in front of them to reduce the potential to flush out any burrowing owls during the survey. Any burrows with openings larger than approximately 4 inches in diameter were mapped and biologists noted any owl sign at the entrance of observed burrows. The approximate location of observed burrowing owls was mapped as well. Data collection was completed in ArcGIS Field Maps.

A Kestrel 3000 weather meter was used to collect temperature and average wind speed data.

### 2.2 Breeding Season Survey Methods (February 18-20, 2025)

A breeding season survey was completed on February 18-20, 2025. Surveys were completed by three Catalyst biologists: Hannah Donaghe, Adrian Gonzalez, and Olivia Hogan. Ms. Donaghe, previously approved by CDFW staff, planned and led the focused burrowing owl surveys, with support from two Catalyst biologists.

Survey methods were consistent with CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). Peak detection period survey windows for the week of surveys, were approximately 05:55 am to 10:00 am (morning window) and 3:30 pm to 5:55 pm (afternoon window). A 500-foot survey area buffer was applied to the project footprint.

Methods were the same as during the non-breeding season survey. At each vantage point, all three biologists started by scanning with binoculars in all directions looking for burrowing owls. One biologist set up a spotting scope and used binoculars to observe the survey area from the identified vantage point for approximately an hour. During this time, the two other biologists walked transects along all the berms located adjacent to access roads and canals within the survey area in the vicinity of the vantage point. Biologists stopped periodically to scan the surrounding areas and area in front of them to reduce the potential to flush out any burrowing owls during the survey. Any burrows with sign observed near the entrance were mapped. Additionally, any new burrows observed since the previous survey, larger than approximately 4 inches in diameter were mapped. The approximate location of observed burrowing owls was mapped. Data collection was completed in ArcGIS Field Maps.

A Kestrel 3000 weather meter was used to collect temperature and average wind speed data.

## SECTION 3

# Results

### 3.1 Non-Breeding Season Survey Conditions

All recorded weather conditions are provided in Table 1.

Table 1: January 2025 Burrowing Owl Survey Times and Weather Conditions during Peak Detection Periods

Date	Survey Times	Temperature (°F)		Average Cloud Cover	Average Wind Speed (mph)		Area Surveyed
		Start	End		Start	End	
1/28/25	1500-1730	69.4	57.6	Partially cloudy, 10-30%	2.8	1.2	Vantage points D4, D3
1/29/25	0625-1015	50.6	65.4	Sparse cloud cover, 2-5%	0.0	2.1	Vantage points D5, D6, D7, and walked along berms in survey area west of Dogwood Rd. down to southern extent of survey area
1/29/25	1455-1718	70.7	65.1	Clear, 0%	1.3	2.2	Vantage point D2
1/30/25	0625-0950	47.2	62.6	Clear, 0%	0.0	0.7	Vantage point D1
1/30/25	1502-1713	71.9	62.2	Clear, 0%	0.9	4.2	Vantage point D8, walked area north of Dogwood geothermal plant west of Dogwood Rd.

### 3.2 Non-Breeding Season Survey Results

A total of five **(5) burrowing owls** were observed within the survey area during the non-breeding season survey for the Project. Burrowing owls were generally observed at the entrances of burrows located along the berms that line the many canals/ditches, at perch sites or standing near canals/ditches or berms, and access roads which are located throughout the survey area (Figure 3). Three of the burrowing owls were observed along berms that run through the proposed solar field site. One individual was observed near the existing well pad east of Ware Road near the northern extent of the survey area, and one individual was observed along a berm adjacent to alfalfa fields near the existing well pad by vantage point D6.

A total of 17 burrowing owls, including several pairs at burrow entrances, were observed outside the survey area but within the general vicinity. Most of these burrowing owls were observed south of the survey area with one individual observed just north of the survey area north of vantage point D9. Sixteen burrowing owls were observed south of the survey area along the berms adjacent to various canals lining alfalfa fields; which included two pairs and one individual observed at their respective burrow entrances located along Beech Lateral 2 south of the survey area; three pairs and three

individuals observed at burrow entrances along berms in the vicinity of E. Cole Boulevard; and five individuals observed along berms lining alfalfa fields south of the survey area with one of these individuals observed just south of the survey area at the edge of the alfalfa field at a perch location adjacent to an access road.



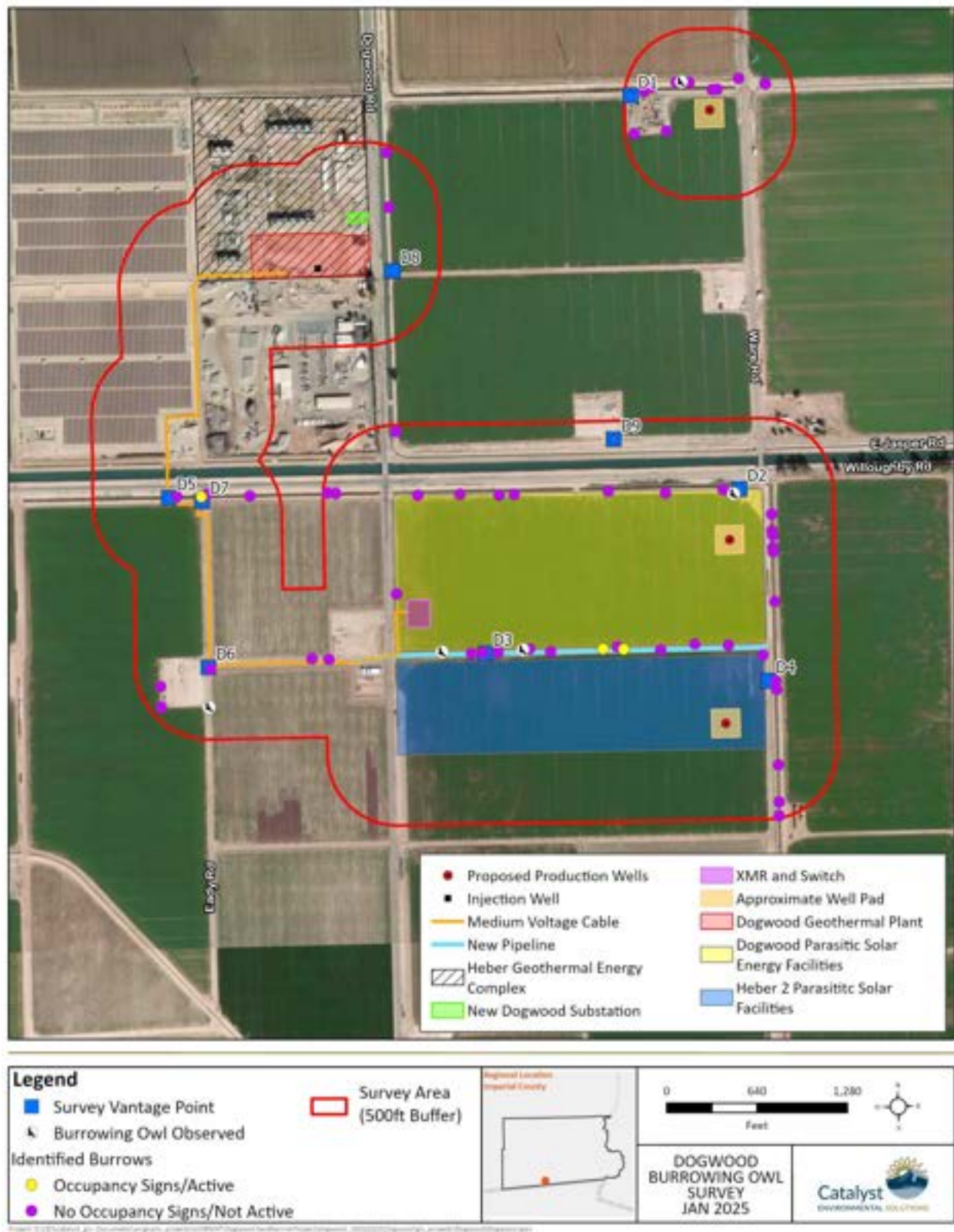


Figure 3. Results of January burrowing owl non-breeding season survey conducted January 28-30, 2025.

### 3.3 Breeding Season Survey Conditions

All recorded weather conditions are provided in Table 2.

Table 2: February 2025 Burrowing Owl Survey Times and Weather Conditions during Peak Detection Periods

Date	Survey Times	Temperature (°F)		Average Cloud Cover	Average Wind Speed (mph)		Area Surveyed
		Start	End		Start	End	
2/18/25	1515-1745	78.1	68.1	Partially cloudy, 15-20%	2.6	1.6	Vantage points D4, D3
2/19/25	0556-1020	52.3	75.3	Sparse cloud cover, 2-5%	0.7	2.3	Vantage points D5, D6, D7, and walked along berms in survey area west of Dogwood Rd. toward southern extent of survey area
2/19/25	1525-1740	80.3	74.6	Clear, 0%	0.9	1.5	Vantage point D2
2/20/25	0600-0959	53.6	73.6	Partially cloudy, 20%	0.7	1.6	Vantage point D1, walked along canal north of Heber 1 geothermal plant and east of railroad tracks
2/20/25	1516-1740	79.4	72.2	Partially cloudy, 15%	1.5	1.1	Vantage point D8, walked along canal north of Dogwood geothermal plant west of Dogwood Rd.

### 3.4 Breeding Season Survey Results

A total of **eight (8) burrowing owls** were observed during breeding season surveys. Burrowing owls were generally observed at the entrances of burrows located along the berms that line the many canals/ditches, at perch sites or standing near canals/ditches or berms, and access roads which are located throughout the survey area (Figure 4). Five of the burrowing owls were observed along berms that run through the proposed solar field site, and three individuals were observed near the western extent of the survey area near an existing well pad and just south of Beech Drain along the access road between the canal and alfalfa field.

A total of 16 burrowing owls, including several pairs at burrow entrances, were observed outside the survey area but within the general vicinity, most of which were observed south of the survey area. One individual was observed just south of the survey area near vantage point D6. Six burrowing owls were observed south of the survey area along the berms adjacent to canals south of vantage point D4; two pairs and two individuals were observed at their respective burrow entrances located along Beech Lateral 2 south of the survey area. Seven burrowing owls were observed at burrows along berms in the

vicinity of E. Cole Boulevard; three pairs and one individual owl were observed. Two individuals were observed along berms at the edges of alfalfa fields south of the survey area.

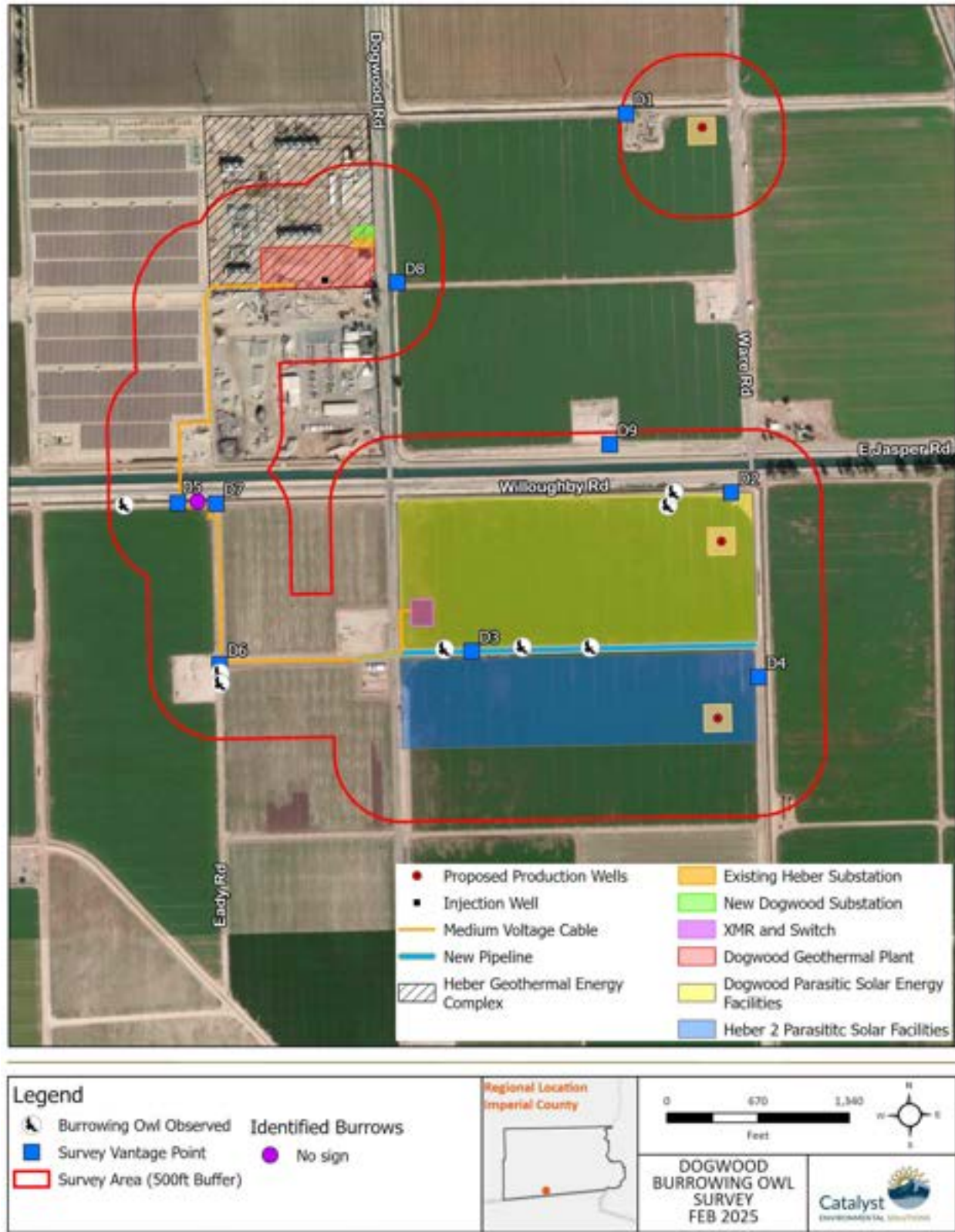


Figure 4. Results of February burrowing owl breeding season survey conducted February 18-20, 2025. Owls were detected everywhere except for the northern survey area near the proposed well.

## SECTION 4 Discussion

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Catalyst biologists observed five (5) burrowing owls during the non-breeding season and eight (8) burrowing owls during the breeding season survey, within the survey area. The breeding season survey was conducted in mid-February, which is relatively early in the breeding season. Peak breeding season is between April 15 and July 15 as described previously. While the survey was conducted early in the season, the total number of burrowing owls increased between the non-breeding season and breeding season site visits. No breeding pairs of owls were observed within the survey area for the Project; however, several pairs of burrowing owls were observed nearby but outside of the survey area. Within the Project survey area, most of the burrowing owls observed were resting in or next to their burrows. A few owls were seen flying into and out of the fields from the canals and ditches, likely foraging or were potentially flushed away from burrows due to the presence of biologists surveying along the access roads and berms. None of the burrowing owls observed during the survey were visibly marked or banded; therefore, no records of these individuals are available, and their sex is unknown.

Three burrowing owl predators were present on the Project Site during the non-breeding and breeding season surveys, including northern harrier (*Circus hudsonius*), coyote (*Canis latrans*), and feral domestic cats (*Felis catus*). Catalyst biologists documented northern harriers hunting the alfalfa fields during several survey site visits and saw one coyote during one morning survey (2/19/25) roaming through alfalfa fields west and east of Dogwood Road and south of Willoughby Road. Signs of coyote (footprints and scat) were also ubiquitous. Other predators are highly likely to be present in the area as well, including red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus brachyrhynchos*), and raccoons (*Procyon lotor*). These species are predators of burrowing owls and were observed during the February 2023 Biological Reconnaissance Survey. Other predators that could be present on the Project Site but have not been observed include other species of hawks and falcons, snakes, and American badger (*Taxidea taxus*).

## SECTION 5 References

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California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. 34 pp.



## Appendix A Photo Log



**Photo 1.** Access road north of alfalfa fields, where proposed solar site would be located, and south of Beech Drain. Two burrowing owls observed in this area during the breeding season survey, one near a burrow within a small berm running through the alfalfa field and one near the edge of the access road and the berm just south of Beech Drain (shown in photos 2 and 3 below). Photo taken from vantage point D2, looking west along access road (2/19/25).





**Photo 2** (left). Occupied burrow along small berm running through alfalfa field in the vicinity of vantage point D2 (2/19/25).

**Photo 3** (right). Burrowing owl observed at burrow located near top of berm between the access road and Beech Drain, located north of the proposed solar field site. Photo taken from vantage point D2 using spotting scope, looking west (2/19/25).



**Photo 4.** Berm located between concrete v-ditch and access road located between alfalfa fields within proposed solar site, looking east. Three burrowing owls were observed along this berm area during the breeding season survey (see Photo 5) (2/18/25).



**Photo 5.** One of the burrowing owls observed along the berm adjacent to concrete-lined v-ditch and access road running through alfalfa fields (2/18/25). Several large burrows were observed along this berm.



**Photo 6.** Berm adjacent to concrete-lined v-ditch and alfalfa field with several burrowing owl observations at burrow entrances during the breeding season survey (see Photos 7 & 8). Photo taken from vantage point D6, looking south along berm (2/19/25).



**Photos 7 & 8.** Burrowing owls observed near entrances to burrows located along berm adjacent to concrete-lined v-ditch and alfalfa field. Photos taken from spotting scope set up at vantage point D6. Observations made during breeding season survey (2/19/25).





**Photo 9.** One burrowing owl observed during breeding season survey at a burrow entrance located along the berm between the access road and canal. Photo taken from vantage point D5, looking west (2/19/25).



**Photo 10.** One burrowing owl observed during the non-breeding season survey, near the burrow along berm located along berm north of the canal and access road adjacent to the alfalfa field. Photo taken from vantage point D1, near the existing well pad, looking northeast across canal toward alfalfa fields (1/30/25).



**Photos 11 & 12:** Example of a perch site being used by a burrowing owl, observed perched on a hay bale located between alfalfa field and access road, immediately south of the survey area for the proposed solar facilities site. Observation was made during the non-breeding season survey (1/28/25).

## Appendix B Surveyor Qualifications

### Hannah Donaghe, MS

**Master of Science, Earth Systems, Stanford University, 2012**

**Bachelor of Science, Earth Systems, Stanford University, 2011**

Ms. Donaghe is a qualified biologist approved by CDFW to conduct and lead burrowing owl surveys. Ms. Donaghe is a biologist with 12 years of experience working in environmental consulting to support clients with environmental monitoring/planning and compliance. She has an interdisciplinary background in environmental and biological sciences, with a focus in marine ecosystems.

Ms. Donaghe holds a Federal Section 10(a)(1)(A) Recovery Permit for tidewater goby (*Eucyclogobius newberryi*) and California red-legged frog (*Rana draytonii*) and a state Scientific Collecting Permit. She is skilled in the following: sensitive species surveys, biological and environmental monitoring, aquatic studies in support of hydroelectric projects, nesting bird surveys, writing technical reports, California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation, and permitting. She has assisted clients with compliance under the Endangered Species Act, assessed impacts of development and other projects on listed species and their habitat, and developed Environmental Assessments and Biological Assessments.

Ms. Donaghe supports clients in meeting environmental regulatory requirements, identifies and solves issues proactively to maintain work schedules/budgets, and coordinates effectively with clients and regulatory agencies. She has extensive experience working with contractors to protect biological resources by ensuring permit and mitigation measure compliance for construction projects throughout Santa Barbara County. She is also skilled at performing sensitive species surveys/monitoring for the following: tidewater goby, California red-legged frog, western snowy plover (*Charadrius nivosus nivosus*), California least tern (*Sterna antillarum browni*), western burrowing owl (*Athene cunicularia hypugaea*), California tiger salamander (*Ambystoma californiense*), salmonids, and nesting birds. Ms. Donaghe has project management experience and has led various field efforts and environmental monitoring teams. She has experience with data analysis and developing technical reports in support of permit requirements.

### Adrian Gonzalez, MS

**Bachelor of Science, Fish and Wildlife Sciences, Oregon State University, 2013**

**Master of Science, Environmental Science, California State University, Monterey Bay, 2022**Ms.

Mr. Gonzalez serves as a Staff Scientist for Catalyst Environmental Solutions, bringing a decade of experience working in biological resources, permitting, and geospatial analysis. His technical background is in fisheries, geospatial analysis, environmental science, and applied ecology. His primary area of practice is geospatial analysis and environmental compliance for biological assessments, critical issues analyses, and energy and infrastructure projects. Mr. Gonzalez has assisted on Federal Biological



Assessments and Environmental Impact Statements, Washington State Environmental Policy Act Environmental Impact Reports, floating offshore wind development, the siting of geothermal energy facilities, lead critical issues analyst, and California Environmental Quality Act Initial Studies and Environmental Impact Reports.

Mr. Gonzalez works closely with staff biologists and manages field data collection and curation using his technical background in geospatial data collection. He participates in field survey monitoring efforts for a variety of species using his four years of fisheries and habitat inventory experience gained while working for the Oregon Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. He has experience with data analysis, coding for biological data, and geospatial data visualizations.

## Olivia Hogan

### **Bachelor of Science, Sustainable Environmental Design, University of California, Davis, 2022**

Ms. Hogan is an environmental planner with two years of experience in biological fieldwork and permitting requirements. She has participated in tidewater goby rescue and relocation efforts in Santa Barbara County, working under a permitted biologist. Additionally, she has conducted vegetation surveys/mapping at dry reservoirs, biological monitoring data analysis and recommendations for hydrologic issues related to cyanobacteria, and air quality monitoring related to point-source emission analysis, throughout Southern California. Ms. Hogan also has experience preparing critical issues analyses, which include analyzing potential impacts on biological resources, including special status species.

Ms. Hogan brings experience as an environmental planner under both state (CEQA) and federal (NEPA) jurisdictions and permitting requirements. This work includes biological assessment work, renewable energy development regulatory analysis, and compiling species lists based on IPaC and CNDDb database queries for a broad range of projects in California and the Pacific Northwest.



# Preliminary Jurisdictional Report

## *Dogwood Geothermal Energy Project*

Prepared for ORMAT (dba OrHeber 3 LLC)

March 15, 2024

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## SECTION 1 Introduction

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The OrHeber 3 (OH), LLC, Heber Field Company, LLC (HFC), and the Second Imperial Geothermal Company (collectively, Applicants, subsidiaries of Ormat Technologies, Inc. [ORMAT]), proposes to develop a 25 megawatt (MW; net generation) geothermal energy facility, one new injection well, and three new geothermal production wells with a new 1000-ft section of brine pipeline, and two parasitic solar energy facilities (Dogwood Solar, and Heber 2 Solar) in southern Imperial County, the Dogwood Geothermal Energy Project (proposed project).

### 1.1 Purpose of Report

Catalyst Environmental Solutions (Catalyst) conducted an investigation of jurisdictional features for the proposed project footprint. This Preliminary Jurisdictional Delineation (PJD) Report provides the methods and results of the delineation and serves as guidance in establishing baseline conditions for resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Colorado River Basin Regional Water Quality Control Board (RWQCB) for the Project. Specifically, the purpose of the Preliminary Jurisdictional Delineation was to determine the location and extent of waters and/or wetlands subject to potential jurisdictional authority within the proposed project survey area. Being situated in an agricultural area, the Project site and surrounding areas are traversed by a network of drains, canals, and other irrigation infrastructure administered by the Imperial Irrigation District (IID), some of which constitute potentially jurisdictional features. As part of the investigation, the entire Project site along with areas in the immediate vicinity were surveyed and represents the survey area for this PJD report.

### 1.2 Project Location

The proposed project is situated in Township 17 South, Range 14 East of the U.S. Geographical Survey (USGS) Heber 7.5-minute topographic quadrangle. The Project is located on approximately 190 acres of private lands owned by ORMAT in southern Imperial County (**Figure 1**). A geothermal power plant with new pipelines and an injection well would be built within the existing Heber 2 Geothermal Energy Complex (HGEC) fence line (referred to as “Dogwood” in this report). Two supplemental solar photovoltaic fields (herein referred to as “solar energy facilities”), substation, and gen-tie line with connection to Dogwood and the existing Heber 2 geothermal plant would be built in and outside of HGEC. The proposed facility footprints are shown in **Figure 2**. The survey area for this project included a 500-foot buffer around the proposed project footprint (**Figure 2**). The total survey area, including the buffer, is 487 acres. The disturbance footprint is the proposed facility footprints and a 25-foot buffer has been applied to linear components to account for working alongside the existing pipeline infrastructure.

The 25-megawatt geothermal power plant will occur within the existing HGEC footprint located at 855 Dogwood Road, Heber, CA. The proposed Dogwood geothermal energy facilities would be located within the existing fence line that accommodates the existing ORMAT facilities. The geothermal plant site is north of Jasper Road and west of South Dogwood Road. The proposed geothermal development site is currently maintained as a materials storage area.



The Dogwood (39.30 ac) and Heber 2 parasitic solar (65.95 ac) photovoltaic facilities would be located immediately southeast of the HGEC south of East Willoughby Road and east of S Dogwood Road on (APN 059-020-001). Two separate solar fields will be developed – one to provide auxiliary power to the proposed Dogwood Project and one for the existing Heber 2 plant. The solar energy facilities will be constructed in an area that is currently used for agricultural crops (alfalfa). One new geothermal injection well and three new production wells will be used for the Project.

### 1.2.1 Driving Directions

Interstate 8 (I-8; Kumeyaay Highway), located approximately 4.5 miles directly north, provides primary highway access to the Project site. Dogwood Road stems off of I-8 and provides immediate site access. From the south, Willoughby Road runs west-east approximately 1,700 feet from the site and connects to Dogwood Road, providing immediate site access.



Figure 1. Regional map showing location for the Dogwood Geothermal Energy Project.



FIGURE 2. EXISTING FACILITIES AND PROPOSED DOGWOOD AND SOLAR ENERGY FACILITY

## Legend

- |                                           |                                 |                              |                           |
|-------------------------------------------|---------------------------------|------------------------------|---------------------------|
| Dogwood Geothermal Plant                  | Existing Heber Substation       | Survey Area                  | Existing Pipeline         |
| Dogwood Parasitic Solar Energy Facilities | New Dogwood Substation          | Area of Disturbance          | New Pipeline              |
| Heber 2 Parasitic Solar Facilities        | XMR and Switch                  | Survey Area Drains & Canals  | Proposed Production Wells |
| Approximate Well Pad                      | Heber Geothermal Energy Complex | T-Line Connection to Dogwood | Injection Well            |

## SECTION 2 Existing Conditions

---

### 2.1 Topography and Surrounding Land Uses

The Project is located within the Imperial Valley south of the Salton Sea in the Colorado Desert. The topography within the survey area is generally flat with an elevation of -7 feet below mean sea level (msl). The surrounding lands support solar facilities, agricultural cultivation, a construction/aggregates company, and geothermal well pads and pipelines present throughout the local vicinity. Unpaved and paved roads, irrigation ditches, and other farming infrastructure are present throughout. Lands within the survey area are zoned General Agricultural with a Renewable Energy Geothermal Overlay (A-2-G-SPA).

### 2.2 Vegetation

Plant community descriptions generally follow the MCV II classification system which is described in the second edition of *A Manual of California Vegetation* (Sawyer et al. 2009). The survey area supports three land cover types: agricultural land, developed/disturbed land, and arrow weed thickets.

#### 2.2.1 Agricultural Land

This land cover type is not described within *A Manual of California Vegetation* (Sawyer et al. 2009). At the time of survey, this land cover type was observed to contain primarily active alfalfa (*Medicago sativa*) cultivation and harvest and associated irrigation canals were present adjacent to and bisecting fields. Approximately 105 acres of agricultural land would be converted to install the solar energy facilities.

#### 2.2.2 Developed/Disturbed Land

This land cover type is not described within *A Manual of California Vegetation* (Sawyer et al. 2009), but includes developed areas like roads and existing solar/geothermal facilities. These areas are predominantly devoid of vegetation, but can support ruderal herbaceous scrub, including non-native grasses and other weed species, and planted or landscape trees/shrubs. The Dogwood geothermal development site falls within this land cover type, and is nearly devoid of vegetation. The perimeter fence supported narrow strips of vegetation, including desert mallow (*Sphaeralcea ambigua*), Mexican fan palm (*Washingtonia robusta*), and nettle-leaved goosefoot (*Chenopodium murale*). Several willow acacia (*Acacia salicina*) and a solitary mesquite (*Prosopis* sp.) were identified within the fenced area as well.

#### 2.2.3 Arrow Weed Thicket

Arrow weed (*Pluchea sericea*) is the dominant vegetation on the steep banks of Central Main Canal, Beech Drain, and the Dogwood Canal. Other species such as cattails (*Typha* spp.) and saltcedar (*Tamarisk ramosissima*) are also present but in much smaller numbers. The *Pluchea sericea* Shrubland Alliance (arrow weed thickets) occur around springs, seeps, irrigation ditches, canyon bottoms, stream



borders, and seasonally flooded washes (Sawyer et al. 2009). Vegetation is dense in some areas along the canals and very sparse in others. Arrow weed thickets are recognized by CDFW as a sensitive vegetation type. The proposed transmission line connection would span Beech Drain, Central Main Canal, and Dogwood Lateral 1. A narrow band of arrow weed thicket is present and would be spanned by the connection and would not be removed or disturbed by project activities. Representative photos of vegetated banks are provided in Appendix B.

## 2.3 Climate

The region experiences a desert climate characterized by hot, dry summers and warm winters. Average annual high temperatures range from 69 degrees Fahrenheit (°F) in December to 106°F in July, and average annual low temperatures range from 40°F in December to 76°F in August. The average annual precipitation measures 2.9 inches (U.S. Climate Data 2023).

## 2.4 Hydrology and Geomorphology

The Project area is within the Colorado River Basin and is within the Imperial Hydrologic Unit (HUC8 18100204) (USGS 2023). Irrigation water is supplied to the surrounding agricultural fields by an engineered system of canals operated and maintained by the IID. Water that flows through the Project area originates at Imperial Dam located north of Yuma, Arizona. Water diverted at Imperial Dam for use in the Imperial Valley passes through three desilting basins and is then delivered to the Imperial Valley via the All-American Canal. The 80-mile-long All-American Canal distributes water to three main canals, East Highline, Central Main, and Westside Main. These three main canals then distribute water to smaller lateral canals throughout the Imperial Valley. Farmers receive water in private ditches from the lateral canals. The lateral drain system operates by gravity flow drainage (IID 2023). When a field is irrigated, water is allowed to flow from the IID delivery canal to a smaller earthen or concrete-lined v-ditch (e.g., a “head ditch”), which then distributes the water evenly across the field. At the opposite and lower elevation end of the field, excess water is collected in another ditch (e.g., a “tail ditch”) and directed back into an IID drain (e.g., Beech Drain in the survey area). Some tail ditches are unlined and plowed over/filled in and then re-dug as needed for irrigation. All waters in the project area ultimately drain to the Salton Sea via the New River (e.g., Beech Drain) or the Alamo River (e.g., Date Drain No. 3).

The Central Main Canal and several smaller IID canals and drains pass through the survey area. The alfalfa fields in the project area are graded for flood irrigation and most were undergoing irrigation during the survey and were either very muddy or had standing water. The v-ditches present in the solar energy field are all concrete lined.

The National Wetlands Inventory (NWI) of surface waters and wetlands (USFWS 2023) has mapped and classified several of the waterways in or adjacent to the project area (**Figure 3**). The Central Main Canal is classified as Riverine (R2UBHx: Lower Perennial, Unconsolidated Bottom Permanently Flooded Excavated). The Central Main Canal is a manmade channel excavated in previously upland areas and has a natural sediment bottom. West of Dogwood Road, the Dogwood Lateral 1 canal parallels the Central Main Canal for a short distance.

Beech Drain is classified as Riverine (R4SBCx: Intermittent Streambed Seasonally Flooded Excavated). It features a natural sediment bottom and varying densities of riparian vegetation below the top of bank.

Beech Drain has steep banks estimated to be approximately 15 feet from top-of-bank to the bottom of the channel. Beech Drain flows parallel to the northern and eastern extent of the proposed solar energy field footprint but is separated from the solar field (presently planted with alfalfa) by unpaved access roads. Date Drain No. 3 is not mapped in the NWI, but also features a natural bottom.

The unnamed concrete lined v-ditches that run east-west through the proposed solar energy facilities are not mapped or classified by the NWI. These likely function as head ditches and tail ditches and contain water only when ordered for irrigation.

The ground disturbance footprint for Dogwood and the solar energy facilities are adjacent to but do not overlap the NWI-mapped canals and drain. The proposed transmission line connection would span Beech Drain, Central Main Canal, and Dogwood Lateral 1. No other waterbodies would be intersected by project ground disturbance. All canals, drains, and ditches are manmade and excavated in upland areas. These canals are primarily used for agricultural irrigation.

## 2.5 Soils

Soil data were obtained from the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) using the Web Soil Survey. These data were used to determine potential soil types, including where hydric soils have historically occurred. **Figure 4** shows the mapped extent of soils and **Table 1** provides a summary of the characteristics of soils which occur within the survey area. The full NRCS report is provided as **Appendix C**.

Table 1. Soil Units within the Survey Area

Map Unit Symbol	Map Unit Name	Description	Hydric Soil Rating
110	Holtville silty clay, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 200 feet; parent material consists of alluvium derived from mixed sources; low runoff; silty clay (0 to 17 inches), clay (17 to 24 inches), silt loam (24 to 35 inches), loamy very fine sand (35 to 60 inches)	No
114	Imperial silty clay, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 200 feet; parent material consists of clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed sources; silty clay (0 to 12 inches), silty clay loam (12 to 60 inches)	No
115	Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 200 feet; parent material consists of Clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed sources; low runoff; silty clay loam (0 to 60 inches)	No
145	Water	NA	NA

Source: NRCS 2023





**Legend**

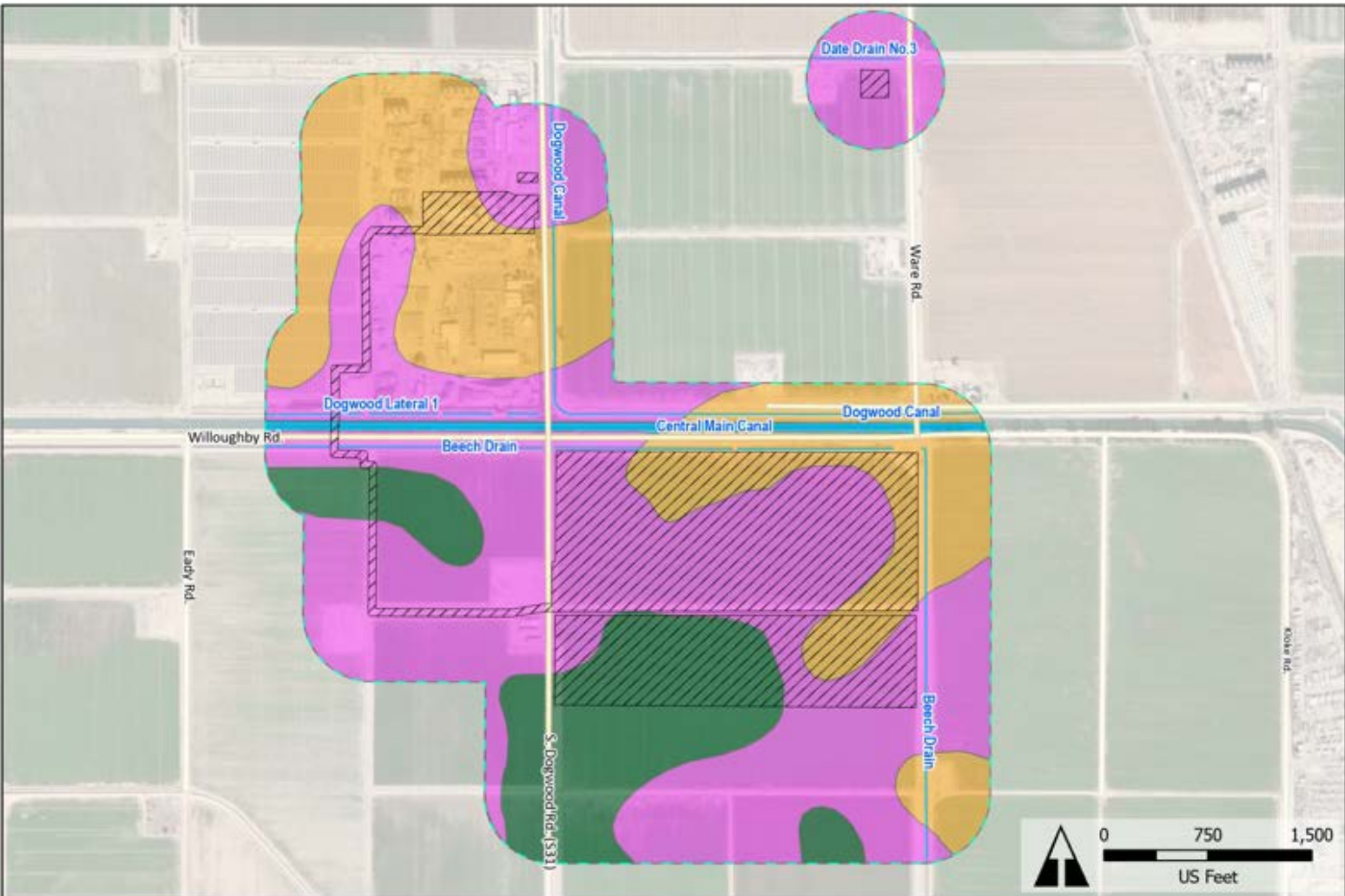
**Wetland Classification**

- R2UBHx
- R4SBCx

**Survey Area**

- Area of Disturbance Buffer

**FIGURE 3. NATIONAL WETLAND INVENTORY MAPPED FEATURES**



## Legend

- Survey Area
- Area of Disturbance
- Web Soil Survey (Map Unity Name)
- Imperial silty clay, wet
- Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes
- Water
- Holtville silty clay, wet

FIGURE 4. NRCS WEB SOIL SURVEY MAP OF PROJECT VICINITY

## SECTION 3 Regulatory Background

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### 3.1 Federal

#### 3.1.1 Section 404 of the Clean Water Act

Section 404 of the Clean Water Act (CWA) establishes a regulatory program which regulates the discharge of dredged or fill material into “waters of the United States” (WoUS). Under this program, no discharge of dredged or fill material into WoUS can be permitted if a practicable alternative is less damaging to the aquatic environment or if the waters of the nation would be significantly degraded. The USACE is authorized to issue permits regulating the discharge of dredged or fill material into the WoUS, including wetlands. Permits can be issued for individual projects or general categories of projects. After reviewing permits issued by the USACE, the USEPA can veto a USACE decision to issue a permit. Also, the USEPA develops regulations with which the USACE must comply for USACE projects. The USACE does not issue itself a permit, but is required to ensure that the project complies with guidelines that the USEPA develops in accordance with Section 404(b)(1) of the CWA.

“Waters of the United States” is not defined by the CWA. Rather, the CWA provides authority for the USEPA and the USACE to define “waters of the United States” in regulations. Most recently, on December 30, 2022, the agencies announced the final "Revised Definition of 'Waters of the United States'" rule.

#### 3.1.2 Section 401 of the Clean Water Act

Under Section 401 of the CWA, any person applying for a federal permit or license, which may discharge pollutants into WoUS, must obtain a State Water Quality Certification. This certification is required to ensure the activity complies with all applicable water quality standards, limitations, and restrictions. No license or permit may be issued by a federal agency until after Section 401 certification has been granted, and no license or permit may be issued if certification has been denied. Prior to the USACE issuing a Section 404 permit, applicants must apply for and receive a Section 401 Water Quality Certification from the RWQCB. Applications sent to the RWQCB must include a complete CEQA document.

### 3.2 State

#### 3.2.1 Waters of the State

The California State Water Resources Control Board (SWRCB) and its RWQCBs regulate discharge of waste in any region that could affect the waters of the State (WoS) under the California Porter-Cologne Water Quality Act or waters of the US under Section 401 of the federal CWA. Under the Porter-Cologne Act, a Report of Waste Discharge must be submitted prior to discharging waste, or proposing to discharge waste, within any region that could affect the quality of the WoS (California Water Code § 13260). Waste Discharge Requirements (WDRs) or a waiver of WDRs will then be issued by the RWQCB. Waters of the State are defined as any surface water or groundwater, including saline waters that are



within the boundaries of the state (California Water Code § 13050). This differs from the CWA definition of WoUS by its inclusion of groundwater and waters outside the ordinary high-water mark in its jurisdiction.

Although all WoUS also fall under the category of WoS, some WoS may be identified beyond the delineation of WoUS, and the RWQCB may exert authority to regulate waste discharge into these waters even if the waters do not fall under USACE federal jurisdiction. All projects that have a federal component and may affect WoUS, including those that require a Section 404 Permit from the USACE, must also comply with Section 401 of the CWA. If discharge into WoUS is being proposed, a 401 Water Quality Certification from the RWQCB is required (23 California Code of Regulation §§ 3830–3869) in addition to obtaining WDRs for impacts to waters of the State.

### 3.2.2 Section 1600-1616 of the California Fish and Game Code

The CDFW asserts jurisdiction over the bed and bank of a stream and associated wildlife and habitats as established in California Fish and Game Code §§ 1600–1616. Fish and Game Code section 1602 requires any person, state or local governmental agency, or public utility to notify CDFW prior to beginning any project that may “substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other materials containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.”

Generally, notification to CDFW is required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. In CDFW’s definition, “any river, stream, or lake” includes those that are dry for periods of time (ephemeral or episodic) as well as those that flow year-round (perennial). This includes rivers or streams that flow at least periodically (e.g., may be dry for periods of time) or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses that have a surface or subsurface flow which supports or has supported riparian vegetation. This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. Permits may also apply to work undertaken within the flood plain of a body of water.

If CDFW determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement (SAA) will be required (§ 1603). Prior to issuance of an SAA, CEQA documentation must be submitted to CDFW.

## SECTION 4 Waters/Wetlands Delineation

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### 4.1 Delineation Methodology

This section describes the methods employed by Catalyst during the survey conducted to determine the extent of potentially jurisdictional wetlands and/or waters that occur within the survey area. The survey area included the proposed project footprint for ground-disturbing activities and a 500-foot buffer.

Prior to conducting the field assessment, Catalyst reviewed current and historic aerial photographs, topographic maps, soil maps, and NWI maps to evaluate the potential active channels and wetland features that occur within the survey area.

Field work was conducted for most of the site on February 22, 2023 based on the project design footprint at the time. Additional data were collected during a subsequent visit to the site on October 12, 2023. During the field assessment, vegetation and hydrology were mapped using a Juniper Systems Geode External GNSS Receiver global positioning system (GPS) and data were collected in Arc Field Maps. Field data were processed using Global Information Technology (GIS) and total jurisdictional area for each survey area was calculated based on mapped data.

#### 4.1.1 Federal Wetlands/Waters

Jurisdictional non-wetland “waters of the US.” are delineated based on the limits of the ordinary high water mark (OHWM) as described in the USACE Field Guide to the Identification of the Ordinary High Water Mark in the Arid West (USACE 2008a). The OHWM is determined by changes in physical/biological features such as bank erosion, deposited vegetation/debris, and vegetative characteristics. The top of bank indicator and change in vegetation were the only OHWM indicators present within the survey area. Ordinary High Water Mark Data Forms are included in Appendix A.

Jurisdictional wetlands are delineated using a routine determination in accordance with the methods outlined in the USACE Wetland Delineation Manual (USACE 1987) and the Arid West Supplement (USACE 2008b) based on three wetland parameters: wetland hydrology, hydric soils, and dominant hydrophytic vegetation.

#### 4.1.2 CDFW Jurisdictional Waters

CDFW jurisdiction is delineated to the top of the banks of the channel and/or to the edge of the associated riparian canopy/riparian habitat, whichever is wider. Within the survey area, the CDFW jurisdictional boundary of the IID canals is not wider than the OHWM; therefore, the total acreage of CDFW jurisdictional waters is the same as the total acreage for federal jurisdictional waters.

### 4.2 Wetland Soils

Soils data from the NRCS was referenced to determine if hydric soils have been previously documented and/or historically occurred in or near the survey area (**Appendix C**). Based on this review hydric soils were not expected to occur within the survey area. Hydric soil indicators for the Arid West are described in detail in USACE (2008a).

### 4.3 Wetland Vegetation

Vegetation percent cover is typically estimated for plant species in each of four strata: tree, sapling/shrub, herb, and woody vine. Plant species in each stratum are then ranked based on canopy dominance (USACE 2008a). Species that contribute to a cumulative coverage of at least 50 percent and any species that comprises at least 20 percent of the total coverage for each stratum are then recorded on wetland field data sheets. This is referred to as the “50/20 rule”. Wetland indicator status is assigned to each dominant species using the Wetland Plants of Specialized Habitats in the Arid West (USACE

2007), and the Arid West Region of the National Wetland Plant List (USACE 2012; USACE 2020). If greater than 50 percent of the dominant plants from all strata are listed as obligate, facultative, or facultative-wetland species, the criteria for dominant hydrophytic vegetation is met. Sporadic vegetation was present in the survey area along the edges of disturbed areas and below the top of bank of canals. Species encountered and their indicator status are shown in **Table 2**.

Table 2. Plant Species Observed within the Survey Area and Wetland Indicator Status

Scientific Name	Common Name	Wetland Indicator Status <sup>†</sup>
<i>Pluchea sericea</i>	Arrow weed	FACW
<i>Tamarix ramosissima</i>	Saltcedar	FAC
<i>Acacia salicina</i>	Willow acacia	NA
<i>Washingtonia robusta</i>	Washington fan palm	FACW
<i>Sphaeralcea ambigua</i>	Desert globemallow	NA
<i>Chenopodium murale</i>	Nettle-leaved goosefoot	FACU
<i>Prosopis spp.</i>	Mesquite spp.	FAC/FACU
<i>Medicago sativa</i>	Alfalfa	UPL
<i>Sonchus oleraceus</i>	Common sow-thistle	UPL
<i>Typha spp.</i>	Cattail	OBL

<sup>†</sup> National Wetland Plant List (USACE 2020), FAC = Facultative, FACW = Facultative Wetland, OBL = Obligate Wetland, UPL = Upland, NA = no indicator status assigned.

## 4.4 Wetland Hydrology

Wetland hydrology is assessed by documenting the presence of primary and secondary hydrology indicators. These indicators are helpful in determining whether an area has a high probability of being inundated or saturated long enough during the growing season to develop anaerobic conditions in the surface soil environment (USACE 1987). The three primary (Group A) indicators are surface water, high water table, and saturation.

The Arid West Supplement includes two additional secondary indicator groups that can be utilized during dry conditions or in areas where surface water/saturated soils are not present; these are Group B (evidence of recent inundation) and Group C (evidence of recent soil saturation) (Table 11 in USACE 2008a). The presence of one primary indicator from any of the groups is considered evidence of wetland hydrology. If only secondary indicators are present, two or more must be observed to conclude presence of wetland hydrology. Indicators are intended to be one-time observations of site conditions representing evidence of wetland hydrology when hydrophytic vegetation and hydric soils are present (USACE 2008a). Hydrology in the survey area is highly regulated and controlled by IID and no natural floodplains are present.



## 4.5 Results

The following jurisdictional features were observed within the survey area: federal non-wetland waters and state waters. All features examined are man-made, constructed entirely within uplands, and used solely for agricultural irrigation. The earthen and concrete-lined head and tail ditches are typically dry and convey water only during periodic and infrequent irrigation events. They do not support riparian vegetation/habitat. These ditches do not meet the definition of a Relatively Permanent Water (RPW) and would not be considered federally or state jurisdictional. The larger, IID-administered canals (supply) and drains (drainage), however, generally do convey water all year and ultimately flow to the Salton Sea, which is considered a Traditionally Navigable Water, and would likely be considered federally and state jurisdictional. Dogwood Canal, Dogwood Lateral 1, Beech Drain, and Date Drain No. 3 would likely be classified as R4SBCx (Riverine, intermittent streambed, seasonally flooded, excavated) while Central Main Canal is classified R2UBHx (Riverine, lower perennial, unconsolidated bottom, permanently flooded, excavated). Representative photos are provided in **Appendix B**.

All waterbodies in the survey area were delineated; however only three would be intersected by the project based on final design. **Table 3** summarizes the jurisdictional features present within the disturbance area and their acreages and **Figure 5** depicts the locations of all paired points collected in the survey area. **Appendix A** contains the OHWM Data Forms completed for the waterbodies in the survey area. According to the NRCS Hydric Soils List (**Appendix C**), there are no mapped hydric soils within the survey area. **Table 2** above provides a list of plant species observed within the survey area and includes the wetland indicator status for each, if applicable. Land cover is shown in **Figure 6**. In the survey area, 59.3 percent of the land cover is agricultural (primarily alfalfa), 37.6 percent is developed/disturbed (including access roads), 0.2 percent is arrow weed thicket (along canals and drains below OHWM), and 2.8 percent is water (canals and drains).

### 4.5.1 Federal Wetlands

Based on Catalyst's professional opinion following an assessment of hydrology, vegetation, and soils, there are no federal wetlands within the survey area. IID irrigation canals and drains do, however, meet the requirements for jurisdictional waters (**Table 3**).

### 4.5.2 Federal Non-Wetland Waters

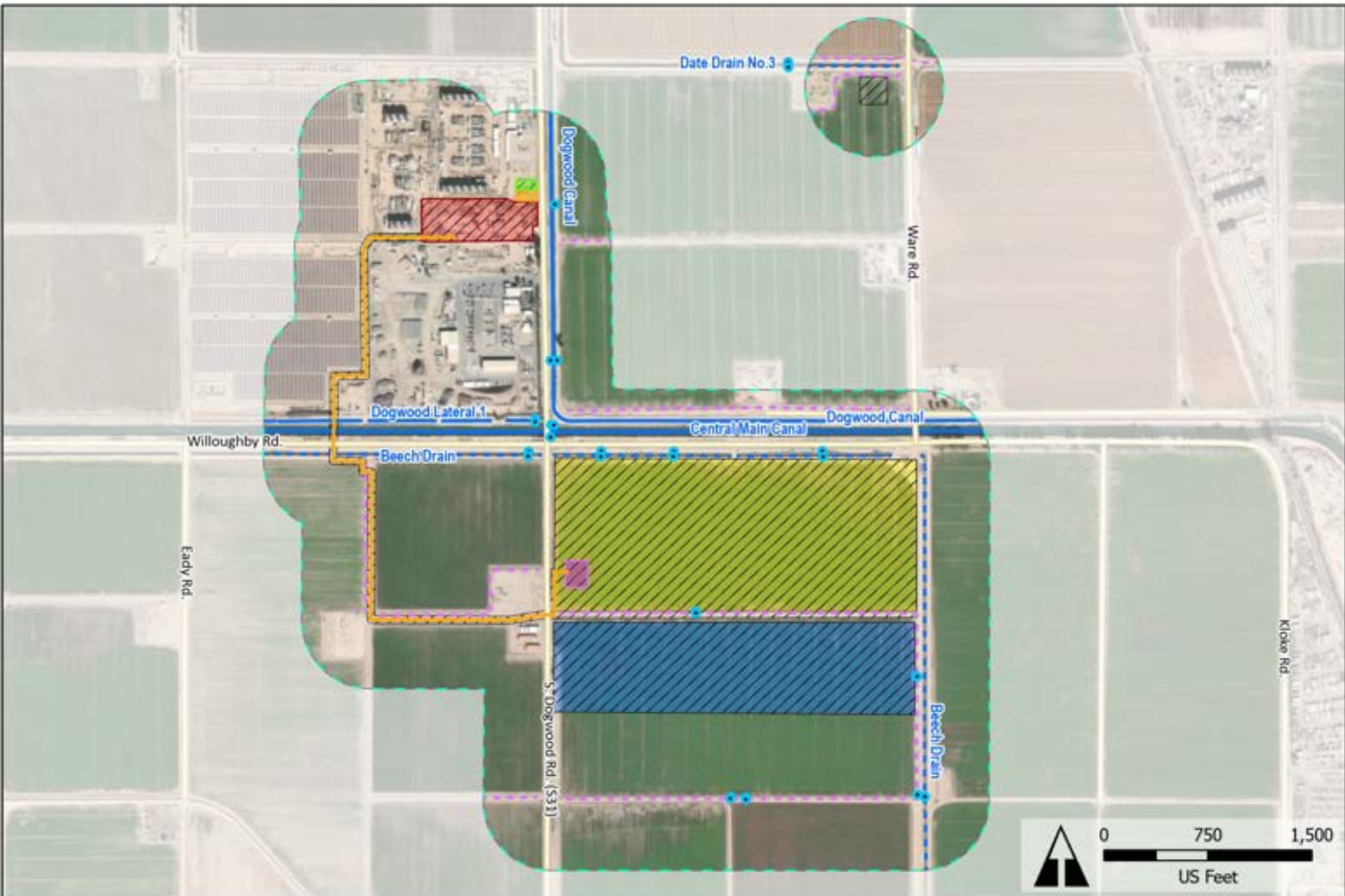
Approximately 0.11 acres of the disturbance area meet the definition of "waters of the United States" as outlined in 33 CFR Part 328. The potentially jurisdictional waters delineated within the survey area that are not intersected by the project disturbance footprint are not included in the calculation. This assessment is based on Catalyst's professional opinion following an assessment of hydrology and the limits of the OHWM. The potentially jurisdictional features in the survey area are man-made RPWs; therefore, the OHW zone was delineated using direct measures of OHWM indicators rather than the extent of the active floodplain as irrigation features with controlled flows do not support true active floodplains.

#### 4.5.3 CDFW Waters

Based on Catalyst's professional opinion following an assessment of hydrology, presence of bed and bank, and extent of riparian vegetation, approximately 0.11 acres of the disturbance area also meet the definition of CDFW jurisdictional waters as outlined in Sections 1600-1616 of the CDFW Code.

Table 3. Acreage of Jurisdictional Waters within the Disturbance Area

Feature ID	OHHM (feet)	Distance (feet)	USACE/RWQCB/CDFW Jurisdictional Waters (acres)
Dogwood Lateral 1	14	57.2	0.005
Beech Drain	40	54	0.01
Central Main Canal	89.5	56.2	0.09
<b>TOTAL</b>		<b>167.3</b>	<b>0.11</b>



# Legend

- Dogwood Geothermal Plant Site
- Existing Heber Substation
- New Dogwood Substation
- XMR and Switch
- Heber 2 Parasitic Solar Facility
- Dogwood Parasitic Solar Facility
- Survey Area
- Area of Disturbance Buffer
- T-Line Connection to Dogwood
- Ordinary High Water Mark (OHWM) Field Points

## Jurisdictional Resources

- Canal
- Drain

## Non-jurisdictional Resources

- Ditch

FIGURE 5. ORDINARY HIGH WATER MARK DATA COLLECTION POINTS





## Legend

- Agricultural
- Disturbed/Developed
- Arrow Weed Thicket
- Water
- Survey Area
- Area of Disturbance

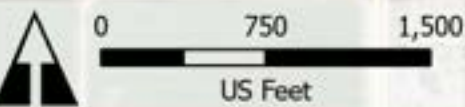


FIGURE 6.  
LAND COVER IN THE SURVEY AREA

## SECTION 5 Summary and Recommendations

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The survey area supports CDFW jurisdictional waters and USACE non-wetland waters. The IID canals and drains shown in Figure 5 were actively flowing during the delineation and supported riparian vegetation sporadically. The potential impacts to waterbodies spanned by project components are quantified in **Table 3**. These channels exhibited evidence of hydrology and a discernable OHWM and were mapped as jurisdictional non-wetland waters of the US (0.11 acres). All riparian vegetation present was at or below the top of bank and therefore, the same delineation applies to CDFW jurisdictional waters (0.11 acres) within the survey area.

All potentially jurisdictional features present within 500 feet of the project footprint were delineated to allow for possible design changes as the project progresses. Catalyst recommends that ORMAT's project designers avoid ground disturbing work in areas that would cause temporary or permanent impacts to potentially jurisdictional features. If the project design changes, project temporary and permanent impact areas must be recalculated. Based on the current design, the impacts to potentially jurisdictional waters would occur only where the transmission line would span Beech Drain, Willoughby Road, Central Main Canal, and Dogwood Lateral 1 on the west side of the project area.

When establishing staging areas adjacent to potentially jurisdictional features, appropriate best management practices (BMPs) should be utilized to prevent erosion of work areas or stockpiles that could result in soil entering waterways. Additionally, BMPs to prevent and address minor leaks, drips, or spills of oils, lubricants, and fuels from construction equipment should be in place. No riparian vegetation should be removed. Arrow weed thickets are a sensitive vegetation type. Where canals must be crossed by project features, such as new transmission lines, Catalyst recommends spanning canals to avoid in-water work. Currently, other transmission line infrastructure spans Central Main Canal at the intersection of Dogwood Road and Willoughby Road in the survey area and existing pipelines cross under Beech Drain, Central Main Canal, and Dogwood Lateral 1 west of Dogwood Road. Based on the current project design, ORMAT intends to utilize the same or similar footprint as existing crossings to minimize disturbance.

If the final project design would have temporary or permanent impacts on WoUS or WoS, ORMAT would need to prepare permit applications for submission to the USACE, RWQCB, and CDFW quantifying those impacts as described previously in Section 3 (Regulatory Background).

The conclusions presented above represent Catalyst's professional opinion based on our knowledge and experience with USACE and CDFW, including their regulatory guidance documents and manuals. These acreages represent a calculated estimation of the jurisdictional area within the survey area; however, USACE and CDFW have final authority in determining the status and presence of jurisdictional wetlands and waters and the extent of their boundaries.



## SECTION 6 References

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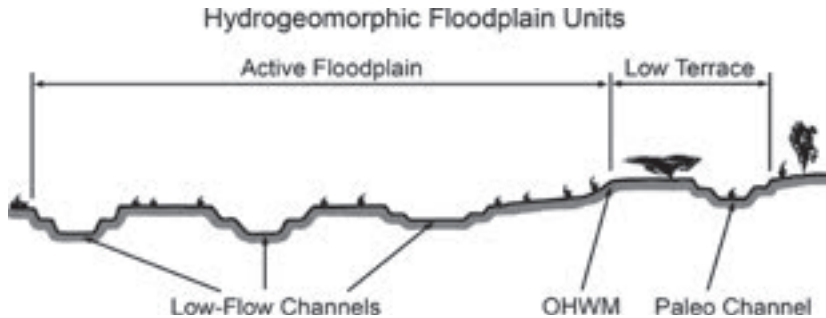
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## SECTION 7

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# Appendix A Ordinary High Water Mark Data Forms

## Arid West Ephemeral and Intermittent Streams OHW M Datasheet

<b>Project:</b> Heber 1 Parasitic Solar <b>Project Number:</b> <b>Stream:</b> Beech Drain West <b>Investigator(s):</b> Emily Merickel, Hannah Donaghe	<b>Date:</b> 10/12/2023 <b>Town:</b> Heber <b>Photo begin file#:</b>	<b>Time:</b> <b>State:</b> CA <b>Photo end file#:</b>				
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b> ~130ft SE of Willoughby Rd junction with Dogwood Rd  <table style="width: 100%;"> <tr> <td style="width: 50%;"><b>Projection:</b> Lambert Conformal Conic</td> <td style="width: 50%;"><b>Datum:</b> NAD 1983 (2011)</td> </tr> <tr> <td colspan="2"><b>Coordinates:</b></td> </tr> </table>		<b>Projection:</b> Lambert Conformal Conic	<b>Datum:</b> NAD 1983 (2011)	<b>Coordinates:</b>	
<b>Projection:</b> Lambert Conformal Conic	<b>Datum:</b> NAD 1983 (2011)					
<b>Coordinates:</b>						
<b>Potential anthropogenic influences on the channel system:</b> IID man-made earthen drain constructed in uplands. West of Dogwood Rd intersection with Willoughby Rd. South of Willoughby Rd. Parallels Willoughby Rd and unpaved agricultural road.						
<b>Brief site description:</b> Earthen drain operated by IID. OHW M = ~40'. SW of Dogwood Rd and intersection with Willoughby Rd. Vegetation below top of bank. West of Dogwood Rd and South of Willoughby Rd before Main Central Canal.						
<b>Checklist of resources (if available):</b> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Aerial photography            Dates:  <input type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input checked="" type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </td> </tr> </table>			<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event					
						
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M:</b> <ol style="list-style-type: none"> <li>1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>a) Record the floodplain unit and GPS position.</li> <li>b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>c) Identify any indicators present at the location.</li> </ol> </li> <li>4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>5. Identify the OHW M and record the indicators. Record the OHW M position via:           <table style="width: 100%;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Mapping on aerial photograph</td> <td style="width: 50%;"><input checked="" type="checkbox"/> GPS</td> </tr> <tr> <td><input type="checkbox"/> Digitized on computer</td> <td><input type="checkbox"/> Other:</td> </tr> </table> </li> </ol>			<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS	<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS					
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:					

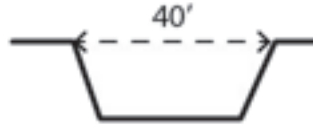
Project ID: Heber 1

Cross section ID: BD-02

Date: 10/12/2023

Time:

**Cross section drawing:**



**OHW**

GPS point: See Report

**Indicators:**

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover

- ☒ Break in bank slope
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_

**Comments:**

Agricultural irrigation canal constructed in uplands. Vegetation below top of bank.

**Floodplain unit:**

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_ % Tree: \_\_\_\_\_ % Shrub: \_\_\_\_\_ % Herb: \_\_\_\_\_ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_

**Comments:**

No floodplain is present

## Arid West Ephemeral and Intermittent Streams OHWM Datasheet

<b>Project:</b> Heber 1 Parasitic Solar <b>Project Number:</b> <b>Stream:</b> Date Drain 3 E-W section <b>Investigator(s):</b> Emily Merickel, Hannah Donaghe		<b>Date:</b> 10/12/2023 <b>Town:</b> Heber <b>Photo begin file#:</b>		<b>Time:</b> <b>State:</b> CA <b>Photo end file#:</b>					
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?		<b>Location Details:</b> ~ .6 miles south of Heber, CA. West .1 mi of Ware Rd between two ag fields  <table style="width: 100%;"> <tr> <td style="width: 50%;"><b>Projection:</b> Lambert Conformal Conic</td> <td style="width: 50%;"><b>Datum:</b> NAD 1983 (2011)</td> </tr> <tr> <td colspan="2"><b>Coordinates:</b></td> </tr> </table>				<b>Projection:</b> Lambert Conformal Conic	<b>Datum:</b> NAD 1983 (2011)	<b>Coordinates:</b>	
<b>Projection:</b> Lambert Conformal Conic	<b>Datum:</b> NAD 1983 (2011)								
<b>Coordinates:</b>									
<b>Potential anthropogenic influences on the channel system:</b> Man-made earthen irrigation supply drain constructed in uplands. <div style="float: right; text-align: right;">           pt2 32.7160511, -115.5284310;            pt1 32.7159520, -115.5284270         </div>									
<b>Brief site description:</b> Earthen drain operated by IID. OHWM = 43'									
<b>Checklist of resources (if available):</b> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Aerial photography            Dates:  <input type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input checked="" type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </td> </tr> </table>						<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event								
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:</b> <ol style="list-style-type: none"> <li>1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>a) Record the floodplain unit and GPS position.</li> <li>b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>c) Identify any indicators present at the location.</li> </ol> </li> <li>4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>5. Identify the OHWM and record the indicators. Record the OHWM position via:           <table style="width: 100%; margin-top: 10px;"> <tr> <td><input type="checkbox"/> Mapping on aerial photograph</td> <td><input checked="" type="checkbox"/> GPS</td> </tr> <tr> <td><input type="checkbox"/> Digitized on computer</td> <td><input type="checkbox"/> Other:</td> </tr> </table> </li> </ol>						<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS	<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS								
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:								

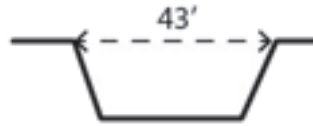
Project ID: Heber 1

Cross section ID: DD-01

Date: 10/12/2023

Time:

**Cross section drawing:**



**OHWM**

GPS point: See Report

**Indicators:**

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover

- ☒ Break in bank slope
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_

**Comments:**

Agricultural irrigation canal constructed in uplands. Vegetated, mostly tamarisk below top of bank. Spare presence of arrow weed thickets. Water present.

**Floodplain unit:**    ☐ Low-Flow Channel    ☐ Active Floodplain    ☐ Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_ %    Tree: \_\_\_\_\_ %    Shrub: \_\_\_\_\_ %    Herb: \_\_\_\_\_ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_

**Comments:**

No floodplain is present



## Arid West Ephemeral and Intermittent Streams OHWM Datasheet

<b>Project:</b> Heber 1 Parasitic Solar <b>Project Number:</b> <b>Stream:</b> Dogwood Lateral 1 <b>Investigator(s):</b> Emily Merickel, Hannah Donaghe		<b>Date:</b> 10/12/2023 <b>Town:</b> Heber <b>Photo begin file#:</b>		<b>Time:</b> <b>State:</b> CA <b>Photo end file#:</b>	
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?		<b>Location Details:</b> ~230-ft NW of intersection of Dogwood Rd. and Willoughby Rd  <b>Projection:</b> Lambert Conformal Conic <b>Datum:</b> NAD 1983 (2011) <b>Coordinates:</b>			
<b>Potential anthropogenic influences on the channel system:</b> Man-made earthen irrigation supply canal.					
<b>Brief site description:</b> Earthen canal operated by IID. OHWM = ~25'. Directly south of an aggregates company. North of the Central Main Canal near the Dogwood Rd Bridge before the intersection with Willoughby Rd.					
<b>Checklist of resources (if available):</b> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography            Dates:  <input type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input checked="" type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </div> </div>					
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:</b> <ol style="list-style-type: none"> <li>Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>Record the floodplain unit and GPS position.</li> <li>Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>Identify any indicators present at the location.</li> </ol> </li> <li>Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>Identify the OHWM and record the indicators. Record the OHWM position via:           <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input type="checkbox"/> Mapping on aerial photograph  <input type="checkbox"/> Digitized on computer           </div> <div> <input checked="" type="checkbox"/> GPS  <input type="checkbox"/> Other:           </div> </div> </li> </ol>					

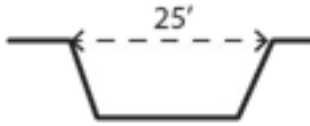
Project ID: Heber 1

Cross section ID: DWL1

Date: 10/12/2023

Time:

**Cross section drawing:**



**OHW**

GPS point: See Report

**Indicators:**

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover

- ☒ Break in bank slope
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_

**Comments:**

Agricultural irrigation canal constructed in uplands. Tamarisk and arrowweed on banks and bass within the canal.

**Floodplain unit:**    ☐ Low-Flow Channel    ☐ Active Floodplain    ☐ Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_ %    Tree: \_\_\_\_\_ %    Shrub: \_\_\_\_\_ %    Herb: \_\_\_\_\_ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

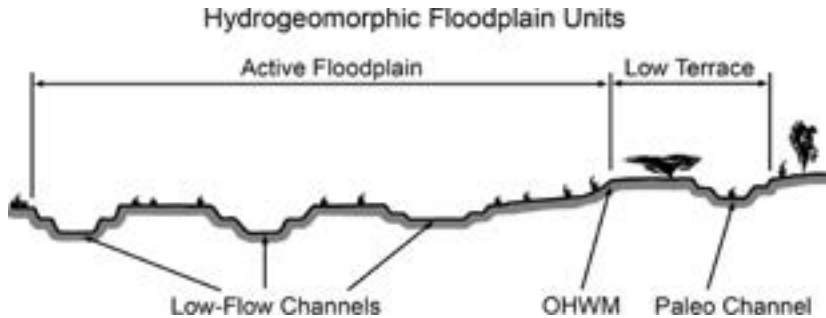
**Indicators:**

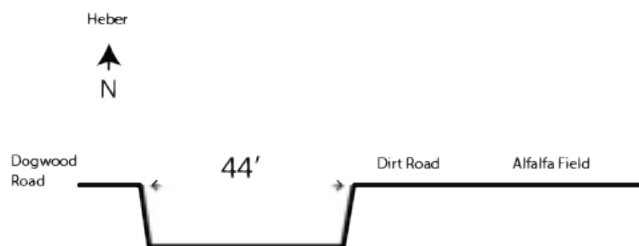
- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_

**Comments:**

No floodplain is present

## Arid West Ephemeral and Intermittent Streams OHW M Datasheet

<b>Project:</b> Ormat Dogwood Geothermal Power Project <b>Project Number:</b> <b>Stream:</b> Dogwood Channel (IID) <b>Investigator(s):</b> H. Donaghe, E. Merickel	<b>Date:</b> 2/21/2023 <b>Town:</b> Heber <b>Photo begin file#:</b>	<b>Time:</b> 17:00 <b>State:</b> CA <b>Photo end file#:</b>				
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b> ~4 miles south of El Centro on S. Dogwood Rd  <b>Projection:</b> Lambert Conformal <b>Datum:</b> NAD 1983 <b>Coordinates:</b> Conic    (2011)					
<b>Potential anthropogenic influences on the channel system:</b> Man-made earthen drainage canal, adjacent agricultural activities, paved and unpaved roads. Located across S. Dogwood Road from the Ormat Nevada Heber Geothermal Facility and Pyramid Construction and Aggregates, Inc.						
<b>Brief site description:</b> Earthen canal, large agricultural ditch operated by Imperial Irrigation District. OHW M = 44'						
<b>Checklist of resources (if available):</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Aerial photography            Dates:  <input type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input checked="" type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </td> </tr> </table>			<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event					
						
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M:</b> <ol style="list-style-type: none"> <li>1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>a) Record the floodplain unit and GPS position.</li> <li>b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>c) Identify any indicators present at the location.</li> </ol> </li> <li>4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>5. Identify the OHW M and record the indicators. Record the OHW M position via:           <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 50%;"><input checked="" type="checkbox"/> Mapping on aerial photograph</td> <td style="width: 50%;"><input checked="" type="checkbox"/> GPS</td> </tr> <tr> <td><input checked="" type="checkbox"/> Digitized on computer</td> <td><input type="checkbox"/> Other:</td> </tr> </table> </li> </ol>			<input checked="" type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS	<input checked="" type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:
<input checked="" type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS					
<input checked="" type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:					

**Cross section drawing:****OHWM**

GPS point: See Report

**Indicators:**

- |                                                             |                                                         |
|-------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species       | <input type="checkbox"/> Other: _____                   |
| <input type="checkbox"/> Change in vegetation cover         | <input type="checkbox"/> Other: _____                   |

**Comments:**

Agricultural drainage canal, constructed in uplands. Sparse bank vegetation, primarily arrow weed, all below top of bank. Paved or dirt roads maintained to either side of canal.

**Floodplain unit:**

- ☐ Low-Flow Channel      ☐ Active Floodplain      ☐ Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_ %    Tree: \_\_\_\_\_ %    Shrub: \_\_\_\_\_ %    Herb: \_\_\_\_\_ %

Community successional stage:

- |                                                         |                                                                  |
|---------------------------------------------------------|------------------------------------------------------------------|
| <input type="checkbox"/> NA                             | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings)      |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

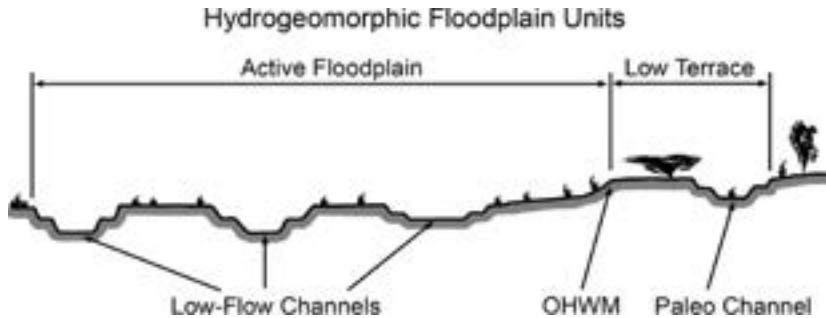
**Indicators:**

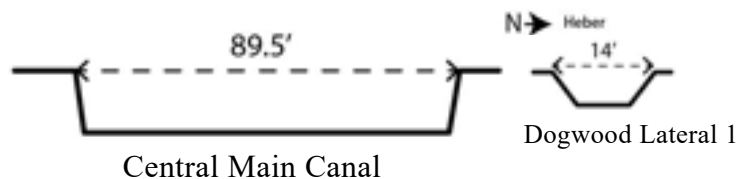
- |                                                   |                                           |
|---------------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Mudcracks                | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples                  | <input type="checkbox"/> Surface relief   |
| <input type="checkbox"/> Drift and/or debris      | <input type="checkbox"/> Other: _____     |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____     |
| <input type="checkbox"/> Benches                  | <input type="checkbox"/> Other: _____     |

**Comments:**

**No Floodplain**

## Arid West Ephemeral and Intermittent Streams OHW M Datasheet

<b>Project:</b> Ormat Dogwood Geothermal Power Project <b>Project Number:</b> <b>Stream:</b> Central Main Canal and Dogwood Lateral1 (IID) <b>Investigator(s):</b> H. Donaghe, E. Merickel	<b>Date:</b> 2/22/2023 <b>Town:</b> Heber <b>Photo begin file#:</b>	<b>Time:</b> 8:00 <b>State:</b> CA <b>Photo end file#:</b>
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b> ~4 miles south of El Centro on S. Dogwood Rd  <b>Projection:</b> Lambert Conformal <b>Datum:</b> NAD 1983 (2011) <b>Coordinates:</b> Conic	
<b>Potential anthropogenic influences on the channel system:</b> Man-made earthen irrigation supply canal, adjacent agricultural activities, paved and unpaved roads. Bridge crosses the canal via S. Dogwood Road. Parallels Willoughby Rd in survey area. Dogwood Lateral 1 canal parallel to CMC west of Dogwood Road and mapped at the same time		
<b>Brief site description:</b>  Earthen canal, large agricultural ditch operated by Imperial Irrigation District. OHW = 89.5' Earthen lateral canal immediately parallel, also operated by IID. OHW = 14'.		
<b>Checklist of resources (if available):</b> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography            Dates:  <input type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input checked="" type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </div> </div>		
		
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW:</b> <ol style="list-style-type: none"> <li>1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>a) Record the floodplain unit and GPS position.</li> <li>b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>c) Identify any indicators present at the location.</li> </ol> </li> <li>4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>5. Identify the OHW and record the indicators. Record the OHW position via:           <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph  <input checked="" type="checkbox"/> Digitized on computer           </div> <div> <input checked="" type="checkbox"/> GPS  <input type="checkbox"/> Other:           </div> </div> </li> </ol>		

**Cross section drawing:****OHWM**

GPS point: See Report

**Indicators:**

- |                                                             |                                                         |
|-------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species       | <input type="checkbox"/> Other: _____                   |
| <input type="checkbox"/> Change in vegetation cover         | <input type="checkbox"/> Other: _____                   |

**Comments:**

Agricultural supply canal, constructed in uplands

**Floodplain unit:**    ☐ Low-Flow Channel    ☐ Active Floodplain    ☐ Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_ %    Tree: \_\_\_\_\_ %    Shrub: \_\_\_\_\_ %    Herb: \_\_\_\_\_ %

Community successional stage:

- |                                                         |                                                                  |
|---------------------------------------------------------|------------------------------------------------------------------|
| <input type="checkbox"/> NA                             | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings)      |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

**Indicators:**

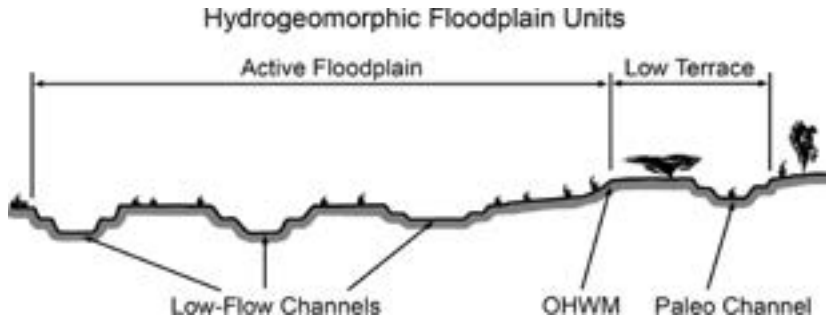
- |                                                   |                                           |
|---------------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Mudcracks                | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples                  | <input type="checkbox"/> Surface relief   |
| <input type="checkbox"/> Drift and/or debris      | <input type="checkbox"/> Other: _____     |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____     |
| <input type="checkbox"/> Benches                  | <input type="checkbox"/> Other: _____     |

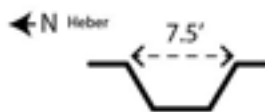
**Comments:**

**No Floodplain**



## Arid West Ephemeral and Intermittent Streams OTHM Datasheet

<b>Project:</b> Ormat Dogwood Geothermal Power Project <b>Project Number:</b> <b>Stream:</b> Solar Field V-Ditches <b>Investigator(s):</b> H. Donaghe, E. Merickel	<b>Date:</b> 2/22/2023 <b>Town:</b> Heber <b>Photo begin file#:</b>	<b>Time:</b> 09:16-09:36 <b>State:</b> CA <b>Photo end file#:</b>		
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b> ~4 miles south of El Centro on S. Dogwood Rd <b>Projection:</b> Lambert Conformal Conic <b>Datum:</b> NAD 1983 (2011) <b>Coordinates:</b>			
<b>Potential anthropogenic influences on the channel system:</b> Man-made concrete and earthen v-ditches, adjacent agricultural activities, paved and unpaved roads. Provide irrigation water to alfalfa fields. Two run E-W through alfalfa fields and one runs N-S along east edge of southern alfalfa field.				
<b>Brief site description:</b> Primarily concrete lined v-ditches, 7.5' wide, approximately 3' deep. Unvegetated. One earthen v-ditch noted near Ware Rd. skirting edge of Heber 2 wellhead.				
<b>Checklist of resources (if available):</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Aerial photography            Dates:  <input type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input checked="" type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </td> </tr> </table>			<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event			
				
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OTHM:</b> <ol style="list-style-type: none"> <li>1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>a) Record the floodplain unit and GPS position.</li> <li>b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>c) Identify any indicators present at the location.</li> </ol> </li> <li>4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>5. Identify the OTHM and record the indicators. Record the OTHM position via:           <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"> <input checked="" type="checkbox"/> Mapping on aerial photograph  <input checked="" type="checkbox"/> Digitized on computer           </td> <td style="width: 50%;"> <input checked="" type="checkbox"/> GPS  <input type="checkbox"/> Other:           </td> </tr> </table> </li> </ol>			<input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other:
<input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other:			

**Cross section drawing:****OHWM**

See Report  
**GPS point:** \_\_\_\_\_

**Indicators:**

- |                                                             |                                                         |
|-------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species       | <input type="checkbox"/> Other: _____                   |
| <input type="checkbox"/> Change in vegetation cover         | <input type="checkbox"/> Other: _____                   |

**Comments:**

Agricultural v-ditch, constructed in uplands. No vegetation. Dry.

**Floodplain unit:**    ☐ Low-Flow Channel    ☐ Active Floodplain    ☐ Low Terrace

**GPS point:** \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_ %    Tree: \_\_\_\_\_ %    Shrub: \_\_\_\_\_ %    Herb: \_\_\_\_\_ %

Community successional stage:

- |                                                         |                                                                  |
|---------------------------------------------------------|------------------------------------------------------------------|
| <input type="checkbox"/> NA                             | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings)      |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

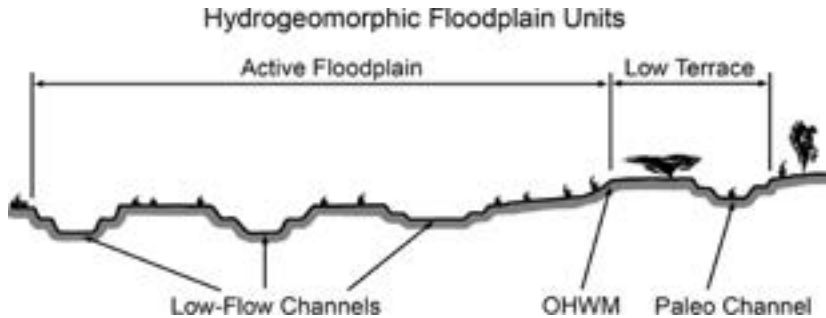
**Indicators:**

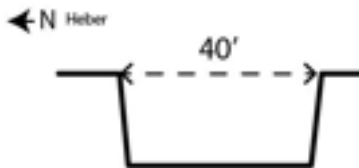
- |                                                   |                                           |
|---------------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Mudcracks                | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples                  | <input type="checkbox"/> Surface relief   |
| <input type="checkbox"/> Drift and/or debris      | <input type="checkbox"/> Other: _____     |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____     |
| <input type="checkbox"/> Benches                  | <input type="checkbox"/> Other: _____     |

**Comments:**

**No Floodplain**

## Arid West Ephemeral and Intermittent Streams OHW M Datasheet

<b>Project:</b> Ormat Dogwood Geothermal Power Project <b>Project Number:</b> <b>Stream:</b> Beech Drain (IID) <b>Investigator(s):</b> H. Donaghe, E. Merickel	<b>Date:</b> 2/22/2023 <b>Town:</b> Heber <b>Photo begin file#:</b>	<b>Time:</b> 11:20 <b>State:</b> CA <b>Photo end file#:</b>
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b> ~4 miles south of El Centro on S. Dogwood Rd  <b>Projection:</b> Lambert Conformal Conic <b>Datum:</b> NAD 1983 (2011) <b>Coordinates:</b>	
<b>Potential anthropogenic influences on the channel system:</b>  Man-made earthen drainage canal, adjacent agricultural activities, paved and unpaved roads. Parallels Willoughby Rd E-W in survey area. Turns and runs N-S on eastern edge of survey area.		
<b>Brief site description:</b>  Earthen canal, large agricultural drain operated by Imperial Irrigation District. OHW M = 35' to 45'		
<b>Checklist of resources (if available):</b> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography            Dates:  <input type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input checked="" type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </div> </div>		
		
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M:</b> <ol style="list-style-type: none"> <li>1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>a) Record the floodplain unit and GPS position.</li> <li>b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>c) Identify any indicators present at the location.</li> </ol> </li> <li>4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>5. Identify the OHW M and record the indicators. Record the OHW M position via:           <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph  <input checked="" type="checkbox"/> Digitized on computer           </div> <div> <input checked="" type="checkbox"/> GPS  <input type="checkbox"/> Other:           </div> </div> </li> </ol>		

**Cross section drawing:****OHW**

GPS point: See Report

**Indicators:**

- ☐ Change in average sediment texture  
☐ Change in vegetation species  
☒ Change in vegetation cover

- ☒ Break in bank slope  
☐ Other: \_\_\_\_\_  
☐ Other: \_\_\_\_\_

**Comments:**

Agricultural drainage canal, constructed in uplands. Arrow weed thickets along some stretches of drain. Steep banks. Cattails present in small patch. All vegetation at or below break in bank slope.

**Floodplain unit:**
☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_ % Tree: \_\_\_\_\_ % Shrub: \_\_\_\_\_ % Herb: \_\_\_\_\_ %

Community successional stage:

- ☐ NA  
☐ Early (herbaceous & seedlings)

- ☐ Mid (herbaceous, shrubs, saplings)  
☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

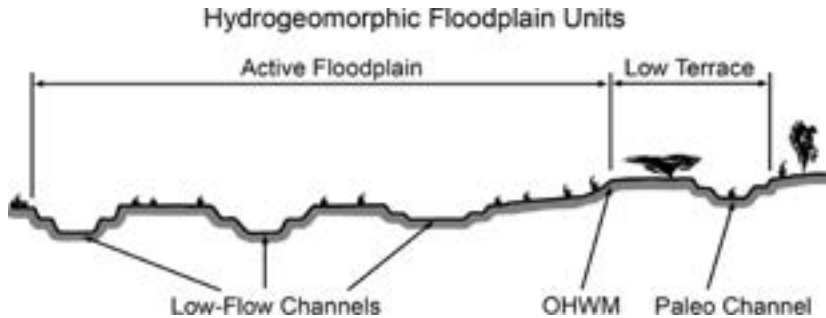
- ☐ Mudcracks  
☐ Ripples  
☐ Drift and/or debris  
☐ Presence of bed and bank  
☐ Benches

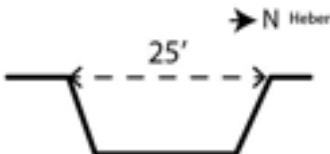
- ☐ Soil development  
☐ Surface relief  
☐ Other: \_\_\_\_\_  
☐ Other: \_\_\_\_\_  
☐ Other: \_\_\_\_\_

**Comments:**

**No Floodplain**

## Arid West Ephemeral and Intermittent Streams OHW M Datasheet

<b>Project:</b> Ormat Dogwood Geothermal Power Project <b>Project Number:</b> <b>Stream:</b> Date Drain No. 3 (IID) <b>Investigator(s):</b> H. Donaghe, E. Merickel	<b>Date:</b> 2/22/2023 <b>Town:</b> Heber <b>Photo begin file#:</b>	<b>Time:</b> 12:00 <b>State:</b> CA <b>Photo end file#:</b>				
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Do normal circumstances exist on the site?  Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b> Ware Rd. East of Heber 1.  <table style="width: 100%;"> <tr> <td style="width: 50%;"><b>Projection:</b></td> <td style="width: 50%;"><b>Datum:</b></td> </tr> <tr> <td colspan="2"><b>Coordinates:</b></td> </tr> </table>		<b>Projection:</b>	<b>Datum:</b>	<b>Coordinates:</b>	
<b>Projection:</b>	<b>Datum:</b>					
<b>Coordinates:</b>						
<b>Potential anthropogenic influences on the channel system:</b> Man-made earthen drainage canal, adjacent agricultural activities, paved and unpaved roads. Heber 1 Geothermal Wellhead and aboveground pipe across the unpaved road to the south.						
<b>Brief site description:</b> Earthen canal, agricultural drain operated by Imperial Irrigation District. OHW M = 25'						
<b>Checklist of resources (if available):</b> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Aerial photography            Dates:  <input type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </td> </tr> </table>			<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
<input checked="" type="checkbox"/> Aerial photography Dates: <input type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event					
						
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M:</b> <ol style="list-style-type: none"> <li>1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>a) Record the floodplain unit and GPS position.</li> <li>b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>c) Identify any indicators present at the location.</li> </ol> </li> <li>4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>5. Identify the OHW M and record the indicators. Record the OHW M position via:           <table style="width: 100%;"> <tr> <td style="width: 50%;"> <input checked="" type="checkbox"/> Mapping on aerial photograph  <input checked="" type="checkbox"/> Digitized on computer           </td> <td style="width: 50%;"> <input type="checkbox"/> GPS  <input type="checkbox"/> Other:           </td> </tr> </table> </li> </ol>			<input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer	<input type="checkbox"/> GPS <input type="checkbox"/> Other:		
<input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer	<input type="checkbox"/> GPS <input type="checkbox"/> Other:					

**Cross section drawing:****OHW**

GPS point: See Report

**Indicators:**

- ☐ Change in average sediment texture  
☐ Change in vegetation species  
☐ Change in vegetation cover

- ☒ Break in bank slope  
☐ Other: \_\_\_\_\_  
☐ Other: \_\_\_\_\_

**Comments:**

Agricultural drainage canal, constructed in uplands.

**Floodplain unit:**

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: \_\_\_\_\_

Total veg cover: \_\_\_\_\_ % Tree: \_\_\_\_\_ % Shrub: \_\_\_\_\_ % Herb: \_\_\_\_\_ %

Community successional stage:

- ☐ NA  
☐ Early (herbaceous & seedlings)

- ☐ Mid (herbaceous, shrubs, saplings)  
☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks  
☐ Ripples  
☐ Drift and/or debris  
☐ Presence of bed and bank  
☐ Benches

- ☐ Soil development  
☐ Surface relief  
☐ Other: \_\_\_\_\_  
☐ Other: \_\_\_\_\_  
☐ Other: \_\_\_\_\_

**Comments:**

**No Floodplain**



## Appendix B Photo Log



**Legend**

Photo Point

Ordinary High Water Mark (OHWM) Field Points

**Jurisdictional Resources**

Canal

Drain

**Non-jurisdictional Resources**

Ditches

T-Line Connection to Dogwood

Existing Heber Substation

New Dogwood Substation

XMR and Switch

Dogwood Geothermal Plant

Dogwood Parasitic Solar Energy Facilities

Heber 2 Parasitic Solar Facilities

Viewing Direction

**PHOTO LOCATIONS AND VIEWING DIRECTION**

**Catalyst Environmental Solutions Photo Record for the Dogwood Geothermal Project Preliminary  
Wetlands and Waters Report**

**Client:** OrHeber2, LLC, a subsidiary of Ormat Nevada, Inc. (ORMAT)



Photo 1: Dogwood Canal  
looking north



Photo 2: Dogwood Canal  
looking east toward  
agricultural field



Photo 3: Dogwood Canal and access road, looking south



Photo 4: CMC Canal looking south along Dogwood Rd.





Photo 5: CMC Canal looking east.



Photo 6: Dogwood Lateral 1, looking east.



Photo 7: Beech Drain looking northeast. Arrow weed thickets with occasional cattails and saltcedar densely vegetating the steep banks along some stretches of Beech Drain.



Photo 8: Beech Drain looking west.





Photo 9: Solar field canal looking east.



Photo 10: Solar field canal looking north.



Photo 11: Pipeline and existing canal west of proposed solar field and west of Dogwood Road, looking west.



Photo 12: Heber 1 Production Well at NE corner of survey area, looking south. Typical view of developed/disturbed landcover in the survey area.



Photo 13: NE corner of survey area, looking west towards Heber 1 Production Well. Typical view of flood-irrigated alfalfa fields in the survey area.



Photo 15: Concrete-lined v-ditch and existing pipeline, looking south. Proposed transmission line would be mounted to the green pipeline on the left side of the frame.





Photo 16: Date Drain looking east.

## Appendix C    NRCS Soils Information



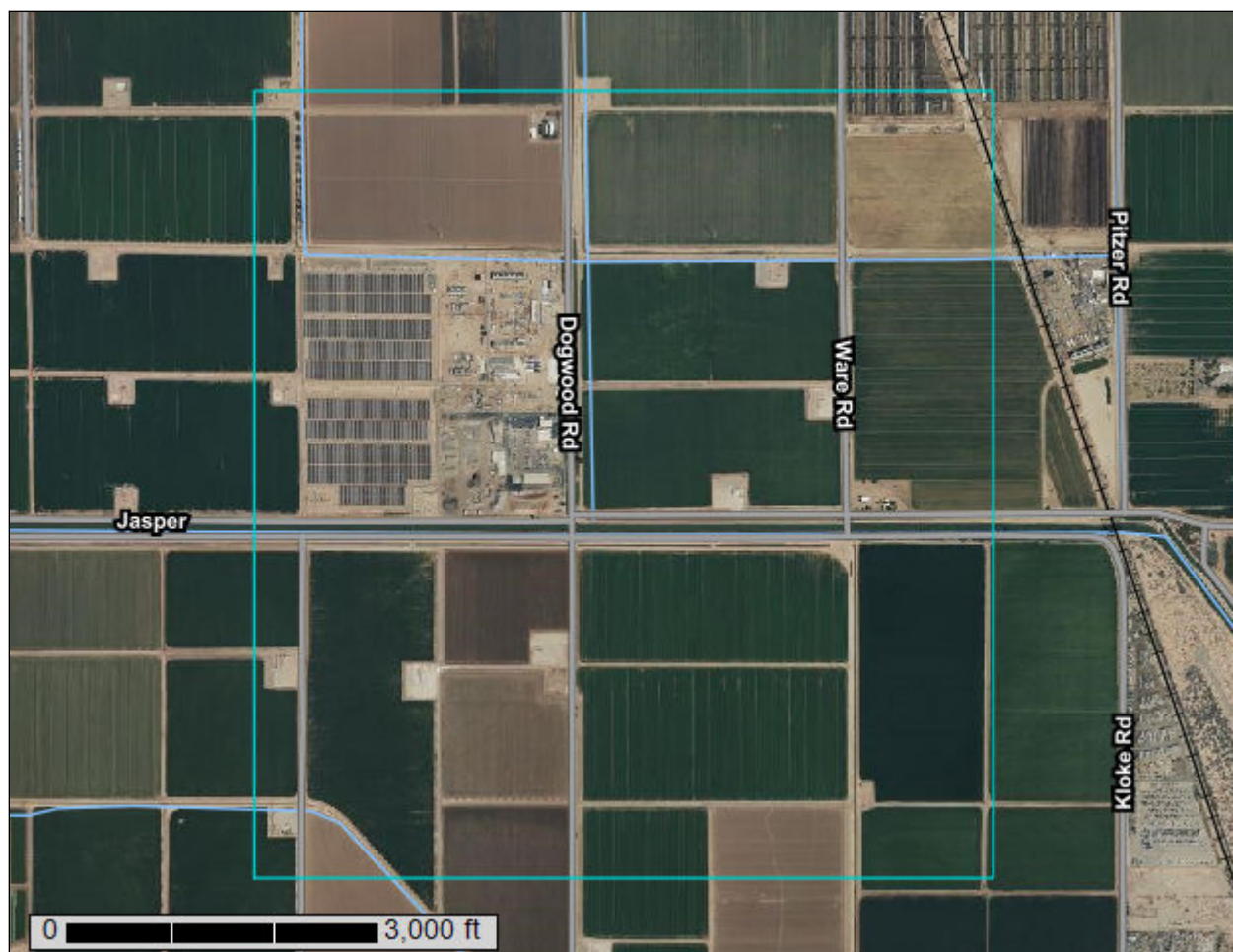
United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Imperial County, California, Imperial Valley Area





# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

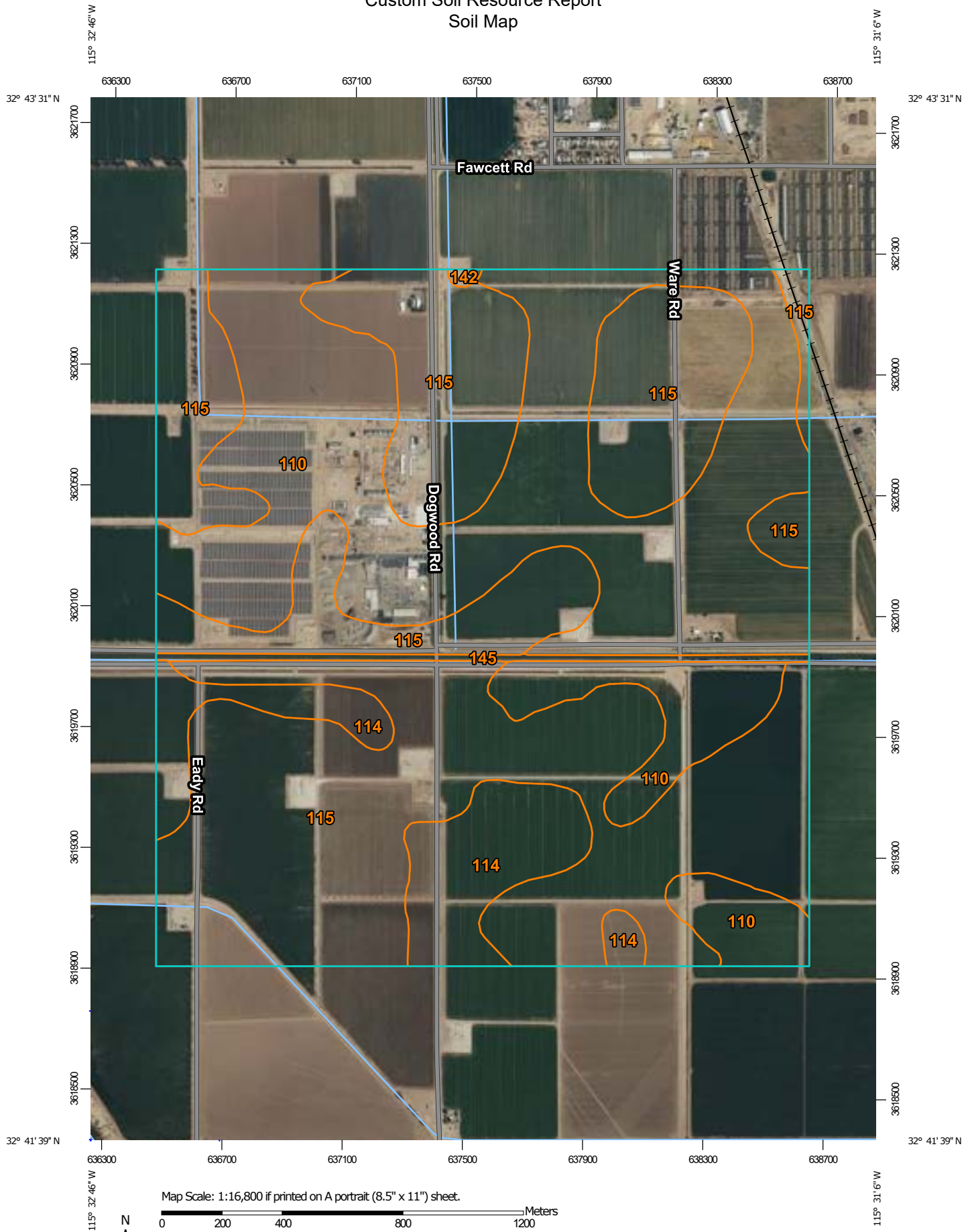


# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


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### MAP LEGEND

#### Area of Interest (AOI)

 Area of Interest (AOI)

#### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

#### Special Point Features

 Blowout

 Borrow Pit

 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

#### Water Features

 Streams and Canals


#### Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

#### Background

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Imperial County, California, Imperial Valley Area

Survey Area Data: Version 14, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 17, 2021—May 22, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
110	Holtville silty clay, wet	453.5	36.5%
114	Imperial silty clay, wet	98.2	7.9%
115	Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes	678.4	54.6%
142	Vint loamy very fine sand, wet	1.3	0.1%
145	Water	12.0	1.0%
<b>Totals for Area of Interest</b>		<b>1,243.4</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Imperial County, California, Imperial Valley Area

### 110—Holtville silty clay, wet

#### Map Unit Setting

*National map unit symbol:* h8zj

*Elevation:* -230 to 200 feet

*Mean annual precipitation:* 0 to 3 inches

*Mean annual air temperature:* 72 to 75 degrees F

*Frost-free period:* 300 to 350 days

*Farmland classification:* Prime farmland if irrigated and drained

#### Map Unit Composition

*Holtville, wet, and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Holtville, Wet

##### Setting

*Landform:* Basin floors

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Alluvium derived from mixed sources

##### Typical profile

*H1 - 0 to 17 inches:* silty clay

*H2 - 17 to 24 inches:* clay

*H3 - 24 to 35 inches:* silt loam

*H4 - 35 to 60 inches:* loamy very fine sand

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Maximum salinity:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 10.0

*Available water supply, 0 to 60 inches:* Moderate (about 7.6 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 2w

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* D

*Ecological site:* R040XD007CA - Lacustrine Basin and Large River Floodplain

*Hydric soil rating:* No



### Minor Components

#### Glenbar

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Imperial

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Indio

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Vint

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

## 114—Imperial silty clay, wet

### Map Unit Setting

*National map unit symbol:* h8zn  
*Elevation:* -230 to 200 feet  
*Mean annual precipitation:* 0 to 3 inches  
*Mean annual air temperature:* 72 to 75 degrees F  
*Frost-free period:* 300 to 350 days  
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Imperial, wet, and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Imperial, Wet

#### Setting

*Landform:* Basin floors  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed

#### Typical profile

*H1 - 0 to 12 inches:* silty clay  
*H2 - 12 to 60 inches:* silty clay loam

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained

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*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Maximum salinity:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 20.0

*Available water supply, 0 to 60 inches:* Moderate (about 8.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* 3w

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* C

*Ecological site:* R040XD007CA - Lacustrine Basin and Large River Floodplain

*Hydric soil rating:* No

### Minor Components

#### Meloland

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Glenbar

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Holtville

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Niland

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

## 115—Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* h8zp

*Elevation:* -230 to 200 feet

*Mean annual precipitation:* 0 to 3 inches

*Mean annual air temperature:* 72 to 75 degrees F

*Frost-free period:* 300 to 350 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Imperial, wet, and similar soils:* 41 percent

*Glenbar, wet, and similar soils:* 40 percent

*Minor components:* 19 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## **Description of Imperial, Wet**

### **Setting**

*Landform:* Basin floors

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed

### **Typical profile**

*H1 - 0 to 12 inches:* silty clay loam

*H2 - 12 to 60 inches:* silty clay loam

### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Maximum salinity:* Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 20.0

*Available water supply, 0 to 60 inches:* Moderate (about 8.6 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 3w

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* C

*Ecological site:* R040XD007CA - Lacustrine Basin and Large River Floodplain

*Hydric soil rating:* No

## **Description of Glenbar, Wet**

### **Setting**

*Landform:* Basin floors

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Alluvium derived from mixed

### **Typical profile**

*H1 - 0 to 13 inches:* silty clay loam

*H2 - 13 to 60 inches:* clay loam

### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)

*Depth to water table:* More than 80 inches

## Custom Soil Resource Report

*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 5 percent  
*Maximum salinity:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 15.0  
*Available water supply, 0 to 60 inches:* High (about 10.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* 3w  
*Land capability classification (nonirrigated):* 7w  
*Hydrologic Soil Group:* C  
*Ecological site:* R040XD007CA - Lacustrine Basin and Large River Floodplain  
*Hydric soil rating:* No

### Minor Components

#### Meloland

*Percent of map unit:* 10 percent  
*Hydric soil rating:* No

#### Holtville

*Percent of map unit:* 9 percent  
*Hydric soil rating:* No

## 142—Vint loamy very fine sand, wet

### Map Unit Setting

*National map unit symbol:* h90k  
*Elevation:* -230 to 150 feet  
*Mean annual precipitation:* 0 to 3 inches  
*Mean annual air temperature:* 72 to 75 degrees F  
*Frost-free period:* 300 to 350 days  
*Farmland classification:* Prime farmland if irrigated and drained

### Map Unit Composition

*Vint, wet, and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Vint, Wet

#### Setting

*Landform:* Basin floors  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from mixed and/or eolian deposits derived from mixed

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 10 inches:* loamy very fine sand

*H2 - 10 to 60 inches:* loamy fine sand

### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Maximum salinity:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 5.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* 2w

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* A

*Ecological site:* R040XD007CA - Lacustrine Basin and Large River Floodplain

*Hydric soil rating:* No

### Minor Components

#### Indio

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Meloland

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## 145—Water

### Map Unit Composition

*Water:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

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## Custom Soil Resource Report

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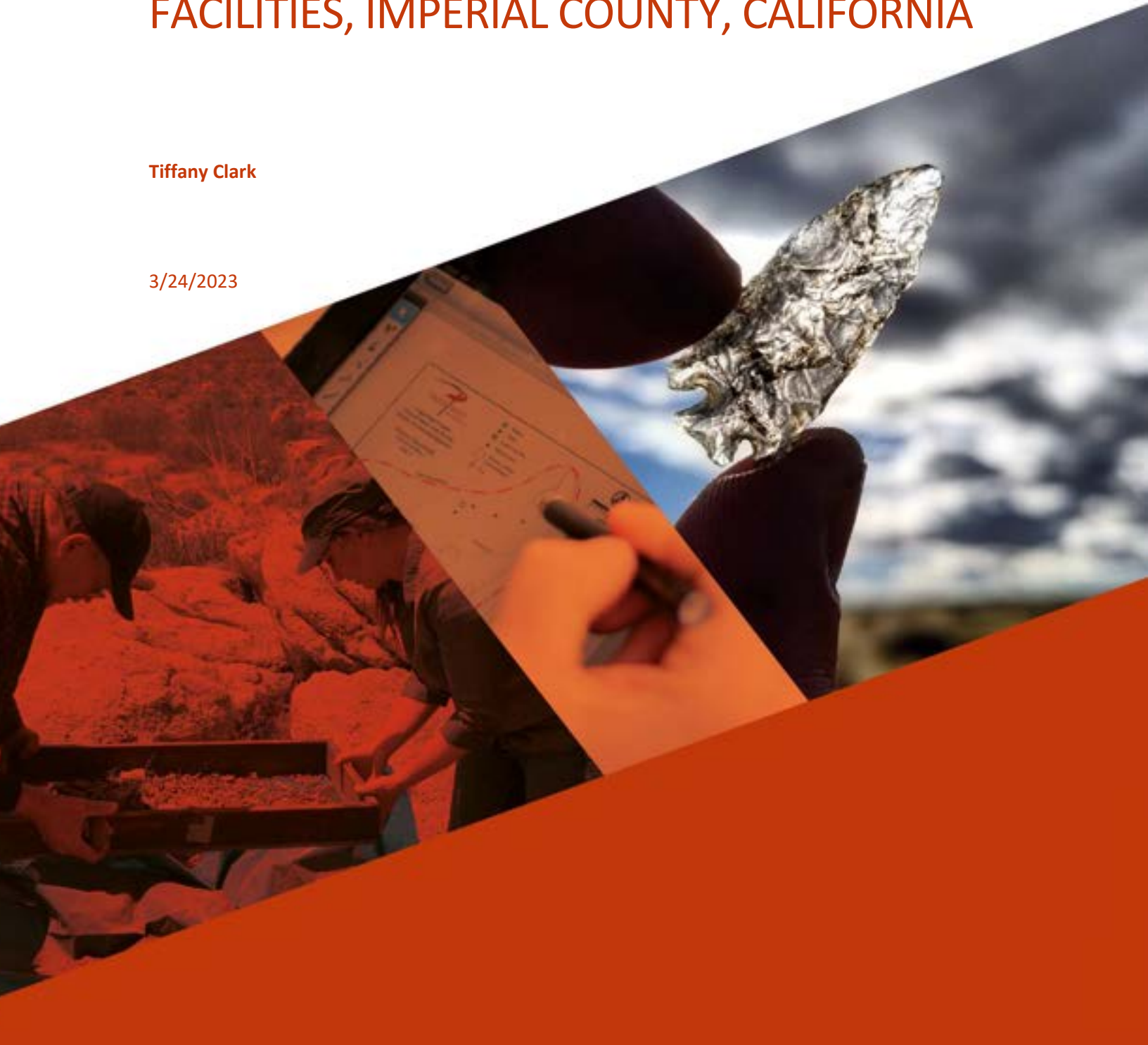
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# CULTURAL RESOURCE ASSESSMENT FOR THE DOGWOOD GEOTHERMAL ENERGY PROJECT, DOGWOOD SOLAR, AND HEBER 2 SOLAR FACILITIES, IMPERIAL COUNTY, CALIFORNIA

Tiffany Clark

3/24/2023



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# MANAGEMENT SUMMARY

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OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company are proposing to develop the Dogwood Geothermal Energy Project, Dogwood Solar, and Heber 2 Solar Parasitic Facilities (herein Project) near the community of Heber, Imperial County, California. The proposed Project involves the construction and operation of a 25-megawatt geothermal energy facility with associated solar photovoltaic fields, transmission lines, brine pipelines, and wells. The proposed Project would encompass approximately 170 acres of land (Assessor Parcel Number: 054-250-31, 059-020-001, and 054-250-017) within the Imperial County Geothermal Overlay Zone. PaleoWest LLC (PaleoWest) was contracted by Catalyst Environmental Solutions to conduct a cultural resource assessment of the Project area in compliance with the California Environmental Quality Act (CEQA). The Project will be permitted via a Conditional use Permit process with the Imperial County Planning and Development Services acting as the Lead Agency for CEQA compliance.

This report summarizes the methods and results of the cultural resource assessment. The investigation included background research, outreach with the Native American Heritage Commission (NAHC) and Native American groups, a field survey, resource documentation and evaluation, and an impacts analysis. The purpose of the study was to determine the potential of the Project to impact archaeological and historical resources under CEQA.

As part of the background research, PaleoWest conducted a records search at the South Coastal Information Center to identify previously recorded cultural resources and studies located within one mile of the Project area. The records search indicated that at least 35 previous studies have been conducted in the record search area, three of which encompass portions of the current Project. These studies resulted in the documentation of six cultural resources, all of which date to the historic period. No prehistoric resources were identified within one mile of the Project area. None of the previously recorded cultural resource are located within the Project area.

PaleoWest also requested a search of the Sacred Lands File (SLF) from the NAHC on January 19, 2023. Results of the SLF search were obtained on February 28, 2023. The SLF search resulted in positive results with the NAHC recommending that the Ewiiapaayp Band of Kumeyaay Indians and the Torres-Martinez Desert Cahuilla Indians be contacted to request information on known Native American cultural resources in the Project vicinity. In addition, the NAHC provided a list of 24 individuals representing 16 Native American tribal groups that may also have knowledge of cultural resources in the Project area. Outreach letters were sent to the Native American contacts on March 1, 2023 with follow up correspondence conducted on March 15, 2023. Four comments have been received as of March 23, 2023.

PaleoWest conducted a pedestrian cultural resource survey of the proposed Project area between February 22 and 24, 2023. The survey encompassed all areas of proposed disturbance along with a 300-foot- (91-meter-) buffer around the linear Project elements (proposed transmission line and brine pipeline alignments) (219 acres). Three historic built-environment resources were documented in the Project area (Central Main Canal, Dogwood Canal, and Beech Canal and Drain), all of which are irrigation-related features associated with the All-American Canal system. PaleoWest analyzed the California Register of Historical Resources

(CRHR) eligibility of the three cultural resources under Criteria 1, 2, 3, and 4. Although the Central Main Canal is recommended eligible for listing on the CRHR, an impact analysis indicates that the proposed Project will not result in a substantial change to the significance of the historical resource. The other two resources identified in the Project area, the Dogwood Canal and Beech Canal and Drain, were both recommended not eligible for listing on the CRHR due to a lack of integrity; no further management is recommended for these resources. To mitigate impacts to potential cultural resources that may be encountered during Project construction, PaleoWest recommends mitigation measures be implemented for the discovery of inadvertent archaeological resources and human remains.

# 1.0 INTRODUCTION

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OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company are proposing to develop the Dogwood Geothermal Energy Project, Dogwood Solar, and Heber 2 Solar Parasitic Facilities (herein Project) near the community of Heber in Imperial County, California. PaleoWest LLC (PaleoWest) was contracted by Catalyst Environmental Solutions to conduct a cultural resource assessment of the Project area in compliance with the California Environmental Quality Act (CEQA). The Imperial County Planning and Development Services acting as the Lead Agency for CEQA compliance.

## 1.1 PROJECT LOCATION AND DESCRIPTION

The proposed Project is located within and adjacent to the existing Heber Geothermal Energy Complex (HGEC) at 855 Dogwood Road in unincorporated Imperial County, California (Figures 1-1 and 1-2). The Project area encompasses approximately 170 acres of land on three parcels (Assessor Parcel Numbers [APNs] 054-250-31, 059-020-001, and 054-250-017) (Figure 1-3). The Project area includes portions of Sections 32 and 33, Township 16 South, Range 14 East, and Sections 3 and 4, Township 17 South, Range 14 East, of the San Bernardino Baseline and Meridian (SBBM), as depicted on the *Heber, CA* 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 1-2). Surrounding land uses in the Project vicinity are primarily for industrial facilities, energy facilities, and agricultural cultivation. Solar energy facilities and agricultural cultivation are directly west; a construction/aggregates company is adjacent to the south; agricultural operations are present to the north and east; and, geothermal well pads and pipelines are present throughout the local vicinity (Figure 1-3).

The proposed Project includes the construction and operation of a geothermal plant, solar photovoltaic facilities with an associated substation, a medium voltage connection cable, three geothermal production wells, one injection well, and a brine pipeline (Figure 1-3). The Dogwood geothermal plant would be located within the HGEC (APN 054-250-31). The area of the proposed plant is completely disturbed from energy generation operations and devoid of any vegetation or existing facilities; it is currently used for materials storage and supporting operations.

The Dogwood and Heber 2 parasitic solar photovoltaic facilities would be located immediately southeast of the HGEC (APN 059-020-001). Two separate solar fields are proposed – one to provide auxiliary power to the proposed Dogwood Project and one for the existing Heber 2 plant. The energy generated by the solar facilities will be collected by an on-site substation for a short transmission via cable segment to the Dogwood and Heber 2 geothermal plants. The cable would be attached to the existing pipeline that crosses the IID Central Main canal.

Three new geothermal production wells are proposed for the Project. Two of these wells would be located within the solar energy site (APN 059-020-001) with a third well installed adjacent to an existing geothermal well approximately 1,500 feet due east of the HGEC (APN 054-250-017). A new injection well would also be located adjacent to the proposed Dogwood geothermal plant within the HGEC (Figure 1-3). A small segment of pipeline (approximately 1,000 feet in length) would be developed within the solar site to collect and deliver the new geothermal fluid/brine to an existing pipeline network located adjacent to the proposed solar facilities. The



Figure 1-1. Project vicinity map

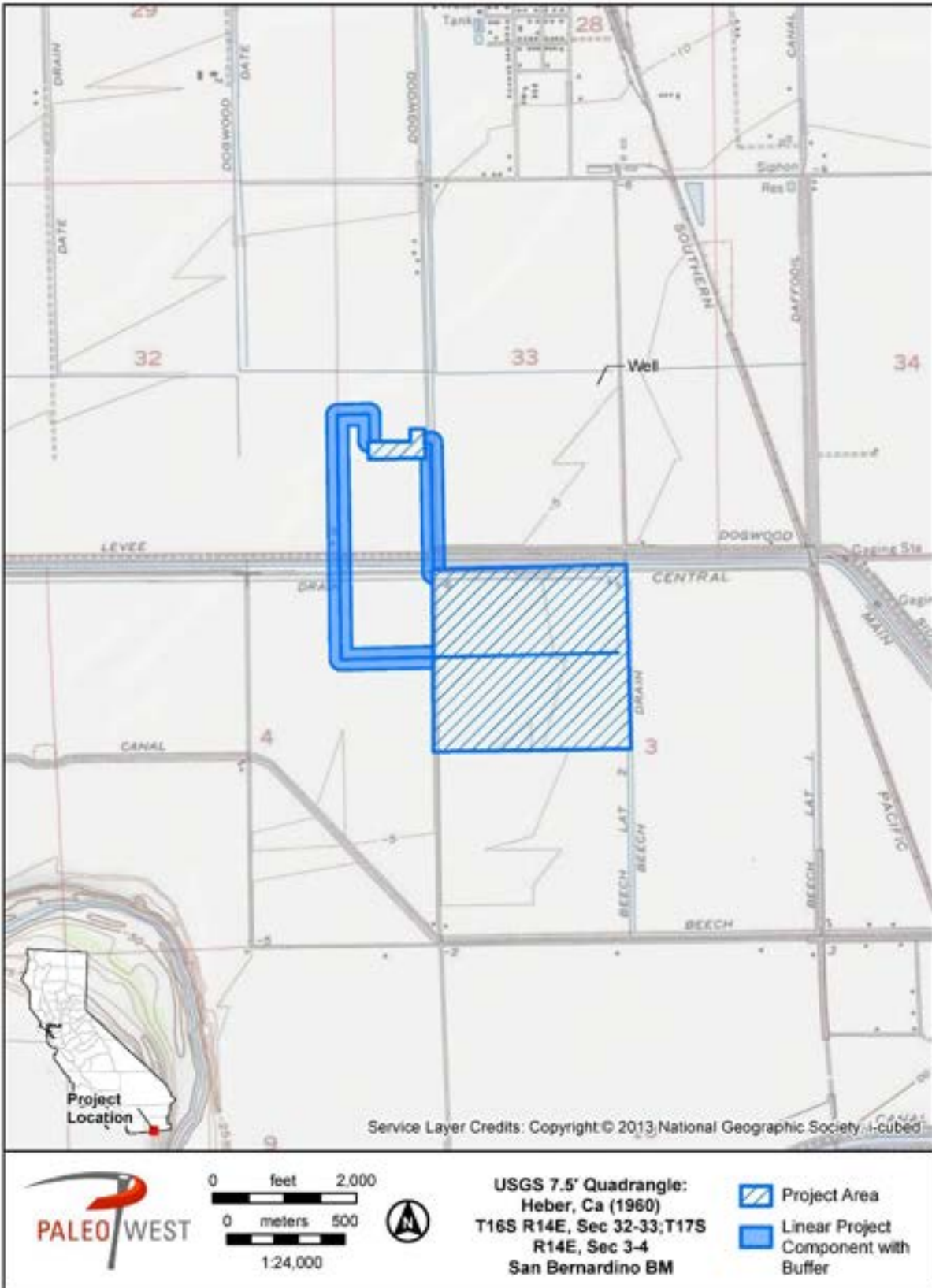


Figure 1-2. Project location map



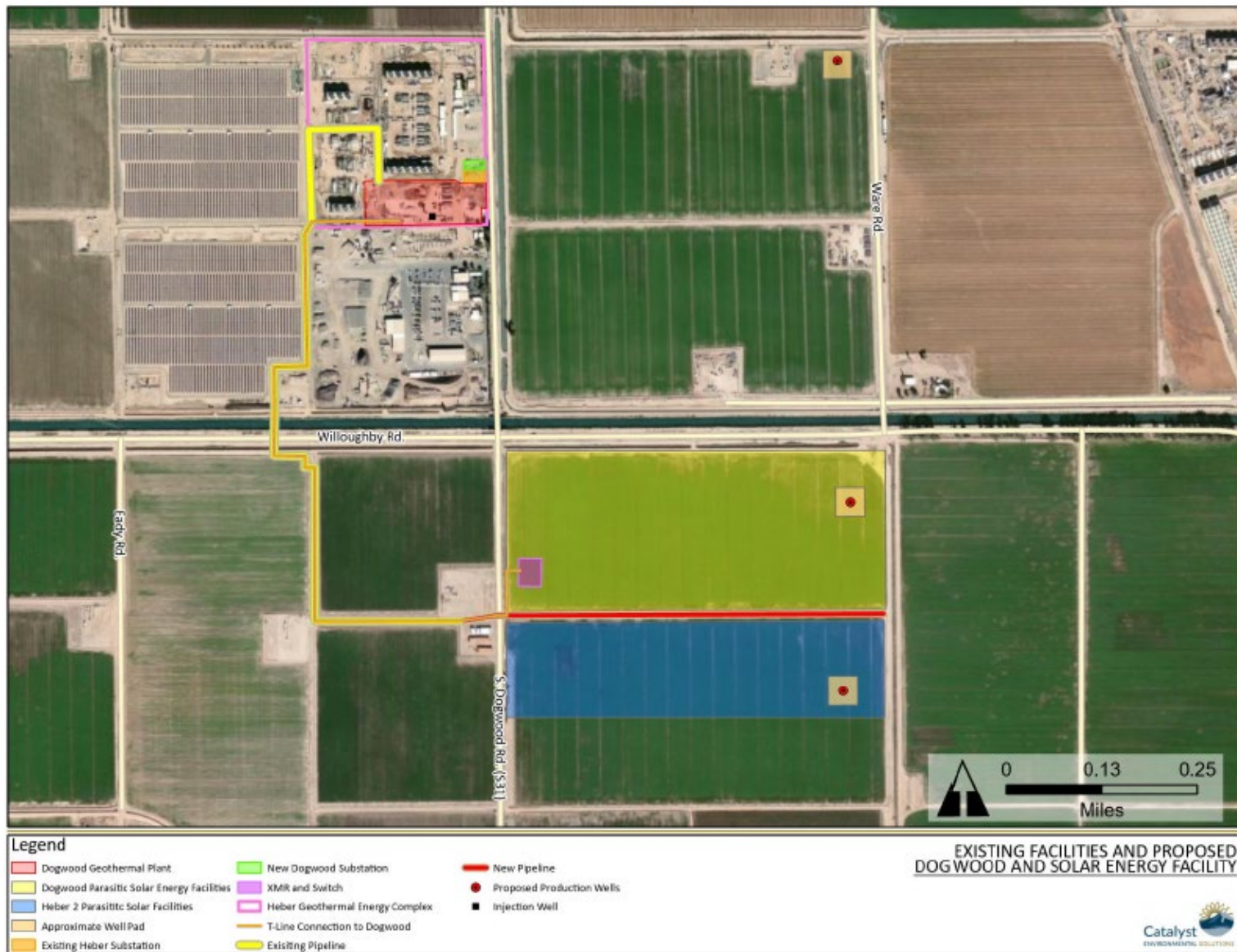


Figure 1-3. Project area map (adapted from Ormat Technologies, Inc. 2023)



third northern well would utilize the existing pipeline network to deliver fluid to the Dogwood plant.

All facilities proposed for the Project are within the County's Geothermal Overlay Zone. Major geothermal projects proposed within these zones may be permitted via a Conditional Use Permit process (County of Imperial 2015) (see discussion in Section 2.3.2).

## 1.2 PROJECT PERSONNEL

Tiffany Clark, PhD, Register of Professional Archaeologists (RPA), served as Principal Investigator and Project Manager. She directed all fieldwork efforts for the Project and was the primary author on the report. Associate Archaeologist Paige Kohler completed the record search of the South Coastal Information Center (SCIC) with Gena Severen, MA, RPA conducted the Native American outreach. Heather Landazuri, MA, RPA, with assistance from Marlen Hinojosa and Amy Ross, completed the field survey. Brian Spelts served as the GIS analyst. Finally, Richard Guttenberg, MA, RPA, conducted senior technical review of this report.

## 1.3 REPORT ORGANIZATION

This report documents the results of a cultural resource investigation conducted for the proposed Project. Chapter 1 has introduced the Project location and description. Chapter 2 states the regulatory context for the Project. Chapter 3 synthesizes the natural and cultural setting of the Project area and surrounding region. The results of the previous cultural investigations and the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search is presented in Chapter 4. The field methods employed during this investigation and the findings are presented in Chapter 5. Management recommendations are provided in Chapter 6. These are followed by bibliographic references and appendices.

## 2.0 REGULATORY CONTEXT

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### 2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The proposed Project is subject to compliance with CEQA, as amended. Compliance with CEQA statutes and guidelines requires both public and private projects with financing or approval from a public agency to assess the project's impact on cultural resources (Public Resources Code Sections 21082, 21083.2 and 21084 and California Code of Regulations 10564.5). The first step in the process is to identify cultural resources that may be impacted by the project and then determine whether the resources are "historically significant" resources.

CEQA defines historically significant resources as "resources listed or eligible for listing in the California Register of Historical Resources (CRHR)" (Public Resources Code Section 5024.1). A cultural resource may be considered historically significant if the resource is 45 years old or older and possesses integrity of location, design, setting, materials, workmanship, feeling, and association.<sup>1</sup> In addition, it must meet any of the following criteria for listing on the CRHR:

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 (Public Resources Code Section 5024.1).

Cultural resources are buildings, sites, humanly modified landscapes, traditional cultural properties, structures, or objects that may have historical, architectural, cultural, or scientific importance. A resource can also be determined historically significant under CEQA by virtue of being included in a local register of historical resources regardless of CRHR eligibility (see Title 14 California Code of Regulations Section 15064.5(a)(2)). CEQA states that if a project will have a significant impact on important cultural resources, deemed "historically significant," then project alternatives and mitigation measures must be considered. Additionally, the Office of Historic Preservation (OHP) may choose to comment on the CEQA compliance process for specific local government projects in an informal capacity but does not seek to review all projects that may affect historically significant cultural resources under CEQA provisions.

### 2.2 CALIFORNIA ASSEMBLY BILL 52

Signed into law in September 2014, California Assembly Bill 52 (AB 52) created a new class of resources – tribal cultural resources – for consideration under CEQA. Tribal cultural resources may include sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe that are listed or determined to be eligible for listing

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<sup>1</sup> The Office of Historic Preservation (OHP) guidelines recognize a 45-year-old criteria threshold for documenting and evaluating cultural resources (assumes a 5-year lag between resource identification and the date that planning decisions are made) (OHP 1995:2). The age threshold is an operational guideline and not specific to CEQA statutory or regulatory codes.

in the CRHR, included in a local register of historical resources, or a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant and eligible for listing on the CRHR. AB 52 requires that the lead CEQA agency consult with California Native American tribes that have requested consultation for projects that may affect tribal cultural resources. The lead CEQA agency shall begin consultation with participating Native American tribes prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Under AB 52, a project that has potential to cause a substantial adverse change to a tribal cultural resource constitutes a significant effect on the environment unless mitigation reduces such effects to a less than significant level.

## 2.3 IMPERIAL COUNTY GENERAL PLAN

### 2.3.1 Conservation and Open Space Element

The Conservation and Open Space Element of County's General Plan (County of Imperial 2016) contain one goal and one policy related to the protection and preservation of cultural resources. These include:

**GOAL 3: Preserve the spiritual and cultural heritage of the diverse communities of Imperial County.**

- **Objective 3.1:** Protect 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 burial sites.

#### **Cultural Resources Conservation Policy:**

Identify and document significant historic and prehistoric resources, and provide for the preservation of representative and worthy examples; and recognize the value of historic and prehistoric resources, and assess current and proposed land uses for impacts upon these resources.

#### ***Programs***

- The County will use the CEQA process to conserve cultural resources and conform to Senate Bill 18 "Consultation with Tribal Governments" and Assembly Bill 52 "Consultation with Tribal Governments". Public awareness of cultural heritage will be stressed. All information and artifacts recovered in this process will be stored in an appropriate institution and made available for public exhibit and scientific review.
- Encourage the use of open space easements in the conservation of high value cultural resources.
- Consider measures which would provide incentives to report archeological discoveries immediately to the Imperial Valley Desert Museum.
- Coordinate with appropriate Federal, State, local and tribal agencies to provide regular updates to the "Sensitivity Map for Cultural Resources" (Figure 6).

- Discourage vandalism of cultural resources and excavation by persons other than qualified archaeologists. The County shall study the feasibility of implementing policies and enacting ordinances toward the protection of cultural resources such as can be found in California Penal Code, Title 14, Point 1, Section 622-1/2. The County should maintain confidentiality of specific resource locations to prevent vandalism and desecration of sensitive cultural resources.

### 2.3.2 Renewable Energy and Transmission Element

Because the Project site lies within the County's Geothermal Overlay Zone, the Renewable Energy and Transmission Element of the General Plan also applies (County of Imperial 2015). The element contains several goals and associated objectives that are relevant to cultural resources. These include:

#### **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:** Require appropriate mitigation and monitoring for environmental issues associated with developing renewable energy facilities.
- **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 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.

## 3.0 NATURAL AND CULTURAL SETTING

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This section of the report summarizes information regarding the physical and cultural setting of the Project area, including the prehistoric, ethnographic, and historic contexts of the region. Several factors, including topography, available water sources, and biological resources, affect the nature and distribution of prehistoric, ethnographic, and historic-period human activities in an area. This background provides a context for understanding the nature of the cultural resources that may be identified within the region. Much of the information provided in the following sections has been adapted from a report compiled by PaleoWest entitled *Cultural Resources Inventory for the Border Fuels Reduction Project, Imperial and San Diego Counties, California* (Tennyson et al. 2022).

### 3.1 ENVIRONMENTAL SETTING

#### 3.1.1 Physiography and Geology

The Project area is within the Colorado Desert of Imperial County, the largest and most arid subdivision of the Sonoran Desert and one of the hottest and most arid environments in the United States. The Project area is within the southern portion of a major physiographic and geologic feature of the Colorado Desert, the Salton Trough. The Salton Trough is an extensive topographic and structural depression extending from the Gulf of California about 130 miles northwest through the Coachella Valley to the summit of San Geronio Pass. The Gulf of California is separated from the trough by the roughly 11-meter tall (36 foot tall) delta of the Colorado River, which slopes gradually down to the north to about 69 meters (226 feet) below mean sea level (bmsl) at the Salton Sea, then rises gradually through the Coachella Valley. This feature evolved during the late Cenozoic Era as a result of tectonic forces that continue to the present day to separate the Baja California peninsula from mainland Mexico. These forces are manifested by numerous fault systems (including the San Andreas Fault) that have resulted in a deepening of the rift that, through the millennia, has contained bodies of either freshwater or saltwater. Intrusions of seawater into the rift first occurred during the late Cenozoic Era, during the Miocene and Pliocene epochs. Elevations within the Project area range from 5 feet bmsl to 10 feet above mean sea level (amsl). Most of the Project area is currently under agriculture.

Subsequently, during the early Pleistocene epoch, a growing alluvial fan of the Colorado River delta sealed off the upper portion of the rift from the sea, creating the Salton Trough basin. The lower portion became what is today the Gulf of California. After this division of the rift, flood episodes of the Colorado River would occasionally divert into the Salton Trough basin long enough to temporarily fill it with fresh water, creating a large lake known historically as Lake Cahuilla. Often, after episodes of flooding, the river eventually returned to its regular channel, into the Gulf of California and the lake would then gradually empty by evaporation. This cycle occurred several times during the Pleistocene and subsequent Holocene epoch. Lake Cahuilla, when full or even nearly full, would have encompassed the smaller present-day Salton Sea and covered much of the Imperial Valley, creating an extensive (but temporary) lacustrine environment (Apple et al. 1997; Schaefer 2006; Waters 1983).

Geologically, a sequence of marine, nonmarine, and lacustrine-associated geologic, sedimentary formations that extend deep beneath the Salton Trough document the geologic



history of the rift described above. The Split Mountain Formation, deposited in the rift during the late Miocene epoch, consists primarily of nonmarine sediments of terrestrial (alluvial and colluvial) origin. At the beginning of the subsequent Pliocene epoch, marine sediments of the Imperial Formation began to be deposited atop the Split Mountain Formation, indicating the first marine transgressions into the rift depression (Dorsey et al. 2007). Later in the Pliocene, deposition of the nonmarine sediments contained in the Palm Springs and Canebrake Conglomerate formations indicate terrestrial contributions to the rift depression. Deposition of these latter two formations may have been at least partially contemporaneous with the deposition of the Imperial Formation marine sediments. Beginning possibly as early as the late Pliocene, the lacustrine sediments contained in the Borrego Formation indicate the end of marine deposition in the rift and the creation of the Salton Trough, and the presence in it of a freshwater lake. These sediments mostly overlie the Palm Spring and Canebrake Formations, but, in some instances, they appear to also interfinger with them, possibly indicating some contemporaneity with the deposition of these formations.

During the Pleistocene, deposition of the nonmarine Ocotillo Conglomerate Formation appears to have occurred contemporaneously with deposition of the lacustrine Brawley Formation. The contemporaneous deposition of these formations likely indicates that a Lake Cahuilla-like body of water was intermittently present in the Salton Trough basin during this period. These formations are subsequently overlain by Holocene-age lacustrine and alluvial deposits, indicating that these conditions continued throughout the period.

### 3.1.2 Climate and Hydrology

Conditions within the Colorado Desert are among the hottest found in the United States. Average daily temperatures typically range from the low 40 degrees Fahrenheit (°F) in winter to 105°F in summer, although summer temperatures can reach into the 120s°F (State Parks 1984). A high of 127°F was recorded at the Gold Rock Ranch station, approximately 15 miles northwest of Yuma. This region also experiences rapid heat loss at night, resulting in a wide daily temperature variance of approximately 30°F. Annual rainfall totals within the Colorado Desert are among the lowest in the Sonoran Desert, averaging less than 2 inches per year in the Salton Trough and between 2-4 inches along the Colorado River (Crosswhite and Crosswhite 1982), though recent summer monsoons have been known to produce more than the average yearly precipitation in a single rainfall event. Droughts of up to 60 days are not uncommon in this area, and the longest recorded drought lasted for more than three years, with documented rainfall of 0.01 inches (Jaeger 1957; Shreve and Wiggins 1964). Freshwater is found in the form of occasional springs and wells, and sporadically in the numerous seasonal drainages. It is thought that the climatic conditions at lower elevations of the Colorado Desert have remained much the same since the late Pleistocene.

The most significant hydrological feature in the vicinity of the Project area, given the criticality of water supply in the ecology, prehistory, and history of the Colorado Desert, is ancient Lake Cahuilla. Consequently, the implications of the periodic inundation of the Salton Trough will be described in more detail. As described previously, although it is generally accepted that freshwater inundations of the Salton Trough likely began during the Pleistocene epoch, it is documented that during the middle to Late Holocene epoch, Lake Cahuilla filled during natural episodes of Colorado River flooding, and then receded, several times before its last natural desiccation about 300 Before Present (B.P.) (Schaefer 1994, 2006; Waters 1983; Wilke 1978). During the Holocene, Lake Cahuilla formed in the Salton Trough when the Colorado River's

major flood episodes breached a drainage divide near Cerro Prieto in northern Baja California. The resulting head-cutting diverted all or most of the Colorado River flow into the Salton Trough. Unchecked, the Colorado River flow would fill the trough to the 40-feet (12-meter) amsl contour, at which point an outflow channel was created. Flow into the trough presumably would have continued until siltation clogged the inflow channel. High evaporation rates would then cause the lake to recede and salinity to increase proportionally. Stands of Lake Cahuilla at the 40-foot (12-meter) amsl contour were truly huge, covering 2,201 square miles and reaching a maximum depth of 315 feet. Higher shorelines have been reported and dated to the Pleistocene (Waters 1983); however, it is not clear that any of these were associated with freshwater lakes resulting from Colorado River diversions.

### 3.1.3 Flora and Fauna

Creosote bush scrub is the most widespread natural vegetation type in the Sonoran Desert, and it covers large expanses of the Colorado Desert. Other natural plant communities also present in the general area include mesquite woodland, desert ironwood woodland, palo verde woodland, four-wing saltbush scrub, creosote bush-burrow weed scrub, brittle bush scrub, ocotillo scrub, and desert buckwheat scrub. The creosote bush scrub community is dominated by creosote bush (*Larrea tridentata*) and salt bush (*Atriplex canescens*) and occurs where the soil is more alkaline. Small shrubs include mesquites (*Prosopis* sp.), burrobrush (*Hymenoclea salsola* var. *pentalepis*), desert ironwood (*Olneya tesota*), and desert broom (*Baccharis sarothroide*), with ocotillo sparsely present on alluvial fans (Shreve and Wiggins 1964). Larger drainages and washes support species of small trees and shrubs including western honey mesquite (*Prosopis glandulosa*), ironwood, and blue palo verde (*Cercidium floridum*), as well as species such as smoketree (*Psoralea arguta*) (Bureau of Land Management [BLM] 2011:9.1071). Many of the plants in these various communities, including salt bush, mesquite, cactus, and buckwheat, were of economic importance to Native American people who occupied the area (Bean 1972; Bean and Saubel 1972).

The Colorado Desert is inhabited by a variety of faunal species that are well adapted to the dry and arid environment. Mammals commonly found in this region include kit fox (*Vulpes macrotis*), desert cottontail (*Sylvilagus auduboni*), and black-tailed jackrabbit (*Lepus californicus*), and an array of rodents such as white-tailed antelope squirrel (*Ammospermophilus leucurus*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert and Merriam kangaroo rats (*Dipodomys merriami*), and desert pocket mouse (*Perognathus penicillatus*). Coyote (*Canis latrans*), desert bighorn sheep (*Ovis Canadensis nelsoni*), and Sonoran pronghorn antelope (*Antilocapra americana sonorensis*) are among the larger mammals. The most common bat species in this area is the California leaf-nosed bat (*Macrotus californicus*). This region is also populated by a variety of reptiles, such as the fringed-toed lizard (*Uma inornata*, *U. notata*), flat-tailed horned lizard (*Phrynosoma m'calli*), desert tortoise (*Gopherus cinctus*), chuckwalla (*Sauromalus obesus*), and desert iguana (*Dipsosaurus dorsalis*). Snake species that thrive in the Colorado Desert including the banded sandsnake (*Chilomeniscus cinctus*), sidewinder (*Crotalus cerastes*), and rosy boa (*Lichanura trivirgata gracia*).

## 3.2 PREHISTORIC CONTEXT

Schaefer (1994) was the first to develop a chronological sequence for the Colorado Desert area. The sequence he proposed strongly resembles the scheme in use for the San Diego region,

while also incorporating archaeological information from the contiguous Mojave Desert region to the north. Schaefer's reliance on these two adjacent areas is in large part due to the well-defined cultural histories that have been developed for the Mojave Desert and San Diego regions. In contrast to these two areas, the basic culture history of the Colorado Desert region has not changed dramatically since pioneering archaeologist Malcolm Rogers (1939, 1945, 1966) published his initial impressions of the desert's chronology and cultural development, which it should be noted, also encompassed the San Diego region. Consequently, understanding the early prehistory of the Colorado Desert region still relies heavily on comparisons with, and information derived from, both the San Diego region and the Mojave Desert areas.

### 3.2.1 Paleoindian Period (ca. 12,000 to 10,000 B.P.)

The earliest well-documented prehistoric sites in Southern California belong to the Paleoindian Period (circa [ca.] 12,000–10,000 B.P.) during the Late Pleistocene. In the western United States, most evidence for the presence of Paleoindian peoples derives from finds of large-fluted spear and projectile points (Fluted-Point Tradition) found at sites associated with big game hunting. Paleoindian sites have been documented in places such as Clovis and Folsom in the Great Basin and the northern Desert Southwest area including the Mojave Desert (Moratto 1984:79–88). In the Mojave Desert, while absolute dating remains elusive, the Paleoindian Period is assumed to span approximately 12,000 to 10,000 B.P. (Sutton et al. 2007:234–236). Elsewhere in California, most of the evidence for the Fluted-Point Tradition derives principally from isolated occurrences of fluted points that have been found scattered across the state (Dillon 2002; Rondeau et al. 2007). Only isolated occurrences of fluted points have been observed in the Colorado Desert (e.g., Davis et al. 1980:150; Kline 2014) and in the San Diego area in mountains of southern San Diego County (Kline and Kline 2007). Some finds have also been made to the south in Baja California (Des Lauriers 2008; Hyland and Gutierrez 1995).

The beginning of the San Dieguito Tradition or Complex, which is associated with artifact assemblages distinct from that of the Fluted Point Tradition, is also assumed to date to the Paleoindian Period. In California (Alta California), this tradition has been documented mostly in the coastal area of San Diego County (Carrico et al. 1993; Rogers 1966; Warren 1966, 1967; Warren and True 1961); and to a lesser degree in the Mojave Desert (Sutton et al. 2007) and Colorado Desert (Rogers 1939, 1966; Schaefer 1994; Warren 1967). In the Mojave Desert, Sutton et al. (2007:236) assign the San Dieguito Complex to the early Archaic Period during the Early Holocene. Warren dates the San Dieguito Tradition as beginning circa 10,000 B.P. and ending sometime between 8500 and 7200 B.P. (Warren 1967, 1968:4; Warren and Ore 2011; Warren et al. 1998). It is characterized by an artifact inventory consisting almost entirely of flaked stone biface and scraping tools, but lacking the distinctive fluted points associated with the Fluted-Point Tradition. The subsistence system or emphasis of the San Dieguito Tradition, while not yet entirely agreed upon, appears to have been oriented towards hunting rather than gathering, based on the predominance of primarily hunting-associated tools in recovered artifact assemblages (Warren 1967, 1968).

Evidence for the Fluted-Point Tradition in the general vicinity of the Project area is minimal with only two isolated flute points have been identified in the Colorado Desert (Davis et al. 1980; Kline 2014) with a third point found in the mountains of San Diego County (Kline and Kline 2007). In contrast, the San Dieguito Tradition is relatively well-documented in the San Diego area. The most substantial evidence for this tradition derives from a stratified archaeological site, the

C.W. Harris Site (CA-SDI-149/316/4935B), in western San Diego County along the San Dieguito River. The Harris Site formed the original basis upon which the San Dieguito Tradition was defined (Rogers 1939, 1966; Vaughan 1982; Warren 1966, 1967, 1968; Warren and True 1961). Diagnostic artifact types and categories associated with the San Dieguito Tradition include elongated bifacial knives, scraping tools, crescentics, and Silver Lake and leaf-shaped projectile points (Carrico et al. 1993; Knell and Becker 2017; Rogers 1966; Vaughan 1982; Warren 1966, 1967; Warren and Ore 2011; Warren and True 1961). The C.W. Harris Site also provided the oldest calibrated radiocarbon date (9968 B.P.) found in association with a subsurface San Dieguito artifact assemblage (Warren and Ore 2011; Warren et al. 1998). Another slightly younger calibrated radiocarbon date of 9130 B.P. was also acquired from a San Dieguito-associated subsurface stratum at site CA-SDI-316 (Cooley 2013). Finally, possible evidence for the San Dieguito Tradition has been discovered at a site in the southern mountains of San Diego County; the site assemblage included complete, elongated bifacial knives and/or projectile points that bear a strong resemblance to some of those recovered from the C.W. Harris Site (Pignuolo 2005).

Although Rogers (1939, 1966) has described occurrences of sites and artifacts attributable to the San Dieguito Complex in the Mojave and Colorado Desert areas, the ability to accurately determine the antiquity of these artifacts and sites by radiometric dating methods has proven to be problematic (Schaefer and Laylander 2007:247; Sutton et al. 2007:237; Warren 1967:179). Consequently, the radiometric dating of the artifacts and their context at the C.W. Harris Site has for several decades, been the principal means of ascertaining the antiquity of these similar desert assemblages (Warren 1967). In the Mojave Desert area, the San Dieguito Complex has been largely subsumed under the Lake Mojave Complex (Sutton et al. 2007:236). Recently, calibrated radiocarbon dates from several Lake Mojave Complex associated sites have produced dates of similar antiquity to those from the C.W. Harris Site (Sutton et al. 2007:235) (i.e., ca. 10,000-9000 B.P.). In the Mojave Desert area, these Lake Mojave Complex sites are frequently associated with glacial lakes that were still present at the end of the Pleistocene and the beginning of the Holocene. Such glacial-related lacustrine features were generally not present in the more southerly Colorado Desert area. However, given the discovery of Paleoindian Period and/or Lake Mojave Complex associated projectile points in the Salton Basin (Apple et al. 1997; Wahoff 1999), it is possible that this basin, too, may have been inundated, at least periodically, during this earlier period.

### 3.2.2 Archaic Period (ca. 10,000 to 1,500 B.P.)

The Archaic Period (ca. 10,000–1500 B.P.) encompasses the interval between the relatively cool/wet conditions of the early Holocene and the appearance of assemblages characteristic of the Late Prehistoric. The Archaic Period is generally differentiated from the earlier Paleoindian Period by a shift from hunting-focused subsistence systems to a more generalized economy with an increased focus on gathering and the use of grinding tools and seed-processing technology. Consequently, typical artifact assemblages in the Mojave Desert—where sites dating to the early Archaic Period are common—contain dart points, but with increasing quantities of ground stone tools (such as manos and metates) occurring into the middle and latter parts of the period. As with the Paleoindian Period, little archaeological evidence has yet been encountered in the Colorado Desert area that can be definitely attributed to the early part of the Archaic Period (i.e., from ca. 8500–4000 B.P.) (Schaefer 1994:64; Schaefer and Laylander 2007:247). Although evidence of early Archaic occupation in the Colorado Desert has long been minimal—as noted above for the Paleoindian Period—possible evidence is the discovery of

Paleoindian Period and/or Lake Mojave Complex associated projectile points in the Salton Basin (Apple et al. 1997; Wahoff 1999) and at site CA-SDI-7074 in the mountains of southeastern San Diego County (Williams 2014), could change this paucity of evidence.

A possible early Archaic discovery in the Salton Basin occurred during an archaeological investigation at the Salton Sea Test Base (Apple et al. 1997; Wahoff 1999). This discovery consisted of an assemblage of large projectile points that were stylistically associated with early Archaic-style projectile points in the Mojave Desert, including Pinto and Elko styles. Although archaeological investigations did not obtain any radiocarbon dates to verify the relative dating evidence, the styles of these points appear to be associated with the early Archaic Period. More recently, excavations at site CA-SDI-7074, in the eastern foothills of the Laguna Mountains, uncovered more than 100 subsurface thermal features, many of which were likely earth ovens associated with agave roasting activity (Williams 2014). Although radiocarbon dating indicated that most of these oven features dated to the Late Prehistoric Period, five of the more deeply buried features were discovered to date between 9600 and 8590 B.P. These results not only indicate the use of agave as a food resource much earlier in time than was previously realized, but also suggest a reappraisal of the dating for the inception of the early Archaic Period in the area (Williams 2014:325). Additional evidence for an early to mid-Archaic Period use at the site includes the recovery of a single Elko-style projectile point (Williams 2014:151).

Limited evidence has been found for late Archaic (beginning ca. 4000 B.P.) occupation in the western Colorado Desert. One of the few studies that have documented use during this time was completed by Love and Dahdul (2002) in the northern Coachella Valley of the Salton Basin. The contexts of several sites in the Coachella Valley, some possibly associated with ancient stands of Lake Cahuilla, were radiocarbon dated to circa 3000-2000 B.P. (Love and Dahdul 2002; Schaefer and Laylander 2007:249). Other evidence for the late Archaic use in the area includes deposits found at the Indian Hill Rockshelter (CA-SDI-2537) in Anza-Borrego Desert State Park (McDonald 1992) and at another rock shelter in Tahquitz Canyon, near Palm Springs (Bean et al. 1995; Schaefer and Laylander 2007:247). The Indian Hill Rockshelter, until recently, was the oldest radiocarbon-dated archaeological site in the area. The site contained distinctive dart-sized projectile points, ground stone implements, rock-lined caches, and inhumations, one of which was radiocarbon dated to  $4070 \pm 100$  years B.P. (McDonald 1992; Schaefer 1994; Wilke and McDonald 1989). The rock shelter in Tahquitz Canyon, although lacking radiocarbon dates, exhibited an assemblage similar to that found in the Indian Hill Rockshelter (Bean et al. 1995; Schaefer and Laylander 2007:247).

Evidence for settlement patterning during the Archaic Period in the Colorado Desert area is minimal. However, some of the late Archaic sites in the Coachella Valley appear to have been in contexts associated with intermittent ancient stands of Lake Cahuilla (Love and Dahdul 2002). It seems likely, therefore, that this hydrological feature had a significant influence on settlement patterns in the western Colorado Desert during at least the late Archaic. Evidence of Archaic habitation at the Indian Hill and Tahquitz Canyon rockshelter sites indicate that adjacent mountain areas were also used by prehistoric groups during the middle to late Archaic.

### 3.2.3 Late Prehistoric Period (ca. 1,500 to 300 B.P.)

The Late Prehistoric and Protohistoric periods are represented in this region by the Patayan Complex. These periods date from approximately 1500 B.P. until the American expansion into



the area at the turn of the nineteenth century. The Protohistoric Period encompasses a protracted 300-year-long period of sporadic European exploration and colonization that had little effect on aboriginal lifeways in the Southern California deserts.

Compared to those shifts noted for the middle and late Archaic Period, the changes occurring at the onset of the Late Prehistoric Period were rather abrupt. The magnitude of these changes and the short period of time within which they took place seem to indicate a significant alteration in subsistence practices ca. 1500–1300 B.P. The changes observed in the archaeological record in the San Diego area during the Late Prehistoric Period include: a shift in settlement patterning indicative of population increases; a shift from hunting using the atlatl and dart to using the bow and arrow; a reduced emphasis on shellfish gathering along some areas of the coast (possibly as a result of silting-in of the coastal lagoons); the introduction and production of pottery; an increase in storage of principal foodstuffs, such as mesquite, acorns, and piñon nuts; a shift in burial practices from inhumation to cremation; and, along the Colorado River, a change in economic and settlement patterns that involved subsistence expansion and the adoption of floodplain horticulture (Gallegos 2002; McDonald and Eighmey 1998; Schaefer 1994).

In the Coachella Valley and Salton Basin area, the Late Prehistoric Period is associated with the periodic infilling and emptying of Lake Cahuilla. This substantial hydrological feature is seen as recurrently altering the course of human settlement in the area during the period (Schaefer and Laylander 2007:250–251). During times of lake absence, settlement appears to have been characterized by the occupation of semi-sedentary villages along major water courses and around springs with adjacent montane areas seasonally occupied to exploit mesquite, acorns, and piñon nuts. Tahquitz Canyon in the mountainous area west of the Salton Basin has been documented as having been an important population center during the Late Prehistoric Period (Bean et al. 1995).

Schiffer and McGuire (1982:216–222) and Waters (1982a) used a chronology originally proposed by Rogers (1945) to divide the Late Prehistoric Period in the Colorado Desert area based on the progression or changes in development of ceramic types. Referring to the period as “Patayan” (instead of the term “Yuman,” used by Rogers), three phases were defined that were correlated with fillings and desiccations of Lake Cahuilla. These phases include:

- **Patayan I** begins at approximately 1200 B.P. with the introduction of pottery into the Colorado Desert. Sites dating to this phase appear to be limited mostly to the Colorado River area.
- **Patayan II** coincides with an infilling of Lake Cahuilla around 950 B.P. As described previously, the lake covered much of the Imperial Valley and created an extensive lacustrine environment that is thought likely to have attracted people from the Colorado River area. New pottery types appear at this time as a result of local production along the lakeshore and technological changes in the Colorado River area. Subsequently, Lake Cahuilla experienced several fill/recession episodes before its final desiccation.
- **Patayan III** begins around 500 B.P. as the lake receded. Colorado Buff ware became the predominant pottery type during this time period across the Colorado Desert and along the Colorado River. Several Patayan II pottery types continue into the Patayan III (Waters 1982a, 1982b).



This chronological scheme has served as a useful tool for organizing archaeological assemblages in the area. However, Schaefer and Laylander (2007:252–253) noted that data obtained from more recent archaeological investigations highlight some serious discrepancies with its use (e.g., Hildebrand 2003).

As previously noted, the beginning of the Late Prehistoric Period in the San Diego County area is marked by the appearance of several new tool technologies and subsistence shifts in the archaeological record. Movements of people during the last two millennia can account for at least some of these changes. Yuman-speaking people have occupied the Gila and Colorado river drainages of what is now western Arizona at least 2000 years ago (Moriarty 1968); over time, these groups appear to have migrate westward through the Colorado Desert and the mountains of the Peninsular Ranges to the coast. An analysis by Moriarty (1966, 1967) of materials recovered from the Spindrift Site in La Jolla indicated a preceramic Yuman phase. Based on his analysis and a limited number of radiocarbon samples, Moriarty concluded that Yumans, lacking ceramic technology, migrated and occupied what is now the San Diego coastline circa 2000 B.P. Subsequently, by approximately 1200–1300 B.P., ceramic technology diffused into the coastal area from the eastern deserts. Although these Yuman speakers may have shared cultural traits with the people occupying what is now eastern San Diego County before 2000 B.P., their influence is better documented throughout present-day San Diego County after 1300 B.P. with the introduction of small points, ceramics, Obsidian Butte obsidian from the Salton Basin, and the practice of cremation of the dead.

Two distinct archaeological complexes have been proposed for the Late Prehistoric Period in what is now San Diego County. The Cuyamaca Complex is based on analysis by True (1970) of archaeological excavations undertaken in the Cuyamaca Rancho State Park and analysis of archaeological collections at the San Diego Museum of Man. Results of his analysis, True (1970) was able to define a Late Prehistoric Period Complex for southern San Diego County. This complex differs from the San Luis Rey Complex, which Meighan (1954) identified in the northern portion of the county. The two complexes are primarily differentiated by the presence or absence, or differences in the relative occurrence, of certain diagnostic artifacts in site assemblages. For example, Cuyamaca Complex sites generally contain both Cottonwood Triangular-style and Desert Side-notched arrow points, while Desert Side-notched points are quite rare or absent in San Luis Rey Complex sites (Pignuolo 2001). Other examples include use of Obsidian Butte obsidian, which is far more common in Cuyamaca Complex sites than in San Luis Rey Complex sites and ceramics. While ceramics are present during the Late Prehistoric Period throughout the region, pottery occurs earlier in time and appears to be somewhat more specialized in form at Cuyamaca Complex sites. Burial practices at Cuyamaca Complex sites are almost exclusively cremations, often in special burial urns for interment. In contrast, archaeological evidence from San Luis Rey Complex sites indicates use of both inhumation and cremation. Based on ethnographic data, it is now generally accepted that the Cuyamaca Complex is associated with the Yuman Diegueño/Kumeyaay and the San Luis Rey Complex with the Shoshonean Luiseño/Juaneño.

Compared to Archaic Period sites, Late Prehistoric Period sites attributable to the San Luis Rey or Cuyamaca complexes, while not absent, are less common in the near-coastal areas of the county. As noted by Gallegos (1995:200):

“for San Diego County, there is temporal patterning, as the earliest sites are situated in coastal valleys and around coastal lagoons. Late Prehistoric Period sites are also found in coastal settings but are more common along river valleys and interior locations.”

In contrast, numerous Late Prehistoric Period sites, attributable to the San Luis Rey or Cuyamaca complexes, have been identified in the inland foothill areas of the region (e.g., Carrico and Cooley 2005; Chace and Hightower 1979; Cooley and Barrie 2004; McCown 1945; McDonald et al. 1993; Raven-Jennings and Smith 1999; Willey and Dolan 2004).

### 3.2.4 Ancient Lake Cahuilla and Obsidian Butte

Wilke (1978:90-93) initially posited three lacustrine intervals in the Salton Trough representing an unknown number of stands of Lake Cahuilla during the past 2,100 years. Waters (1983) subsequently refined Wilke’s original estimates of the lacustrine intervals and suggested that there had been four lacustrine intervals that reached the 12-m amsl shoreline during the last 1,500 years (Waters 1983:382-385). The results of additional archaeological research suggest that a fifth, more recent lacustrine interval of Lake Cahuilla occurred sometime between the Spanish explorations of the region in A.D. 1540 and 1775. Radiocarbon dating indicates that this high stand probably occurred between approximately A.D. 1685 and 1740 (Cleland 1999:13).

The Lake Cahuilla chronology, in calendar years before present (cal B.P.; before A.D. 1950), corrected for variations in radiocarbon, is as follows:

- **Lacustrine Interval 5:** 330-270 cal B.P.;
- **Lacustrine Interval 4:** 520-370 cal B.P.;
- **Lacustrine Interval 3:** 740-580 cal B.P.;
- **Lacustrine Interval 2:** 1010-740 cal B.P.;
- **Lacustrine Interval 1:** 1250-1010 cal B.P.

It should be noted that the dates for the duration of the lake high stands represent maximum spans. The stratigraphic record reveals that the next oldest lacustrine intervals are associated with radiocarbon assays from two distinct sedimentary strata dating to approximately 2285 and 2300 cal B.P. Stratigraphic evidence indicates that there were no episodes of filling of Lake Cahuilla between about 2300 and 1250 cal B.P. (Waters 1983).

Each interval of filling the empty basin or evaporating all the impounded water likely occurred over several decades. As such, it is likely that during much of the past 2,300 years, the lake was neither full nor empty, but rather rising or falling between 84.8 meters bmsl and 12-meters amsl. A salient implication of this vertical dynamism is that the areal extent of Lake Cahuilla was highly variable over time. Native American settlement likely have shifted as the shoreline advanced or retreated. This variability in lake elevations is also important for determining when volcanic glass was available from the Obsidian Butte source. In late prehistoric times, especially after 950 B.P., toolstone from Obsidian Butte was widely used in Southern California. However, the source was inundated at its glass inaccessible whenever Lake Cahuilla’s surface elevation was higher than 40 meters bmsl (Schaefer and Laylander 2007). Expanding or receding, the lake would have prevented access to Obsidian Butte glass whenever the water level stood between 40 meters bmsl and 12 meters amsl. Ethnographic testimony attests to the

importance of Obsidian Butte as a primary source of volcanic glass and a place of special importance to many local native populations persists to this day (Gates and Crawford 2010).

### 3.3 ETHNOGRAPHIC CONTEXT

Schaefer (2006:21) has previously indicated that the location of the Project area is in a boundary area of the traditional territories of two tribal groups, the Yuman-speaking Tipai (Kamia) to the south and the Shoshonean-speaking Cahuilla to the north (Schaefer 2006:21). Schaefer's use of the term "Tipai" has evolved in the literature, through time, as the one applicable to the people living in the area of eastern San Diego and Imperial counties.

The general early term applied for the Yuman-speakers in the area was "Diegueño," from the mission with which they came to be associated, the San Diego Mission de Alcalá. This term was later adopted by anthropologists (e.g., Kroeber 1925) and further divided into the southern and northern Diegueño. Subsequently, Shippek (1982) initiated the use of a Yuman language term, "Kumeyaay," for the people formerly designated as the Diegueño. According to Carrico (1998:V-3):

"The linguistic and language boundaries as seen by Shippek (1982) subsume the Yuman speakers into a single nomenclature, the Kumeyaay, a name applied previously to the mountain Tipai or Southern Diegueño by Lee (1937), while Almstedt (1974:1) noted that 'Ipai applied to the Northern Diegueño with Tipai and Kumeyaay for the Southern Diegueño. However, Luomala (1978:592) has suggested that while these groups consisted of over 30 patrilineal clans, no singular tribal name was used and she referred to the Yuman-speaking people as 'Ipai/Tipai..."

Other researchers designated the Kumeyaay living north of the San Diego River as 'Ipai (Northern Diegueño) and those living south of the river and into Baja California as Tipai (Southern Diegueño) (Hedges 1975:71–83; Langdon 1975:64–70). Gifford (1931) designated the Kumeyaay living in the eastern San Diego and Imperial counties as the Kamia, who were distinguished by a desert orientation, with contacts and travel most frequently between eastern San Diego County and the Imperial Valley. This term has generally been replaced with the designation of eastern Kumeyaay or Tipai (Gifford 1931:2; Hedges 1975; Langdon 1975; Luomala 1978). Recently, however, Schaefer (2006:25) stated that:

"The Kamia specifically were also directly related to the Tipai (southern Kumeyaay) of the mountains and coastal areas of San Diego County and northern Baja California. Their dialect, however, is closely related to the Cocopah and other delta Yumans."

According to Schaefer (2006:21), the Tipai (Kamia) and the Cahuilla "consider the cultural resources of the general area as part of their cultural and historical legacy." As such, both groups are described herein.

#### 3.3.1 Cahuilla

The Cahuilla are a subgroup of the Takic family of the Uto-Aztecan stock and are therefore closely related linguistically to other "Shoshonean" speaking groups including the Gabrielino, Luiseño, and Serrano. These Takic-speaking groups are thought to represent a migration into the area occurring approximately 1500 B.P. (Schaefer 2006:21). According to Schaefer (2006:22):

What role these Takic speakers had in the development of the Patayan pattern in the Colorado Desert remains unclear, although it may have been considerable. The ancestors of the Colorado River Yumans are most often identified as the source of ceramics, cremation practices, agriculture, some architectural forms, and some stylistic and symbolic representations. The Takic migrations may coincide with the introduction of bow-and-arrow technology, but no direct association can be made. They may have contributed specific hunter and gatherer techniques as well as cosmological and symbolic elements to the Patayan cultural system.

The diversity of Cahuilla territory reflects the range of environmental habitats in inland Southern California. Topographically, their territory ranged from the summit of the San Bernardino Mountains to the Coachella Valley and Salton Sink. Ecological habitats included the full range of mountains, valleys, passes, foothills, and desert areas. Villages were typically situated in canyons or on alluvial fans near water and food resources, and a village's lineage owned the immediately surrounding land (Bean 1972). Well-developed trails were used for hunting and travel between settlements. Village houses ranged from brush shelters to huts 15–20 foot long. Important plant foods exploited from the Cahuilla's diverse habitat included mesquite and screw beans, piñon nuts, and various cacti. Other important plant foods included acorns, various seeds, wild fruits and berries, tubers, roots, and greens. Women were instrumental in the collection and preparation of vegetal foods.

Cahuilla settlement and subsistence patterns were impacted by fill and recession episodes of Lake Cahuilla. When the lake was present, the desert area becoming a more productive resource area. Schaefer (2006:22) states that "Cahuilla mythology and oral tradition also indicate that when Lake Cahuilla dried up, it was the mountain people who resettled the desert floor. The time of Lake Cahuilla is also best documented in the oral traditions of the Cahuilla, both with regard to settlement patterns, song cycles, and the effects of Lake Cahuilla on patrilineal clan segmentation." According to Strong (1929:36) "The derivation of the term Cahuilla is obscure, and it is regarded by the Indians to be of Spanish origin."

The earliest Spanish contact with the Cahuilla may have been with the Juan Bautista de Anza expedition trips in 1774 and 1777. The route followed San Felipe Creek adjacent to Carrizo Creek and then through Borrego Springs, up into the San Jacinto Mountains (Pourade 1962:164; Schaefer 2006:23). The impact of the Spanish mission system and colonization was much less immediate and profound among the Cahuilla compared to Native American groups residing along the coast. It was not until 1819, after the establishment of the San Bernardino estancia and cattle ranch at San Geronimo, that a more direct Spanish influence was felt. By 1823, members of the Romero Expedition documented that the Cahuilla at Toro were growing corn and melons and were already familiar with the use of horse and cattle, indicating a familiarity with Hispanic practices (Bean and Mason 1962).

During the Spanish Period and into the Mexican Period, political leadership became more centralized as Juan Antonio from the Mountain Cahuilla and Chief Cabazon in the desert emerged as central figures (Strong 1929). Juan Antonio's group played a significant role during the Mexican American War, siding with the Mexicans against the Luiseño who supported the American invasion (Phillips 1975). Along with the rise of powerful chiefs and political restructuring, Mexican language, clothing, and food were incorporated into traditional culture during this era.

With the 1848 signing of the Treaty of Guadalupe Hidalgo, the U.S. Government promised to preserve the liberty and property of the inhabitants of California. In 1952, a treaty was drafted to settle land rights issues for the Cahuilla (as well as Serrano and Luiseño). The treaty was never ratified by Congress and the best farming and grazing lands were claimed by Euro-American settlers. In addition, Executive Orders enacted in the 1960s and 1970s resulted in the establishment of reservations that substantially reduced Cahuilla land. The result of these orders created a checkerboard of 48 sections of reservation lands spread across the eastern edge of the Santa Rosa and San Jacinto mountains and the Coachella Valley (Cultural Systems Research, Inc. [CSRI] 1983). Although various modifications have occurred over time, this has remained the permanent home of the Cahuilla to date.

### 3.3.2 Tipai/lipai (Kamia)/Kumeyaay

The Tpai-lipai/Kumeyaay were also hunter-gatherers who seasonally altered between the mountainous western portions of their territories and the eastern desert areas to maximize resource exploitation. Similar to the Cahuilla, the lifeways of the Tpai-lipai/Kumeyaay were impacted by the fill and recession of Lake Cahuilla. Schaefer (2006:26) states that “Lake Cahuilla figures prominently in the Kamia’s origin myth (Gifford 1931:75–83) and except for the Cahuilla, represents the only other major recorded oral tradition regarding the ancient lake.” The Tipai/Kamia were closely connected to the Quechan on the Colorado River and served as trading partners between the coastal and desert groups, using a travel route through the Mountain Springs Grade. These trading partners also were frequently politically allied against other groups to the north and south (Cook et al. 1997:9). The earliest Spanish contact may have been in 1785 by Pedro Fagés or during the Anza expedition journeys in 1774 and 1777 (Cook et al. 1997; Schaefer 2006). By this time, the Tpai-lipai/Kumeyaay were hostile to the Spaniards and were in alliance with other groups, actively resisting Spanish rule in the area. In 1775, this resistance culminated in open revolt when tribal members from at least 14 local villages banded together and attacked, and burned, the Mission San Diego de Alcalá (Carrico 2008:32–33). The Tipai-lipai/Kumeyaay continued to resist European and Anglo rule through the Mexican Period and into the American Period.

Although Mexico’s governance of Alta California did not last long, it did help to cement the changes brought by the Spanish missionization and colonization of the area. One major alteration occurred in 1835 when the missions were secularized, and their large land holdings were made available to private citizens. Although some large grants of land were made prior to 1834, secularization of the mission’s large grazing holdings ushered in the Rancho Era.

One impact was the dissolution of the mission as a residential and labor center for territorially disenfranchised Native Americans. Many mission neophytes had little option but to work on the new Mexican ranchos. Communities living farther from the ranchos were able to maintain their traditional lifeways for a bit longer. New ranches put new pressures on California’s native populations, as grants were made in inland areas still occupied by the Kumeyaay, forcing them to acculturate or relocate farther into the backcountry. In rare instances, former mission neophytes were able to organize pueblos and attempt to live within the new confines of Mexican governance and culture. The most successful of these pueblos was the Pueblo of San Pasqual, located inland along the San Dieguito River Valley, founded by Kumeyaay who were no longer able to live at the Mission San Diego de Alcalá (Carrico 2008; Farris 1994).

During the American Period, railway systems began to connect the people and products of Southern California to the rest of the United States. Increased American settlement and claims on the land for residential, mining, agricultural, and ranching purposes in the second half of the nineteenth century meant that many remaining lands sustaining Native American populations were marked, surveyed, or even fenced as private, again changing the landscape of what are now San Diego and Imperial counties. Native American reservations were established, ostensibly to provide land for Native American populations, but these holdings made available only the poorest of subsistence lands and forced many indigenous peoples to adopt a more sedentary lifestyle, reliant on the Anglo economic system as an alternative to moving to reservations (Carrico 2008).

### 3.3.3 Quechan

According to Quechan oral tradition, their territorial range extended along the Colorado River from Blythe in the north to Mexico in the south. At the time of sustained European contact in the seventeenth century, the Quechan people numbered in the thousands. The largest concentration of Quechan traditionally lived at the confluence of the Colorado and Gila rivers, although they were strangely not reported in that area in 1540, when the Alacon and Diaz expeditions reached the confluence (Forbes 1965; Forde 1931). Nevertheless, in the following century, large Quechan villages existed in the area.

The Quechan economy was based on a combination of horticulture, fishing, and gathering. During the winter and spring, Quechan groups lived in seasonal village settlements located on terraces above the river floodplain. After the spring floods receded, small family groups dispersed to their agricultural plots along the river to plant crops. After the harvest in the fall, the Quechan gathered again in the large villages on the terraces, where stored agricultural foods, fishing, and limited gathering allowed them to live together through the winter (Bee 1983; Forde 1931). In all times but high flood, fishing in the Colorado River provided an important source of protein.

Numerous named villages were located along the terraces above the lower Colorado River flood zone. The village known as *Avi Kwotapai* was located on the west side of the Colorado River between Blythe and the Palo Verde Valley, and *Xenu mala vax* was on the east side of the river near present-day Ehrenberg (Bee 1983). Quechan and other Yuman-speaking groups report well-traveled trails that extend along the Colorado River, as well as trail networks between peaks and other significant landscape features (see discussions in Cleland and Apple 2003). Primary ethnographic sources for the Quechan include Bee (1983), Castetter and Bell (1951), and Forde (1931).

The contemporary Quechan community is concentrated in the lands of the Fort Yuma-Quechan Reservation and has its main headquarters in Fort Yuma, Arizona. The reservation is approximately 45,000 acres and is located along the lower Colorado River in both Arizona and California just north of the United States/Mexico border.

## 3.4 HISTORIC CONTEXT

The history of the region is generally divided into Spanish (1769–1821), Mexican (1821–1846), and American (1846–present) periods. The Spanish Period is marked by the establishment of a mission and presidio on a hill overlooking San Diego Bay in July 1769. The Spaniards introduced European crops, cattle, and other livestock. The Mexican Period began in 1821 when Mexico achieved independence from Spain. During the 1820s, a small village began to form at the base



of Presidio Hill that became the Pueblo of San Diego (present-day Old Town). The town served as a market center and port for numerous ranchos in the region that were chiefly employed in cattle raising for the exportation of hides and tallow. In 1846, San Diego was occupied by American troops and officially became part of the United States when the Treaty of Guadalupe Hidalgo formalized the transfer of territory from Mexico to the United States in 1848.

European contact with coastal southern California began as early as 1542, with the voyage of Juan Rodríguez Cabrillo. However, intensive interactions and contacts with interior areas only came after the establishment of the Spanish presidio and mission of San Diego in 1769. During the Spanish Period, exploratory probes into eastern San Diego County were made by Pedro Fagés and others, and the southern immigrant trail came into use by colonists from Sonora. Mission culture may have begun to impact Native culture residing in the vicinity of the Project area.

In the 1800s, most travel from Arizona to San Francisco by Mexican soldiers, and later by American settlers, followed Anza's route. While the historic activity in the area during the early nineteenth century was limited primarily to travel with little settlement or resource exploitation, more intensive activity began in the 1820s, with the onset of limited placer mining in the eastern Colorado Desert. Early Spanish prospectors named the Cargo Muchacho ("loaded boy") Mountains after the gold they found there.

Mexico obtained independence from Spain in 1821. Soon thereafter, California's administrators began to shift their focus away from the Franciscan mission system and toward Hispanic lay settlement of the province. Avenues for foreign trade were opened, and private land grants became more numerous and extended farther inland from the coast.

During the Mexican American War of 1846–1848, California was occupied and subsequently annexed by the United States (U.S.). From the 1840s through the 1880s, the U.S. Cavalry established a series of camps and forts throughout Arizona, Nevada, and the California desert to protect settlers and immigrants from hostile tribes (Rice et al. 1996). Land ownership was complicated by this transition. The Treaty of Guadalupe-Hidalgo, signed in February 1848, obligated the U.S. Government to recognize legitimate land claims in Alta California. While Mexicans initially made up most of the population, the Gold Rush after 1849 stimulated large-scale immigration into the region. Despite large land holdings and a strong cattle industry, many Mexican landowners found themselves overextended when the northern California miners' demand for meat dwindled. To pay their taxes and bills, some were forced to offer up their lands at public auction (Garcia 1975:22). Small farmers had difficulty maneuvering through the process and acquiring land (Garcia 1975:16). Settlers increasingly squatted on land that belonged to Mexicans, citing their preemption rights, which was the tradition that squatters had the first opportunity to buy the unimproved, unclaimed land for a fair price before auction (Garcia 1975:22). Squatters increasingly challenged the validity of Spanish-Mexican claims through the Board of Land Commissioners created by the California Land Claim Act of 1851 (Garcia 1975:22-23). Most Californios did not retain their original land holdings by 1860, including Santiago Arguello, who was granted the former Mission San Diego land in 1846 and eventually lost \$24,000 in property (Garcia 1975:24).

Following the establishment of forts throughout the area, the California desert region again opened for exploration and settlement. As part of an effort to establish a railroad route from St. Louis to the Pacific Ocean, the U.S. Government conducted a series of surveys between 1853 and 1855 to identify feasible routes. One of the railroad survey parties, led by Lieutenant R.S.

Williamson, included a young geologist, William Phipps Blake, who was the first to identify the Salton Trough as an ancient lake bed (Cory and Blake 1915; Rice et al. 1996) and recognized the fertility of the basin. Sporadic flooding occurred at least eight times from 1824 to 1904. It was during this time that the 1856 U.S. Government Land Office survey documented several historic trails within the region, as well as the Tipai settlement at San Sebastian Marsh (Warren et al. 1981; Warren and Roske 1981).

By 1860, most of the land in San Diego region was unimproved farmland and some ranches (Garcia 1975:15). Settlement of the area occurred through homesteading primarily, which was authorized by the Homestead Act during the Civil War. The Timber Act, passed in 1873, also spurred settlement. It required a 10-year cultivation period of healthy trees. Some speculators and ranchers used this law as a way to obtain land for purposes other than what the patent stated. In the 1870s and 1880s, small farming communities were quickly established throughout San Diego County as settlers took up homestead claims on government land or small holdings purchased from real estate developers.

Significant economic development of the Colorado Desert region began in the 1870s and came to fruition in the early part of the twentieth century. Development was dependent largely on transportation and the availability of potable water. The first of these came in 1872 with the construction of the Southern Pacific Railroad from Los Angeles to present-day Indio, and eventually to Yuma. The early townsite of Indio, the midpoint between Los Angeles and Yuma, was created to provide living quarters for train crews and railroad workers. The first trains ran on May 29, 1876 (Pittman 1995:36). The Southern Pacific continued east, paralleling an 1857 road along the eastern side of the Salton Trough. Railroad stops were built at Walters (now called Mecca), Woodspur (Coachella), and Thermal, among others. The same large dunes that had hindered de Anza's expedition hindered construction of the railroad.

The Southern Pacific Railroad was finally forced to build along the eastern edge of what came to be known as the Imperial Sand Dunes. Railroad sidings in the area with names such as Glamis, Amos, and Ogilby developed into small company towns. The second Transcontinental Railroad was completed when the Southern Pacific and Atchison, Topeka, and Santa Fe Railroads were linked at Deming in New Mexico Territory on March 8, 1881, providing settlers relatively quick and easy access to the region. The citizens of Imperial Valley petitioned the Southern Pacific Company to build a branch line south, connecting the valley to the main Southern Pacific Railroad. In 1903, the line was completed from Old Beach (Niland) to Imperial. By 1904, the line had been extended to Calexico (Heath 1945). A branch line ran from El Centro to Seeley, connecting the Southern Pacific to the San Diego and Arizona Eastern Railroad (Farr 1918). The San Diego and Arizona Eastern Railroad ran from 1919 to 1983, connecting San Diego and Imperial Counties (Crawford 2010).

The completion of the railroad resulted in an unprecedented real estate boom for the city and county of San Diego. The population of San Diego swelled by 700 percent from 5,000 in 1885 to 40,000 in 1889 (Hector et al. 2004:18). Most of the growth was concentrated in the coastal areas and adjacent inland valleys, west of the present Project area, but Imperial County began to experience significant development during the first decade of the twentieth century, with the inauguration of an irrigation system tapping the waters of the Colorado River.

### 3.4.1 Imperial County

The County of Imperial was founded on August 15, 1907. It was the last county to be organized in California and measures 4,087 mi<sup>2</sup> in area (O'Dell 1957:8). Largely unoccupied by Euro-Americans through much of the early nineteenth century, the historic development of the western portion of the Imperial County has been influenced by three major water bodies. These include the Salton Sea, the Alamo River, and the New River, the latter of which lies less than one mile southwest of the Project area. All three landforms lie are the result of a manmade accident that occurred between 1905 and 1907. A discussion of each of these geographic features is provided below.

Beginning in the early twentieth century, population in the county began to increase with the completion of the Alamo Canal, which directed water from the Colorado River, into Mexico, and back into California (O'Dell 1957:87-88). By 1905, there were about 67,000 irrigated acres farmed by recent settlers to the valley (Bright 1998:70; Hendricks 1971:8). Over the next twenty years, many farmers moved into the county, drawn by the growing agricultural industry, which took off with the construction of the Hoover Dam in 1936 and the All-American Canal in 1940.

Cotton became a major industry in the vicinity of the Project area with 50,000 acres of land in the county devoted to its cultivation in 1914 (McGroarty 1914:27). Alfalfa was another important crop, but as production exceeded demand, it became too expensive to export. As a result, dairy farming became a growing industry, with 2,000 dairies opening in the valley to make use of the surplus alfalfa (Anderholt 1989:53). Historically, most of the land within the Project area has been owned by small-scale farms, some of which have been in operation since the early twentieth century (see Section 3.4.3 below). Although Imperial County is rich in a variety of mineral resources (e.g., clays, gypsum, and marble), mining does not appear to have developed as an important industry in the Project area.

### 3.4.2 Salton Sea

The Salton Sea is in the location of the historic Lake Cahuilla, which the Colorado River periodically emptied for centuries (San Diego Union-Tribune 2015). In 1905, high spring flooding on the Colorado River spilled over a California Development Company canal, overflowing through the Alamo channels, and flooding the Imperial Valley. The entire volume of the Colorado River rushed down into the Salton Sea until engineers were able to stop the flow of water in 1907, two years after the initial breach. By this time, the Salton Sea was a 400 square meter body of water – larger than Lake Tahoe (Picone 2021)

The Salton Sea is an endorheic lake, which means the waters never discharge into the ocean and either seep into the earth or evaporates. As a result, the lake has a higher saline level than the Pacific Ocean and is constantly increasing in salinity from evaporation (Picone 2021). While the saline levels were lower in the 1950s and 1960s, the Salton Sea was a popular tourist destination where millions of visitors would come to the warm waters every year, sometimes drawing more tourists than Yosemite (Picone 2021). In the 1950s, the California Department of Fish and Game stocked the lake with fish in a successful effort to draw fisherman. A yacht club opened, and many high-profile Hollywood stars visited, including Sony Bono, who learned how to water ski on the sea (San Diego Union-Tribune 2015). By the 1970s, tourism came to a halt as rising salinity, shoreline flooding, and fertilizer runoff from nearby farms caused algal blooms and elevated bacterial levels. This caused a mass-die-off of the sea's fish, and in turn, the local

bird populations (Picone 2021). Today, the Salton Sea remains a busy stopping spot for migratory birds. The main tourist draw is the Sonny Bono Salton Sea National Wildlife Refuge (NWR) on the southeastern shores of the Salton Sea. As many as 25,000 visitors a year visit the NWR each year for recreational purposes (San Diego Union-Tribune 2015).

### 3.4.3 Canal System

The Alamo Canal, completed in 1901 by the California Development Company, was the first canal to serve Imperial County. By 1905, Imperial County had 80 miles of canals and 700 miles of distribution canals. Most of the water was redirected from Colorado River, providing water to 12 water districts that served Imperial Valley. Prior to 1936, the water supply for the Imperial Valley was silt laden. The canal system quickly became clogged and dredging the system was difficult and expensive. The California Development Company did not have the financial resources to keep the system clear. As described above, construction of a new control gate in 1905, coinciding with unusually heavy floods, led the Colorado River to overflow its banks and flood the Imperial Valley. A total of 13,000 acres of irrigable land was destroyed as a result with an additional 30,000 acres left without a water supply. All crops were lost and by 1909, the California Development Company was bankrupted.

The Imperial Irrigation District (IID) was formed in 1911 under a state charter to acquire properties of the bankrupt California Development Company. By 1922, the IID had acquired 13 water companies and between 1930 and 1940, the All-American Canal (AAC) was built to replace the Alamo Canal (Dowd 1956:88). The AAC provided reliable water to the valley from the Colorado River and by 1942, became the sole source of imported water for the Imperial Valley. Today, approximately 1,667 miles of canals and laterals distribute irrigation water within IID's service area (Bureau of Reclamation n.d.).

Three major distribution canals channel water throughout the Imperial Valley: East Highline (EHL), Central Main (CM), and Westside Main (WSM) (CH2M Hill 2001). The three canals service different portions of the valley: the EHL serves IID's area east of the Alamo River, the CM Canal serves the area between the Alamo River and the New River; and the WSM serves the area west of the New River. The CM Canal branches from the AAC near the town of Calexico and runs northward through the central portion of the IID. Following its construction, a network of irrigation laterals was constructed off the CM Canal, most of which run northward. The CM Canal system has one associated reservoir, the Fudge Reservoir, that is located near Brawley.

One of the largest laterals that is associated with the CM Canal is the Dogwood Canal. Branching off the CM Canal near Highway 111, the canal runs west paralleling the CM Canal for approximately 2.5 miles before turning north and continuing along Dogwood Road for a distance of 10.3 miles. An approximately 0.7-mile-long portion of the canal within the city of El Centro runs through an underground pipeline. Although the date of construction of the canal is not known, historical maps indicate that it was operational as early as the 1910s (USGS 1915).

The irrigation water that is transported through the CM Canal system drains into New River, which flows west and north from the Mexicali Valley in Baja California to the Salton Sea. The modern river course was created in 1905-1907 by high spring flooding on the Colorado River. Washing out portions of the Alamo Canal, the flood water coursed into the Salton Basin and created the New River channel (Dowd 1956:35). The New River eventually became one of the main outlets to the Salton Sea with extensive drainage systems constructed by the IID in the

early decades of the twentieth century (Dowd 1956:36).

Within the Project vicinity, much of the land south of the CM Canal is irrigated by a series of lateral canals originating off the Beech Canal. The Beech Canal is a 6.5-mile-long structure that diverges from the CM Canal in Calexico and drains into the New River. Historic topographic maps indicate that the canal and its laterals were built between 1907 and 1915 (USGS 1907 and 1915). A drainage system associated with the Beech Canal appears to have been built by the IID sometime in the late 1920s or 1930s (Dowd 1956:70-71). The Beech Drain runs along the southern edge of the CM Canal in a westward direction for a distance of approximately 1.5 miles to empty into the New River.

## 4.0 CULTURAL RESOURCES INVENTORY

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PaleoWest conducted an in-person records search at the SCIC, housed at San Diego State University, on February 1, 2023. This inventory effort included the Project area along with a corresponding one-mile buffer, collectively termed the records search area. The objective of the SCIC records search was to identify prehistoric and historical cultural resources that have been previously recorded within the records search area during prior investigations.

As part of the cultural resources inventory, PaleoWest staff also conducted archival research to characterize the developmental history of the Project area and Native American outreach to obtain information on Native American cultural resources within the immediate vicinity of the Project area. A summary of the results of the record search and background research is provided below.

### 4.1 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS

The data review indicates that no fewer than 35 previous investigations have been conducted and documented within one mile of the Project area since 1976 (Table 4-1). Six of these studies (IM-0063, IM-00066, IM-00115, IM-00123, IM-00235, and IM-1306) encompassed portions or the entirety of the Project area. Many of the prior studies were associated with proposed geothermal developments. None of these previous investigations identified any cultural resources within the current Project area. A summary of the prior cultural studies is provided in Appendix A.

### 4.2 CULTURAL RESOURCES REPORTED WITHIN THE STUDY AREA

The review of the record search data indicate that six cultural resources have been previously documented within one mile of the Project area (Table 4-2). All these resources date to the historic period and include the mapped locations of telegraph poles, railroad segments, an irrigation feature, and a pool facility. No prehistoric archaeological resources were identified within the record search area and none of the previously documented resources are located within or immediately to the Project area. A summary of the previously recorded resources in the record search area is provided in Appendix A.

### 4.3 ADDITIONAL SOURCES

#### 4.3.1 Historical Maps and Aerial Imagery Review

Historical maps consulted as part of the background research include the BLM's General Lands Office (GLO) survey plat maps (1856 and 1880) and the *Holtville, CA* (1907) and *El Centro, CA* (1915, 1942, 1954, 1955, 1958, 1961, 1964, and 1989) 30-minute, *Heber, CA* (1940, 1943, and 1957a) 15-minute, and *Heber, CA* (1957b and 2012) 7.5-minute USGS topographic quadrangles. Aerial photographs available at NETROnline (2023) dated 1953, 1984, 1996, 2002, 2005, 2009, 2010, 2012, 2014, 2016, 2019, and 2020 were also reviewed.



Table 4-1 Previous Cultural Studies within One Mile of the Project Area

Study No.	Date	Author(s)	Title
IM-00063	1976	Von Werhof, Jay, and Shrilee Von Werlhof	Archaeological Examination of a Proposed Geothermal Testing Site Near Heber, California
IM-00066	1976	Von Werhof, Jay, and Shrilee Von Werlhof	Archaeological Record Search of the Heber California Region
IM-00072	1976	Von Werhof, Jay, and Shrilee Von Werlhof	Archaeological Examinations for the Wastewater Facilities Plan Report Sewer Rehabilitation, Calexico, California
IM-00075	1976	Von Werhof, Jay, and Shrilee Von Werlhof	Archaeological Examinations of Certain Geothermal Well Test-Site Areas in the Heber California District
IM-00115	1977	Von Werhof, Jay, and Shrilee Von Werlhof	Archaeological Examination of the Heber Anomaly Report Prepared for VTN Consolidated, Inc.
IM-00123	1977	VTN Consolidated, Inc.	Draft Environmental Impact Report for the Heber Geothermal Demonstration Project
IM-00125	1977	Pritchett, Howard E., and Lorraine Pritchett	Archaeological Examinations of a Proposed Site for ta Commercial Research Aguacultural Farm at Salton City, California
IM-00192	1979	VTN Consolidated, Inc.	Draft Master Environmental Impact Report for a 500-Megawatt Geothermal Development at Heber, Imperial County, California
IM-00199	1979	Walker, Carol, Charles Bull, and Jay Von Werlhof	Cultural Resource Study of a Proposed Electric Transmission Line from Jade to the Sand Hills, Imperial County, California
IM-00235	1981	Walker, Carol, Charles Bull, and Jay Von Werlhof	Cultural Resource Study of a Proposed Electric Transmission Line from Jade to the Sand Hills, Imperial County, California
IM-00272	1982	Sanchez, Miguel	Draft Environmental Impact Report – Current Land Use Plan, Heber Planning Unit
IM-00301	1983	Welch, Patrick	Cultural Resource Inventory for Thirty Proposed Asset Management Parcels in Imperial County, California
IM-00368	1987	Imperial County Planning Department	Chevron Geothermal Company of California Supplemental Project Information for the Auxiliary Production Facility Heber Geothermal Unit, Imperial County
IM-00441	1990	ENSR Consulting and Engineering	Environmental Assessment/Initial Study for the Placement of Fiber Optic Facilities Between Salton Microwave Station and Calexico, California
IM-00506	1994	Green, Eileen, and Joan Middleton	Cultural Resources Overview, All-American Canal Lining Project, Final Report
IM-00536	1979	Burkenroad, David	Phase One Regional Studies APS/SDG&E Interconnection Project Transmission System Environmental Study Cultural Resources: History
IM-00537	1979	Wirth Associates, Inc.	Phase One Regional Studies APS/SDG&E Interconnection Project Transmission System Environmental Study Cultural Resources: Archaeology
IM-00538	1979	Imperial County	Proposed Workscope Phase II Cultural Resources Studies APS-SDG&E Transmission Interconnect Project, Miguel to San Hills, Sand Hills to PVNGS
IM-00547	1982	Cultural Systems Research, Inc.	Draft Archaeological Research Design and Data Recovery Program for Cultural Resources within the Mountain Springs (Jade) to Sand Hills Portion of the APS/SDG&E Interconnection Project 500KV Transmission Line
IM-00595	1982	CSRI	Mountain Springs (Jade) to Sand Hills Data Recovery Preliminary Report
IM-00605	1996	Barrett Consulting Group	Preliminary Engineering Report for the Kloke Tract
IM-00647	1997	City of Calexico	Archaeological Assessment of the Kloke Tract
IM-00829	2001	Schaefer, Jerry, and Collin O'Neill	The All-American Canal: A Historic Properties Inventory and Evaluation

**Table 4-1 Previous Cultural Studies within One Mile of the Project Area**

Study No.	Date	Author(s)	Title
IM-00956	2005	Underwood, Jackson	Archaeological Reconnaissance of Los Lagos, Imperial County, California
IM-01080	1999	Von Werhof, Jay	Archaeological Examinations of the Heber Facilities Sewer and Water Improvement Project
IM-01095	2007	Garnsey, Michael	Cultural Resources Study for the Proposed Mosaic Project, Imperial County, California
IM-01101	2007	BRG Consulting, Inc.	Environmental Initial Study – Uniform Applications No. 2006-14, Ill Callexico Place
IM-01135	2006	HDR	Initial Study/Mitigated Negative Declaration – Towncenter Industrial Plaza, Callexico, California
IM-01214	2006	Hovey, Kevin	Historic Property Survey Report – The Widening of a 1,700-foot-long Portion of Cole Road Between Klope Road to the West and the Southern Pacific Railway Right-of-way to the East in the County of Imperial, California
IM-01252	2007	HDR	Draft Environmental Impact Report – Los Lagos Specific Plan, Callexico, California
IM-01253	2008	BRG Consulting, Inc.	Draft Environmental Impact Report for the 111 Callexico Place Specific Plan
<b>IM-01306</b>	<b>1980</b>	<b>Wirth Associates, Inc.</b>	<b>APS/SDG&amp;E Interconnection Project Environmental Study Phase II Corridor Studies – Native American Cultural Resources Appendices</b>
IM-01313	1980	Wirth Associates, Inc.	APS/SDG&E Interconnection Project Environmental Study Phase II Corridor Studies – Cultural Resources: Archaeology
IM-01727	2019	Roberts, Ted, and Lauren DeOliveira	Phase I Cultural Resources Report for the Heber 1 Expansion Project, Imperial County, California.

**Bold** indicates prior cultural resource studies that include the current Project area.

**Table 4-2 Previously Documented Cultural Resources within One Mile of the Project Area**

Primary No.	Trinomial	Age	Resource Type	Description
P-13-003312	CA-IMP-3312H	Historic	Unknown	Photo update of U.S. Military Telegraph Line mapped on 1880 US GLO Survey Map
P-13-003313	CA-IMP-3313H	Historic	Unknown	Photo update of U.S. Military Telegraph Line mapped on 1880 US GLO Survey Map
P-13-007699	CA-IMP-7594H	Historic	Structure	Southern Pacific Railroad Callexico Spur
P-13-008682	CA-IMP-8166H	Historic	Structure	Niland to Callexico Railroad
P-13-009077		Historic	Structure	Cole Road Pool
P-13-012743		Historic	Structure	Irrigation drop feature for the Strout Drain No. 2

The earliest map showing development within the Project area dates to 1915 (USGS 1915). At this time, the CM and Dogwood canals are present and a network of roads, including Dogwood Road, has been constructed south of the community of Heber; the Pacific Southern Railroad lies approximately 0.5 mile east of the Project area. The CM Canal is also shown on the adjacent 1907 *Holtville, CA* topographic map that depicts the area east of the Project (USGS 1907). By the early 1940s, two buildings have been constructed immediately south of the CM canal in the proposed Dogwood Parasitic Solar Energy Facility site (USGS 1940). An aerial photograph shows that the entirety of the Project area is under cultivation by 1953; Beech Drain has also been constructed by this time and one of the buildings noted on the 1940 topographic map appears to have been demolished (NETROnline 2023). By 1957, the second building on the proposed Dogwood Parasitic Solar Energy Facility site is in ruins and a new building has been constructed in its place (USGS 1957b). The HGEC facility has been

constructed in the early 1980s and was completed in 1985 (Electric Power Research Institute 1987). No notable changes in the use of the Project area have occurred since the 1980s (NETROnline 2023).

#### 4.3.2 Native American Outreach

PaleoWest contacted the NAHC for a review of the SLF on January 19, 2023. The objective of the SLF search was to determine if the NAHC had any knowledge of Native American cultural resources (e.g., traditional use or gathering area, place of religious or sacred activity, etc.) within the immediate vicinity of the Project area. The NAHC responded on February 28, 2023, stating that the SLF search resulted in positive results. The NAHC recommended that the Ewiiapaayp Band of Kumeyaay Indians and the Torres-Martinez Desert Cahuilla Indians be contacted to request information on known Native American cultural resources in the Project vicinity. In addition, the NAHC provided a list of 24 individuals representing 16 Native American tribal groups that may also have knowledge of cultural resources in the Project area. Outreach letters that included a map of the Project area were sent to the Native American contacts on March 1, 2023 with follow up emails and phone calls conducted on March 15, 2023. A summary of the Native American outreach letters is provided in Appendix B.

As of March 23, 2023, four comments have been received. Ray Teran of the Viejas Band of Kumeyaay Indians (“Viejas”) responded via email on March 1, 2023, requesting a Project plan and description, specifically as it relates to ground disturbance. PaleoWest responded later that day stating that information on the full extent of ground disturbance was not yet known but that it is anticipated that some ground disturbance will take place in most of the Project area that was shown on the map provided in the outreach letter. Mr. Teran responded via email on March 2, 2023, stating he had reviewed the proposed Project and at this time has determined that the Project site has cultural significance or ties to Viejas. He further noted that cultural resources have been located within or adjacent to the proposed Project and requested that a Kumeyaay Cultural Monitor be on site for ground-disturbing activities. In addition, he requested that the Viejas be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains. On March 2, 2023, Jill McCormick, the Historic Preservation Officer of the Quechan Indian Tribe, responded via email and stated that the tribe does not wish to provide PaleoWest with any comment on the Project. Rebecca Osuna, Chairperson of the Inaja-Cosmit Band of Indians, stated on March 15, 2023 that the Project is outside of the tribe’s geographic area and she had no comments at this time. Finally, Lisa Cumper, Tribal Historic Preservation Officer for the Jamul Indian Village, discussed the proposed Project on the phone with PaleoWest staff on March 15, 2023 and noted that the tribe would defer to more local Native American groups.

## 5.0 FIELD INVESTIGATION

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### 5.1 FIELD METHODS

A cultural resources survey of the Project was completed by PaleoWest archaeologists between February 22 and 24, 2023. PaleoWest's Associate Archaeologist Heather Landazuri, M.A., RPA, served as the Field Director with assistance from Field Technicians Marlen Hinojosa and Amy Ross. The survey methods consisted of walking a series of parallel pedestrian transects spaced at 10–15 meter (33–50-feet) intervals across the geothermal plant site and parasitic solar energy facilities. A 300-foot- (91-meter-) wide buffer was also surveyed along the proposed transmission line and pipeline alignments. In total, 219 acres of land were inventoried during the field effort.

Survey transects were navigated using georeferenced maps on iPad tablets. Some portions of the buffer areas within the vicinity of the construction/aggregates company were fenced and inaccessible. These areas were inspected remotely from the edge of the property. Crew members also opportunistically examined any subsurface exposures, including rodent burrows and cut banks.

The survey area was documented with digital photographs that included general views of the topography, vegetation density, and other images. A photograph log was maintained to include photograph number, date, orientation, photograph description, and comments. The surveyors carefully inspected all areas likely to contain or exhibit sensitive cultural resources to ensure discovery and documentation of cultural resources located within the survey area. In particular, the survey crews carefully inspected rocky outcroppings, banks, clearings, and other habitable flat spots.

All cultural materials and features of an eligible age were recorded during the survey in accordance with OHP (1995) guidelines. Historic period archaeological indicators include the remnants of buildings, objects, and structures, or concentrations of materials at least 45 years in age, such as domestic refuse (e.g., glass bottles, ceramics, toys, buttons, and leather shoes), refuse from other pursuits such as agriculture (e.g., metal tanks, farm machinery parts, and horse shoes) or structural materials (e.g., nails, glass window panes, corrugated metal, wood posts or planks, metal pipes and fittings, and railroad spurs). Prehistoric site indicators include areas of darker soil with concentrations of ash, charcoal, animal bone (burned or unburned), shell, flaked stone, ground-stone, pottery, or even human bone. Historic built-environment resources included standing buildings or structures that were constructed at least 45 years ago.

### 5.2 FIELD RESULTS

Much of the survey area was located within and adjacent to agricultural fields (Figure 5-1 to 5-2). Exceptions to this include the proposed geothermal plant site and injection well site in the HGEC and the portion of the brine pipeline north of the CM Canal; both these latter areas have been previously developed and disturbed by energy generation operations (Figures 5-3 and 5-4). The topography across the Project area is relatively flat except for human made canals and drainage ditches. Soils were fine- to medium-grained silty clay loam that is light reddish-brown in color.



Figure 5-1. Overview of proposed parasitic solar photovoltaic facilities site, facing west



Figure 5-2. Overview of brine pipeline alignment south of the CM Canal, facing north





Figure 5-3. Overview of proposed geothermal plant site within the HGEC facility, facing southeast



Figure 5-4. Overview of portion of brine pipeline alignment west of the HGEC facility, facing south



Due to the extensive agricultural and geothermal development in the Project area, little natural vegetation was observed in the survey area. The entirety of the ground surface within the Project area exhibits some level of prior disturbance. The primary sources of this disturbance include development and maintenance of geothermal facilities, agricultural activities, construction of canals and drainage ditches, installation of transmission lines and roadways, and the deposition of modern refuse (Figure 5-5 and 5-6).

Ground visibility across the survey area was variable. The proposed Dogwood Geothermal Plant and well injection site in the HGEC, as well as the transmission line and brine pipeline alignments, displayed excellent visibility (80 – 90%) and were largely devoid of vegetation (Figures 5-2, to Figure 5-4). In contrast, ground visibility was only moderate (25 – 50%) in the areas proposed for the substation, parasitic solar energy facilities, and production well locations. At the time of the survey, these latter areas were under cultivation as alfalfa fields and vegetation obscured large portions of the ground surface (Figure 5-1).

The survey of the Project area resulted in the identification of three historic built-environment resources that include segments of the CM Canal, Dogwood Canal, and Beech Canal and Drain system (Figure 5-7). All three resources consist of portions of in-use irrigation-related features that are more than 45 years of age. No evidence was found for the buildings that had been identified on the historic topographic maps (see discussion in Section 4.3.1). Furthermore, no prehistoric or historic period archaeological remains were identified in the Project area. Descriptions and evaluations of the three historic built-environment resources are provided below; Department of Parks and Recreation (DPR) 523 forms are provided in Appendix C.

### 5.2.1 Central Main (CM) Canal

Portions of the proposed transmission line and brine pipeline alignment intersect the CM Canal. The CM Canal is one of the major distribution canals that channels water through the Imperial Valley. The linear feature branches off the All-American Canal northeast of Calexico. It runs in a roughly northwest direction for approximately 27 miles to drain into the New River. An approximately three-mile-long segment of the canal west of Highway 111 and east of South Clark Road was recorded as part of the current study. The CM Canal in this area ranges from approximately 80 to 100 feet in width and is contained within sloped earthen banks that are flanked by dirt and paved access roads (Figure 5-8). Fairly dense, low vegetation lines the areas of the banks nearest the water. At the time of the survey, the canal contained water from approximately four feet below ground level to an unknown depth; the bottom of the waterway was not visible. Although the exact date of construction is not known, historical maps indicate that it was operational in the early 1900s (USGS 1907).

Bridges have been constructed over the canal at Dogwood Road and Pitzer Road, with a Southern Pacific Railway wooden trestle bridge located east of Pitzer Road. The Dogwood Road Bridge (Br. No. 58C-0226) has recently been replaced and bears a 2023 date stamp (Figure 5-9). A series of brine pipelines have been installed over the canal approximately 1,500 feet west of the Dogwood Road Bridge.

### CRHR Evaluation

The CM Canal is a major distribution canal and an integral part of the extensive irrigation system that comprises the IID. The construction and operation of the CM Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The



Figure 5-5. Construction debris at the northeast corner of the Dogwood Parasitic Solar Energy Facility site, facing west



Figure 5-6. Modern refuse within proposed parasitic solar energy facility sites



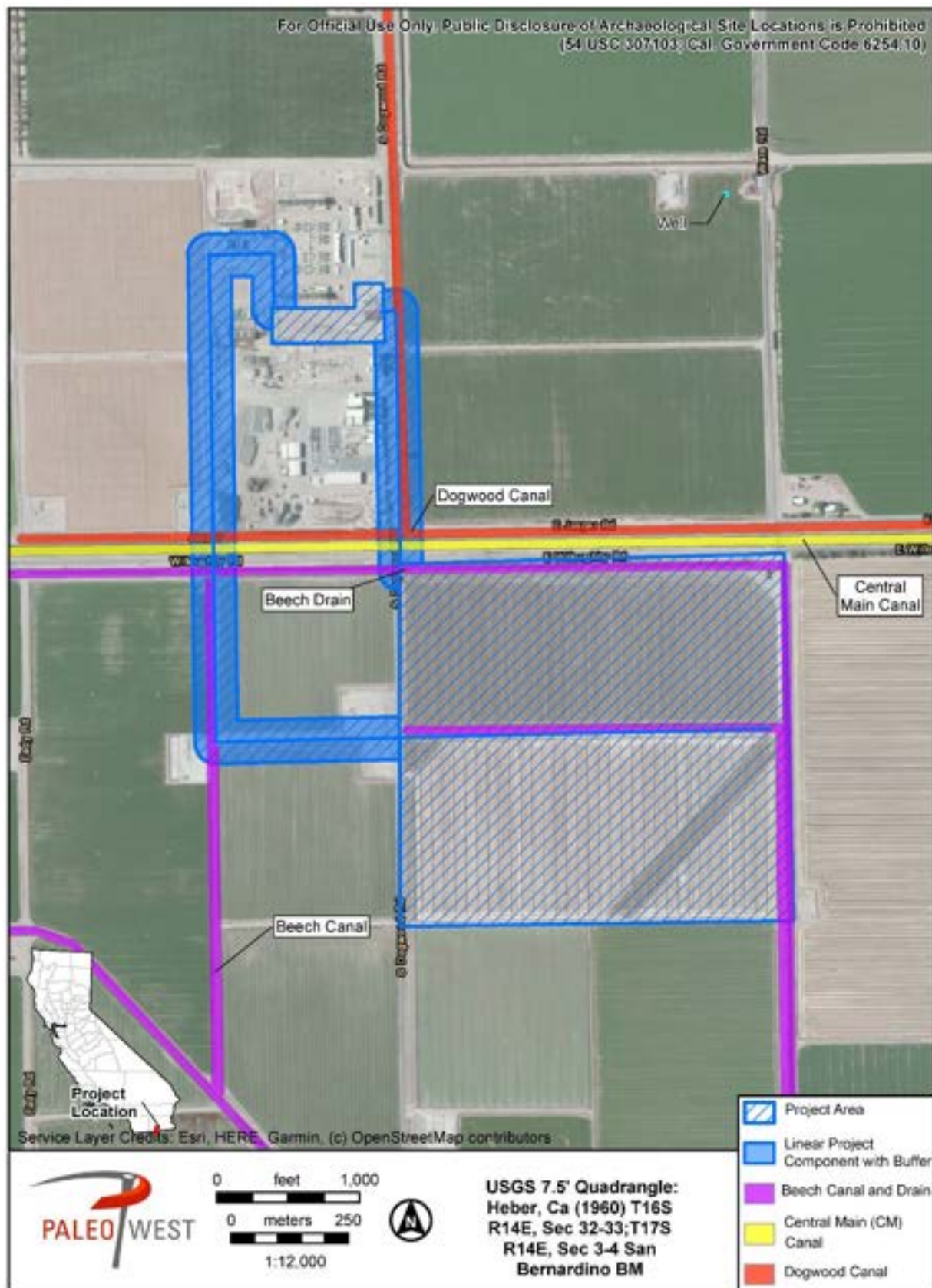


Figure 5-7. Resource location map



Figure 5-8. CM Canal from Dogwood Road Bridge, facing east



Figure 5-9. Dogwood Road Bridge (Br. No. 58C-0226), facing northwest

canal system that was built in the early twentieth century significantly increased the agricultural productivity of the area between the Alamo River and New River. Because the CM Canal can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The CM Canal was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The CM Canal and its associated laterals and drains are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the CM Canal does not have the potential to yield any information important to the study of twentieth century channel construction and is thus not eligible under Criterion 4.

The alignment of the CM Canal has not changed significantly since its construction in the early part of the twentieth century and therefore, the resource retains integrity of location. There have been some minor alterations to the canal over the years, such as the replacement of bridges and the installation of brine pipelines. However, the earthen construction that characterizes the canal has not been substantially modified. Therefore, it retains integrity of design, workmanship, and materials. Although agricultural fields are still prevalent in the area, the construction and operation of industrial and energy facilities in the immediate vicinity of the CM Canal has resulted in the loss of integrity of setting, feeling, and association. Despite this loss, the character-defining aspects of the segment of the CM Canal within the Project area retain sufficient integrity to convey the resource's significance.

Based on these findings, PaleoWest recommends the CM Canal eligible for inclusion in the CRHR under Criterion 1.

### 5.2.2 Dogwood Canal

Portions of the proposed medium voltage cable and brine pipeline alignment intersect a lateral of the Dogwood Canal, an approximately 12.8-mile-long irrigation channel that branches off the CM Canal near Highway 111. The canal runs west paralleling the CM Canal for approximately 2.5 miles before turning north and continuing along Dogwood Road for 10.3 miles. Several smaller laterals diverge off the canal along its route, including one (Dogwood Lateral I) that originates near Dogwood Road and continues westward intersecting the brine pipeline alignment. An approximately 3.5-mile-long segment of the Dogwood Canal within the vicinity of the proposed Project area was documented as part of the current study (Figure 5-7).

The recorded canal segment consists of an open channel that has a top width ranging from approximately 20 to 60 feet (Figure 5-10). Although much of the structure is characterized by earthen banks, concrete lining has been placed within a section of the canal just west of Dogwood Road and along a 0.5-mile-long area east of Pitzer Road (Figure 5-10 to Figure 5-13). Based on contractor's date stamps, the concrete lining appears to have been installed well after the construction of the canal (Figure 5-12 and Figure 5-13). At the time of the survey, the Dogwood Canal contained water from approximately four feet below ground level to an unknown depth; the bottom of the waterway was not visible. The exact date of construction is not known. However, historical maps indicate that the canal was operational by 1915 (USGS 1915).





Figure 5-10. Portion of Dogwood Canal located west of Dogwood Road, facing south



Figure 5-11. Portion of Dogwood Canal by Dogwood Road showing recently installed concrete lining, facing south





Figure 5-12. Portion of Dogwood Canal gate feature and concrete lining with date stamp, east of Dogwood Road, facing south



Figure 5-13. Portion of Dogwood Canal east of Pitzer Road showing concrete lining and check/drop feature with 1957 date stamp, facing east

The Dogwood Canal has numerous check/drop structures along its course, each of which consists of gates with chute and cement walls that operate with a jack-type lifting mechanism resting on a wooden cross beam (Figure 5-12 and Figure 5-13). The checks/drop structures have curved cement headwalls on their upstream side and straight cement headwalls on their downstream side. The gates and hardware associated with these features are in good condition and are not original to the structures.

Along much of its alignment, the Dogwood Canal is flanked by dirt and paved roads. Several roads intersect the Dogwood Canal including Highway 111, Dogwood Road, and Pitzer Road. Underground pipelines have been installed to transport the water under each of these roadways. A Southern Pacific Railway bridge has also been constructed over the canal near Pitzer Road. Finally, a series of brine pipelines have been installed under the Dogwood Lateral I approximately 1,500 feet west of the Dogwood Road Bridge.

## **CRHR Evaluation**

The Dogwood Canal is a part of the IID's CM canal system, which was initially constructed in the early twentieth century. The construction and operation of the Dogwood Canal and its associated laterals can be considered an important event in the early settlement of the Imperial Valley. The canal systems that were built at this time significantly increased the agricultural productivity of the area between the New River and Alamo River. Because the Dogwood Canal can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The Dogwood Canal was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The Dogwood Canal and its associated laterals are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the Dogwood Canal does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the Dogwood Canal has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Although agricultural fields are still prevalent in the area, the construction and operation of industrial and energy facilities in the immediate vicinity of the canal has resulted in the loss of the resource's integrity of setting, feeling, and association. The resource has also experienced extensive alterations including lining portions of the canal with concrete and the replacement of gates and hardware. As a result of these alterations, the structure lacks integrity of design, workmanship, and materials. Due to the loss of integrity, the character-defining aspects of the Dogwood Canal do not retain sufficient integrity to convey its significance under Criterion 1.

Based on these findings, PaleoWest recommends the Dogwood Canal not eligible for inclusion in the CRHR.

### **5.2.3 Beech Canal and Drain**

A portion of the proposed parasitic solar photovoltaic facilities site, transmission line, and brine pipeline alignment intersect the lateral distribution system associated with the Beech Canal and



**Figure 5-14. Beech Canal lateral between agricultural fields in the proposed brine pipeline alignment, facing north**

Drain. The Beech Canal is a 6.5-mile-long structure that originates off the CM Canal in Calexico and drains into the New River. Several smaller laterals diverge off the north and south sides of the canal along its length. The Beech Canal is an open, concrete-lined, trapezoidal-shaped structure that has a top width of approximately 12 to 16 feet and an unknown depth. The laterals are slightly smaller in size with a top width of 8 to 10 feet and a bottom width of approximately 2 feet; the depth of the laterals is approximately 4 feet (Figure 5-14). The lateral canals have been lined with concrete. Based on a contractor's date stamp, at least some of the structures were lined in 2012 (Figure 5-15). The laterals have numerous check/drop structures, which consist of single gates with chute and cement walls that operate with a jack-type lifting mechanism resting on a metal or wooden cross beam (Figure 5-14). The gates and hardware associated with these features are in good condition and are not original to the laterals. Historic topographic maps indicate that the Beech Canal and its laterals were built between 1907 and 1915 (USGS 1907,1915).

The Beech Canal irrigation system also includes a series of dirt-lined drainage ditches that remove excess water from the irrigated fields. The largest of these is the Beech Drain, which measures 20 to 26 feet in width with a depth of 6 to 8 feet (Figure 5-16). The Beech Drain runs along the southern edge of the CM Canal in a westward direction for approximately 1.5 miles to empty into the New River. The drainage system appears to postdate the construction of the Beech Canal and was likely built by the IID sometime in the late 1920s or 1930s (Dowd 1956:70-71).





Figure 5-15. Portion of Beech Canal lateral channel with 2012 concrete date stamp, facing west



Figure 5-16. Beech Drain north of the proposed parasitic solar photovoltaic facilities site, facing west

## **CRHR Evaluation**

The Beech Canal and Drain are part of the IID's CM canal system, which was initially constructed in the early twentieth century. The construction and operation of the canal and its associated laterals and drainage systems can be considered an important event in the early settlement of the Imperial Valley. The canal systems that were built at this time significantly increased the agricultural productivity of the area between the New River and Alamo River.

Because the Beech Canal and Drain can be directly associated with historical events that have made a significant contribution to the broad patterns of our history, it is recommended eligible under Criterion 1. The Beech Canal and Drain was funded and constructed by the IID and cannot be attributed to a specific individual. Because it cannot be associated with the lives of persons important in our past, it does not meet CRHR Criterion 2. The Beech Canal and Drain and its associated laterals and drainage systems are simple in design and construction and utilitarian in nature, and their construction does not represent any innovative design or building technique. Therefore, the resource does not exhibit any distinctive characteristics or engineering merits that would suggest it is significant under Criterion 3. Finally, the Beech Canal and Drain does not have the potential to yield any information important to the study of twentieth century channel construction and is therefore not eligible under Criterion 4.

The alignment of the Beech Canal and Drain has not changed since its construction in the early part of the twentieth century and as such, the resource retains integrity of location. Although agricultural fields are still prevalent in the area, the construction and operation of industrial and energy facilities in the immediate vicinity of the Beech Canal and Drain has resulted in the loss of the resource's integrity of setting, feeling, and association. The resource has experienced extensive alterations including the lining of the canal and associated laterals with concrete and the replacement of gates and hardware. As a result of these alterations, the structure lacks integrity of design, workmanship, and materials. Due to the loss of integrity, the character-defining aspects of the Beech Canal and Drain do not retain sufficient integrity to convey its significance under Criterion 1.

Based on these findings, PaleoWest recommends the Beech Canal and Drain not eligible for inclusion in the CRHR.

## 6.0 IMPACTS ANALYSIS AND MANAGEMENT RECOMMENDATIONS

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The cultural resources assessment for the proposed Project included background and archival research, a pedestrian survey, and resources documentation and evaluation. As a result of these efforts, three historic period irrigation canals (CM Canal, Dogwood Canal, and Beech Canal and Drain) were identified within the Project area. The CM Canal appears to meet the criteria for listing on the CRHR and as such, can be considered a historical resource for the purposes of CEQA. The two other resources, Dogwood Canal and Beech Canal and Drain, are both recommended not eligible for the CRHR due to a lack of integrity. Although no further cultural resource management is recommended for the Dogwood Canal or the Beech Canal and Drain, an impacts assessment is required for the CM Canal to determine if the proposed Project will result in a substantial adverse change in the significance of the historical resource.

### 6.1 IMPACTS ASSESSMENT

Based on the current design, the only Project components that intersect the CM Canal are the transmission line and brine pipeline corridors. It is anticipated that the transmission line running between the substation and the geothermal plants will span or be buried the CM Canal and not result in any physical alteration to the irrigation structure. Furthermore, the geothermal fluid/brine generated by the Project will be transported across the CM Canal through the existing pipeline network and no additional pipelines will be installed in the vicinity of the CM Canal. Based on this analysis, the proposed Project will not directly impact the essential physical characteristics of the historical resource and the aspects of integrity (i.e., location, design, workmanship, and materials) that contribute to its significance.

Indirect impacts are also not expected to result in an adverse change in the significance of the CM Canal. The recorded segment of the CM Canal has been impacted by prior development of industrial and solar facilities which have altered the surrounding vicinity and geographic terrain and caused a loss of integrity of setting, feeling, and association. Because the CM Canal has already lost these aspects of integrity, any indirect visual intrusions introduced by the Project will not result in a substantial change in the significance of the resource. It is anticipated other indirect impacts, such as noise and vibration effects, would be temporary in nature and limited to the construction phase.

Given these findings, the Project will not result in any adverse change to the significance of the CM Canal as a historical resource under CEQA.

### 6.2 MANAGEMENT RECOMMENDATIONS

The absence of known archaeological resources within one mile of the proposed Project suggests that this area is characterized by a low sensitivity for archaeological remains. However, there is a potential, albeit minimal, to encounter unanticipated cultural resources or human remains during ground-disturbing activities. PaleoWest recommends the following measures, based on state and agency regulations and guidelines, to mitigate any potential adverse impacts that could occur if there were an inadvertent discovery of buried cultural resources or human remains.



### 6.2.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts.

### 6.2.2 Human Remains

If human remains are found, regulations outlined in the State of California Health and Safety Code Section 7050.5 state no further disturbance shall occur until the 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 County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner.

Should additional actions be proposed outside the currently defined Project area that have the potential for additional subsurface disturbance, further cultural resource management may be required.

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# Appendix A. Confidential Record Search Results



## Appendix B. Native American Coordination



# Appendix C. DPR 523 Forms

# Technical Memorandum

<b>Date:</b>	<b>March 21, 2024</b>
<b>From:</b>	David Blankenhorn, P.G. Hannah Clark
<b>RE:</b>	<b>Dogwood Geothermal Power Project – Geotechnical Site Assessment</b> 855 Dogwood Road Heber, Imperial County, California

## INTRODUCTION

This Technical Memorandum provides a summary of the geotechnical conditions associated with the Dogwood Geothermal Power Project site (Site) which is located at 855 Dogwood Road in Heber, Imperial County, California (Figure 1). The proposed project facilities include a new 25-megawatt (MW; net generation) geothermal energy facility supported by a 7 MW parasitic solar energy facility (Dogwood Project); a 15 MW parasitic solar energy facility for the existing Heber 2 geothermal plant (Heber 2 Parasitic Solar Project); and, up to six geothermal production wells, one injection well, and supporting pipeline segment (Heber Field Company Wells & Pipeline Project). Below is a breakdown of the proposed developments, provided by the Applicant:

### **Dogwood Project (OrHeber 3, LLC) – CUP No. 23-0020**

- One (1) Integrated Two Level Unit (ITLU) Air Cooled Ormat Energy Converter (OEC) generating unit
- Two (2) 25,000-Gallon Isopentane Tanks for Motive Fluid Storage
- One (1) Project substation for transmission to the grid
- Ancillary and auxiliary facilities (including, compressed air system and fire prevention system)
- A seven (7) megawatt (MW) solar photovoltaic field dedicated to the Dogwood geothermal plant
- Medium voltage cable from Dogwood solar facilities to Dogwood geothermal plant

### **Heber 2 Parasitic Solar Energy Facilities (Second Imperial Geothermal Company) – CUP No. 23-0021**

- A fifteen (15) MW solar photovoltaic field dedicated to the Heber 2 geothermal plant
- Medium voltage cable from Heber 2 solar facilities to Heber 2 geothermal plant

### **Wells and Pipeline (Heber Field Company, LLC) – CUP No. 23-0022**

- Up to six (6) new production wells (3 sited, 3 unsited)
- One (1) new injection well
- Brine pipelines

The total project disturbance footprint is approximately 124 acres, as provided in Table 1 below.

**Table 1 – Project Disturbance Area Estimate (Acres)**

<i>Facility</i>	<i>Disturbance (Acres)</i>
Geothermal Energy Facilities and Project Substation	5.0 acres
Solar Field and Connection Line	~95 acres
Production and Injection Wells and Connecting Pipeline	~24 acres
<b>TOTAL</b>	<b>124 acres</b>

Two solar fields will be developed directly adjacent to each other within the same parcel – One to provide auxiliary power to the Dogwood Project and one for the existing Heber 2 plant. One 7 MW solar photovoltaic field dedicated to the Dogwood Project (Dogwood Solar) would stand 10 feet tall. One 15 MW solar photovoltaic field dedicated to the Heber 2 geothermal plant (Heber 2 Solar) directly adjacent to the south would stand 10 feet tall. Due to their proximity and heights, Dogwood Solar, Heber 2 Solar, the XMD switch and the two proposed production wells have been analyzed below as an approximately 95-acre combined parcel. The energy generated by the combined solar facilities would be collected at an on-site XMD switch on the western edge of the site adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross Dogwood Road and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span. The cables would span approximately 20-feet overhead across Dogwood Road and Wiloughby Road, supported by a mono-pole on either side of the respective street. The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays. The Project proposes two production wells situated within the combined solar field and one situated to the north directly adjacent to an existing production well. These wells would be surrounded by chain-link fencing.

The geotechnical information provided herein was gathered from available online resources and extrapolated from the *Geotechnical Report Update* prepared by Landmark Consultants (Landmark, 2019). Landmark's report provides an update to previous geotechnical reports conducted at the Site (Landmark 2005, 2007) and reflects the adoption of the 2016 California Building Code (CBC) and Imperial County's geotechnical engineering standard of practice. In addition, desktop reconnaissance was conducted to provide an overview of the geological and geotechnical conditions at the Site including the regional geology, site soils, groundwater, seismic hazards, and stormwater infiltration potential. Collectively, this memorandum provides a comprehensive review of the Site's geotechnical conditions to support the preparation of a California Environmental Quality Act (CEQA) Initial Study/Negative Declaration (IS/ND), as opposed to an as-graded or as-built geotechnical report.

## **1.0 SITE DESCRIPTION**

The proposed project facilities would be located within the existing fence line that accommodates the Heber 2, Heber South, and Goulds 2 facilities and in open partially disturbed agricultural plots as shown in Figure 2. The facility is situated in an area completely disturbed by existing geothermal power plant operations, and is currently maintained as a materials storage area. The combined solar field and geothermal wells would be located on agricultural plots with some existing geothermal well pad disturbance. The Project is located at an elevation of approximately 5 feet below mean sea level and the topography is relatively flat. Surrounding land uses in the project vicinity are dominated by agricultural cultivation with solar facilities directly west, a



construction/aggregates company to the south, and geothermal well pads and pipelines present throughout the local vicinity.

## **2.0 REGIONAL GEOLOGY**

The Site is located in Imperial County which is underlain by three geomorphic provinces: the Peninsular Ranges; the Colorado Desert; and, the Mojave Desert. Each of these provinces is a naturally defined geologic region that displays a distinct landscape or landform with defining features based on geology, faults, topographic relief, and climate. The Peninsular Ranges geomorphic province occupies the southwestern portion of the Imperial County and is composed of a series of ranges separated by northwest-trending valleys. The geology of the Peninsular Ranges province is similar to the Sierra Nevada, with granitic rock intruding into the older metamorphic rocks. The Colorado Desert geomorphic province spans the majority of central Imperial County, including the Site, and is dominated by the Salton Sea and the Imperial Valley; the province is composed of a low-lying barren desert basin situated between alluvium-covered, active branches of the San Andreas Fault. The Mojave Desert geomorphic province occupies the north-central and northeastern portions of the County. The Mojave is a broad, arid region that contains isolated mountain ranges separated by desert plains (CGS, 2002).

More specifically, the Site is situated within the Salton Trough which is a structural depression resulting from large scale, regional faulting. The trough represents the northward extension of the Gulf of California and is bounded by the San Andreas Fault and Chocolate Mountains to the northeast and by the Peninsular Range and the faults of the San Jacinto Fault Zone to the southwest. The Imperial Valley is underlain by lacustrine deposits consisting of interbedded lenticular and tabular silt, sand, and clay (Landmark, 2005). The Late Pleistocene to Holocene lake deposits are estimated at less than 100 feet thick and derived from periodic flooding of the Colorado River which intermittently formed a fresh water lake, Lake Cahuilla (Landmark, 2005). Older deposits consist of Miocene to Pleistocene non-marine and marine sediments deposited during intrusions of the Gulf of California. Basement rock consisting of Mesozoic granite and Paleozoic metamorphic rocks are estimated to exist at depths between 15,000 to 20,000 feet below the surface (Landmark, 2005).

## **3.0 SITE SOILS**

Approximately 28 soil types are found in the region of the Site (Aco, Antho, Carrizo, Carsitas, Chuckwalla, Cibola, Coachella, Fluvaguents, Gadsden, Gilman, Glenbar, Holtville, Imperial, Indio, Kofa, Lagunita, Laposa, Laveen, Mecca, Meloland, Niland, Orita, Ripley, Rositas, Salorthids, Superstition, Torriorthents, and Vint). Glenbar, Holtville, and Imperial parent spoils are formed from fine-textured, stratified alluvial basin deposits (ICPDS 2015). The clay material deposited during the formation of the Colorado River delta terrace is the original source of Holtville and Imperial parent soils. Many of the other soils were formed from fan sediment originating from large gullies created by runoff into the Salton Sea. Imperial County soils are characterized by hyperthermic soil temperature and aridic soil moisture regimes (Digital Desert, 2019).

Soils encountered during previous geotechnical investigations at the Site consist of surficial dry, very stiff lean silty clays to a depth of 4 to 5 feet bgs, stiff clays from approximately 6 to 40 feet bgs, and silty clay to clayey silt from 40 to 50 feet bgs, the maximum depth of exploration (Landmark, 2019). Soils at the Site are classified as Site Class D, which is characterized by a stiff soil profile (Landmark, 2019).

The native surface clays exhibit moderate swell potential (Expansion Index, EI = 51-90) when correlated to Plasticity index tests (ASTM D4318) performed on native clays (Landmark, 2005). The clay is expansive when wetted and can shrink with moisture loss (drying). In their 2005 report, Landmark indicated that development

of building foundations, concrete flatwork, and asphaltic concrete pavements should include provisions for mitigating potential swelling forces and reduction in soil strength which can occur from saturation of the soil (Landmark, 2005).

In regard to corrosivity, native soil at the Site has moderate to very severe levels of chloride ion concentrations (Landmark, 2005). Chloride ions can cause corrosion of reinforced steel, anchor bolts, and other buried metallic conduits. Resistivity determinations on the soil indicate very severe potential for metal loss because of electrochemical corrosion processes (Landmark, 2005).

## **4.0 GROUNDWATER**

The Site is located within the Imperial Valley Groundwater Basin which is bounded on the east by the Sand Hills, on the west by the impermeable rocks of the Fish Creek and Coyote Mountains, the California-Mexico border to the south, and the Salton Sea (the discharge point for groundwater in the basin) to the north (DWR, 2004).

The regional groundwater flow direction within the Imperial Valley is toward the Salton Sea, a closed basin with a surface elevation of approximately 225 feet below sea level. In the vicinity of the Site, groundwater flow is generally towards the northwest. Depth-to-groundwater at the Site typically ranges from 8 to 10 feet bgs (Landmark, 2019).

## **5.0 SEISMIC HAZARDS**

### **5.1 Fault Rupture Hazard**

The Imperial Valley is a seismically active area that is traversed by numerous mapped faults including the Brawley Fault Zone, San Jacinto Fault Zone (contains the Coyote Creek Fault, the Elmore Ranch Fault, and the Wienert Fault), the Elsinore Fault (contains the Laguna Salada Fault), the Imperial Fault, the San Andreas Fault Zone, and the Superstitions Hills Fault (ICPDS, 2015).

Several active and potentially active faults are situated in the vicinity of the Site as shown in Figure 3 (Landmark, 2019). Active faults are defined by the California Geological Survey as faults that have ruptured during Holocene time (within the last approximately 11,000 years). Potentially active faults are those that have ruptured during the last 1.8 million years (Quaternary time), but with no direct evidence of a movement within Holocene time. The Imperial Fault Zone is the nearest active fault zone to the Site and is situated approximately 9.4 miles to the southwest (Landmark, 2019).

Several significant earthquakes have occurred in the vicinity of the Site with corresponding surface fault ruptures and liquefaction events (McCrink et al. 2011). Four earthquakes greater than magnitude 5 were recorded near Heber between 1915 and 1979. A magnitude 7.2 earthquake, the El Mayor-Cucapah earthquake, occurred throughout southern Imperial valley in 2010.

The Site is not located within a currently mapped Alquist-Priolo Special Studies Fault Zone (CGS, 2023). Surface fault rupture is considered to be unlikely at the Site due to the well-delineated fault lines through the Imperial Valley; however, because of the high tectonic activity and deep alluvium of the region, a potential exists for a surface rupture on undiscovered or new faults that may underlie the Site (Landmark, 2005).

### **5.2 Ground Shaking**

Ground shaking can occur during an earthquake, and its intensity is related to the proximity of the area to the fault, the focal depth, soil types, the location of the epicenter, and the size (magnitude) of the earthquake. Soils formed from alluvial deposits are more prone to ground shaking than dense materials such as bedrock.

The Site is considered likely to be subjected to moderate to strong ground motion from earthquakes in the region. Ground motions are primarily dependent on the earthquake magnitude and distance to the seismogenic (rupture) zone. Accelerations also are dependent upon attenuation by rock and soil deposits, direction of rupture and type of fault; therefore, ground motions may vary considerably in the same general area.

Design spectral response acceleration parameters are defined as the earthquake ground motions that are two-thirds of the corresponding  $MCE_R$  ground motions. In their 2019 report, Landmark classified the Site as a Seismic Design Category of D based on a Risk Category III (Landmark, 2019).

A Maximum Considered Earthquake Geometric Mean ( $MCE_G$ ) peak ground acceleration ( $PGA_M$ ) value was determined for the Site using the “U.S. Seismic Design Maps Web Application” (SEAOC, 2019) for liquefaction and seismic settlement analysis in accordance with 2016 CBC Section 1803.5.12 and CGS Note 48. In their 2019 report, Landmark determined a  $PGA_M$  value of 0.50g for the Site for liquefaction settlement analysis (Landmark, 2019).

### 5.3 Liquefaction

Liquefaction occurs when loosely packed, saturated soil or sediment at or near the ground surface loses its strength, which can lead to excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations (Imperial County, 2015).

The El Mayor-Cucapah earthquake (magnitude 7.2) that occurred throughout southern Imperial valley in 2010 caused widespread liquefaction near the towns of Calexico (immediately south of Heber) and El Centro (immediately north of Heber).

Liquefaction zones have not been mapped in this area (ICPDS, 2015); however, the Colorado River Delta region of southern Imperial County (including Heber) is a seismically active area. Landmark (2019) evaluated liquefaction potential at the Site using the 1997 NCEER Liquefaction Workshop methods. Due to the cohesive nature of the subsurface soils, liquefaction is not anticipated at the Site, and mitigation is not recommended (Landmark, 2019).

### 5.4 Lateral Spreading

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or “free” face such as an open body of water, channel, or excavation. This movement is generally due to failure along a weak plane, and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally toward the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free.

Due to the low potential for liquefaction and the fact that the Site is not located near free faces or bodies of water, the potential for lateral spreading is considered low.

### 5.5 Subsidence

The Site is not located within a mapped area of known land subsidence (USGS, 2023). Due to the depth of groundwater and the fact that the Site is not located in a mapped subsidence area, the potential for subsidence is considered low.

## 5.7 Landslides

The Site is relatively flat, and the hazard of landslides is unlikely due to the planar topography of the Site and the region (Landmark, 2005). No ancient landslides are identified on geologic maps of the region and no indications of landslides were identified during a 2005 site investigation (Landmark, 2005).

## 6.0 STORMWATER INFILTRATION POTENTIAL

Encouraging stormwater infiltration by means of a stormwater management plan (SWMP) can improve water conservation by reducing evaporation and increasing groundwater recharge, as well avoiding erosion and potential damage to concrete foundations and slabs. Beneficial water quality of streams and rivers can also be maintained by preventing discharge of stormwater containing sediments and other materials. The City of El Centro and City of Imperial SMP provide best management practices (BMPs) for stormwater management by commercial businesses and industrial operations (City of El Centro and Imperial County, 2013).

Heber also has a Master Drainage Plan (established in 2006), although the town's management of stormwater defers to the Imperial County Planning and Development guidelines and the county Public Works Department. The Imperial Irrigation District board adopted the Imperial Integrated Regional Water Management Plan (IRWMP) in 2012 (GEI, 2012). The plan was developed to support the efforts to meet the County's future water resource demands while conforming to California Department of Water Resources guidelines.

Groundwater is encountered at approximately 8 to 10 feet bgs at the Site (Landmark, 2019). Onsite infiltration potential (capacity of the most limiting layer to transmit water [Ksat]) ranges from very low to moderately low at 0.00 to 0.06 inches per hour for wet, Holtville silty clay (approximately 71% of the Site) to moderately high at 0.20 to 0.57 inches per hour for wet, Imperial-Glenbar silty clay loams (approximately 29% of the Site). These soil types are also considered to be moderately well drained (NRCS, 2019). Evaporation potential is considered poor at the Site.

## 7.0 SITE STABILITY

The Site is located within the seismically active Imperial Valley and has the potential for ground disturbance based on soil and subsurface characteristics. Recommendations for the expansion project, including engineered design and earthquake-resistant construction complying with the latest edition of the CBC for Site Class D, are provided in Landmark's updated geotechnical report (2019).

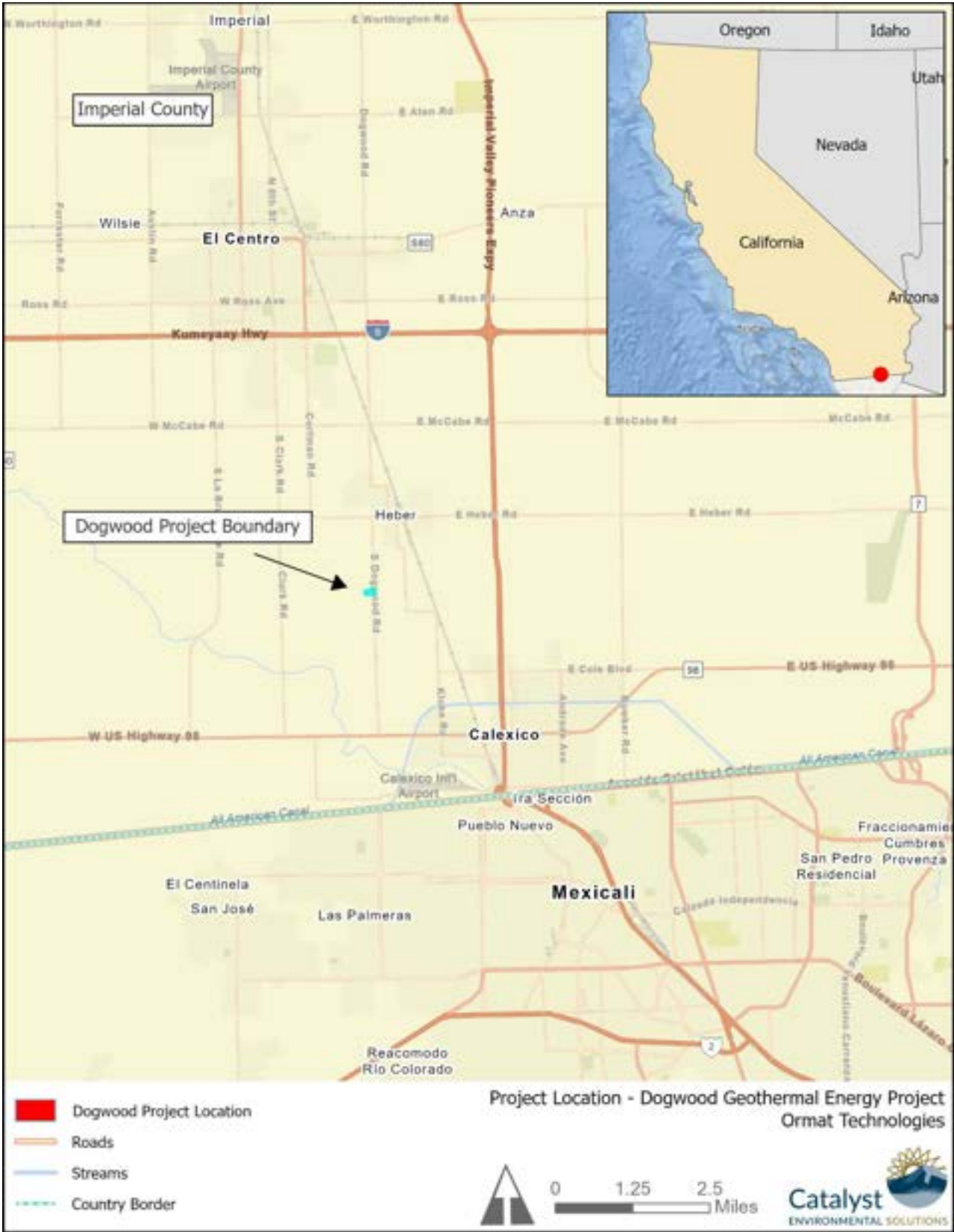
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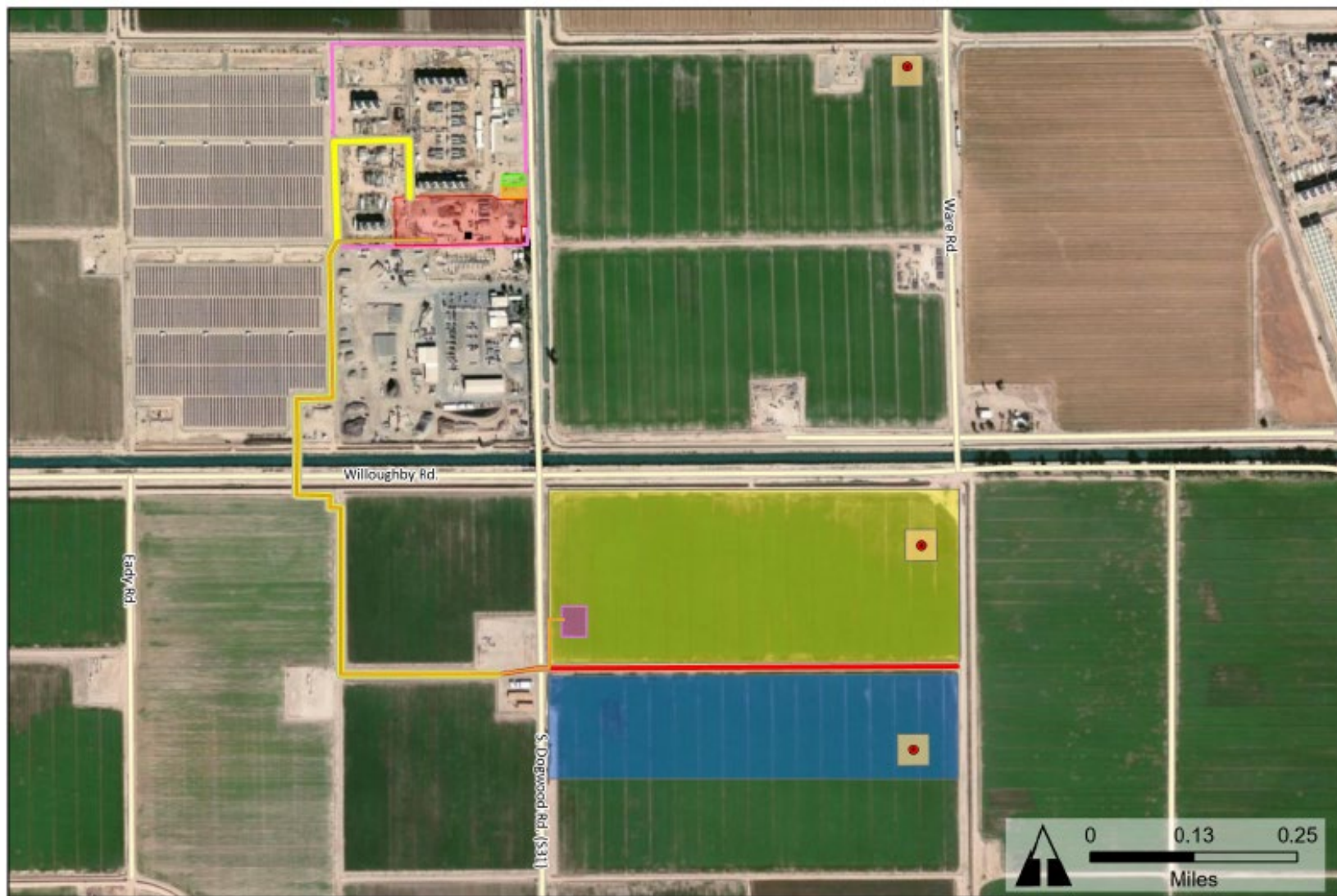
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# Figures







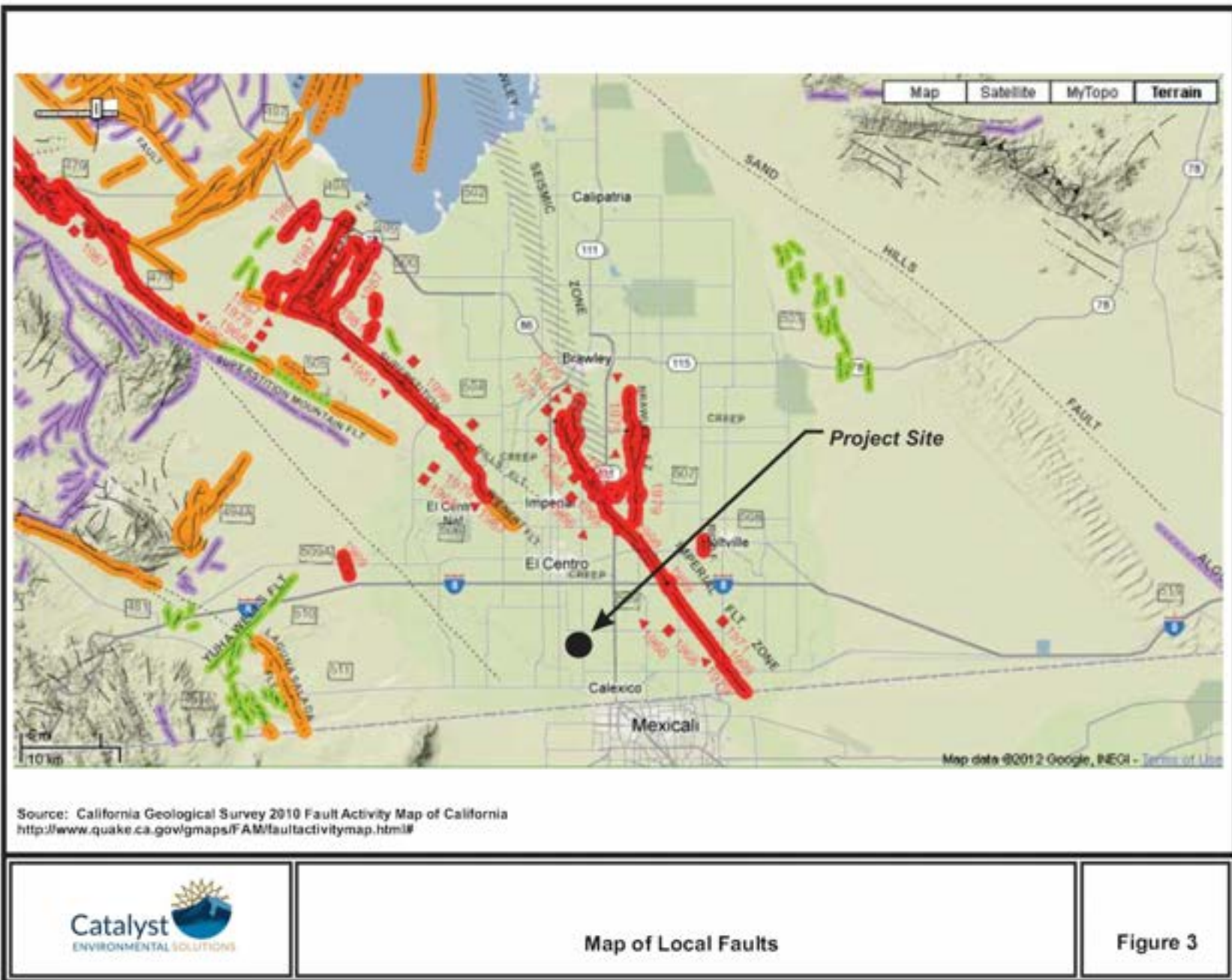
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| <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFF00; border: 1px solid black;"></span> Dogwood Parasitic Solar Energy Facilities | <span style="display: inline-block; width: 15px; height: 10px; background-color: #DDA0DD; border: 1px solid black;"></span> XMR and Switch                  | <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFA500; border: 1px solid black; border-radius: 50%;"></span> Proposed Production Wells |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #ADD8E6; border: 1px solid black;"></span> Heber 2 Parasitic Solar Facilities        | <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFDAB9; border: 1px solid black;"></span> Heber Geothermal Energy Complex | <span style="display: inline-block; width: 15px; height: 10px; background-color: #000000; border: 1px solid black; border-radius: 50%;"></span> Injection Well            |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFDAB9; border: 1px solid black;"></span> Approximate Well Pad                      | <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFDAB9; border: 1px solid black;"></span> T-Line Connection to Dogwood    |                                                                                                                                                                           |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFDAB9; border: 1px solid black;"></span> Existing Heber Substation                 | <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFDAB9; border: 1px solid black;"></span> Existing Pipeline               |                                                                                                                                                                           |

#### EXISTING FACILITIES AND PROPOSED DOGWOOD AND SOLAR ENERGY FACILITY









# ORMAT

**ORMAT, DOGWOOD  
GEOTHERMAL POWER GENERATION FACILITY  
HEBER, CALIFORNIA**

## Hazard Assessment

Revision	Date	Description
0.0	April 2024	Hazard Assessment, 20,000-gallon Isopentane Storage Tanks



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## 1.0 FACILITY OVERVIEW

This technical assessment was conducted to fulfill the Hazard Assessment Offsite Consequence Analysis (OCA) requirements of the following regulations:

- 40 CFR §68.65 – Environmental Protection Agency (EPA) “Risk Management Plan (RMP)”<sup>[1]</sup>
- 19 CCR 2750.1 to 2750.9 – California Code of Regulation “California Accidental Release Prevention (CalARP) Program”<sup>[2]</sup>

This assessment is completed for the **Ormat– Dogwood** Facility located in Heber, California. The facility’s location at 855 Dogwood Road, Heber, CA 92249 is illustrated in Figure 1 below. The Dogwood facility is adjacent to the existing Heber, Heber 2, and Ghoulds 2 facilities; the boundaries of the Dogwood Facility are depicted by the red outline. The blue marker depicts the location of the new 10,000-gallon isopentane vessel that is being added to the facility. The coordinates for the vessel’s location are presented in Table 1 on the following page.

**Figure 5: Aerial View of the Facility Location**



The following page presents a closer view of the facility’s storage vessel location, as well as a table displaying its approximate location.

Figure 6: Aerial View of the Storage Vessel Locations



Table 2: Ormat—Dogwood New Storage Vessel Coordinates

VESSEL	FORMAT	LATITUDE	LONGITUDE
Isopentane Storage Vessel (MF Tank)	Degrees/Minutes/Seconds	32°42'46" N	115°32'04" W

## 2.0 COVERED PROCESS

The **Ormat – Dogwood Project** utilizes geothermal fluid, collected from one (1) existing and two (2) new production wells, to produce electricity via one (1) Integrated Two Level Unit (ITLU) Airer Cooled ORMAT Energy Converter (OEC) generating unit. The ITLU Airer Cooled OEC employs vaporized motive fluid to spin a turbine connected to a generator. In the Dogwood binary processes, isopentane is the motive fluid.

The covered processes at the facility are listed below.

**Table 2: Ormat—Heber 2 Geothermal Complex Facility Covered Process**

PLANT	REGULATED SUBSTANCE	MAXIMUM INVENTORY IN SINGLE VESSEL (GAL) <sup>[A]</sup>	TANK TYPE	VESSEL STORAGE INVENTORY
Dogwood	Isopentane	18,000	Storage	20,000-gallon tank

<sup>[A]</sup> This value represents the maximum amount stored in a single vessel, taking into account administrative controls, which are in place to limit the quantity stored.

This hazard assessment will focus on the regulated substance, isopentane, in Dogwood. The facility is classified as Prevention Program 3 and is regulated by the Environmental Protection Agency's Risk Management Program (EPA RMP) for Chemical Accidental Release Prevention in accordance with the Code of Federal Regulations, Title 40, Chapter I, Subchapter C, Part 68, Subpart B Sections 68.20 to 68.42 (40 CFR §68.20 - 68.42)<sup>[1]</sup> for isopentane, because it is held on site in excess of 10,000 lbs. The geothermal power plant utilizes isopentane as the motive fluid in the generation of electricity.

### 3.0 LEVEL OF CONCERN

To address potential health effects for the worst-case release scenario, the following are the key endpoints of concern for the EPA RMP as defined in Title 40 CFR Section 68.22(2):

- (i) *Explosion. An overpressure of 1 psi.*
- (ii) *Radiant heat/exposure time. A radiant heat of 5 kW/m<sup>2</sup> for 40 seconds.*
- (iii) *Lower flammability limit. A lower flammability limit as provided in NFPA documents or other generally recognized sources.*

The distance from the point of release to the endpoint identified above defines a radius circle of concern for which consequences are reported in the Risk Management Plan.

### 4.0 WORST-CASE SCENARIO

The US EPA RMP determines the worst-case release quantity in Title 40 CFR Part 68.25(b) as follows:

*The worst-case release quantity shall be the greater of the following:*

- (1) *For substances in a vessel, the greatest amount held in a single vessel, taking into account administrative controls that limit the maximum quantity;*
- (2) *For substances in pipes, the greatest amount in a pipe, taking into account administrative controls that limit the maximum quantity.*

Given the substance released is a flammable, the US EPA RMP gives further guidelines in 68.25 (f):

*Worst-Case scenario-flammable liquids. The owner or operator shall assume that the quantity of the substance, as determined under paragraph (b) of this section and the provisions below, vaporizes resulting in a vapor cloud explosion. A yield factor of 10 percent of the available energy released in the explosion shall be used to determine the distance to the explosion endpoint if the model used is based on TNT equivalent methods.*

- (1) *For regulated flammable substances that are normally liquids at ambient temperature, the owner or operator shall assume that the entire quantity in the vessel or pipe as determined under paragraph (b) of this section, is spilled instantaneously to form a liquid pool. For liquids at temperatures below their atmospheric boiling point, the volatilization rate shall be calculated at the condition specified in paragraph (d) of this section.*
- (2) *The owner or operator shall assume that the quantity which becomes vapor in the first 10 minutes is involved in the vapor cloud explosion.*

Furthermore, vapor cloud explosions are considered a conservative analysis as Chapter 4: OCA of the General Risk Management Program Guidance states:

*As in the case of the worst-case release analysis for toxic substances, the worst-case distance to the endpoint for flammable substances is based on a number of very conservative assumptions. Release of the total quantity of a flammable substance in a vessel or pipe into a vapor cloud generally would be highly unlikely. Vapor cloud explosions are also unlikely events; in an actual release, the flammable gas or vapor released to air might disperse without ignition, or it might burn instead of exploding, with more limited consequences. The endpoint of 1 psi is intended to be conservative and protective; it does not define a level at which severe injuries or death would be commonly expected. An overpressure of 1 psi is unlikely to have serious direct effects on people; this overpressure may cause property damage such as partial demolition*

*of houses, which can result in injuries to people, and shattering of glass windows, which may cause skin laceration from flying glass.*

To develop the worst-case scenario, the largest storage vessel was selected. As stated in 19°CCR §2750.3, the worst-case release quantity is the greatest amount held in a single vessel, taking into account inventory procedures and limits.

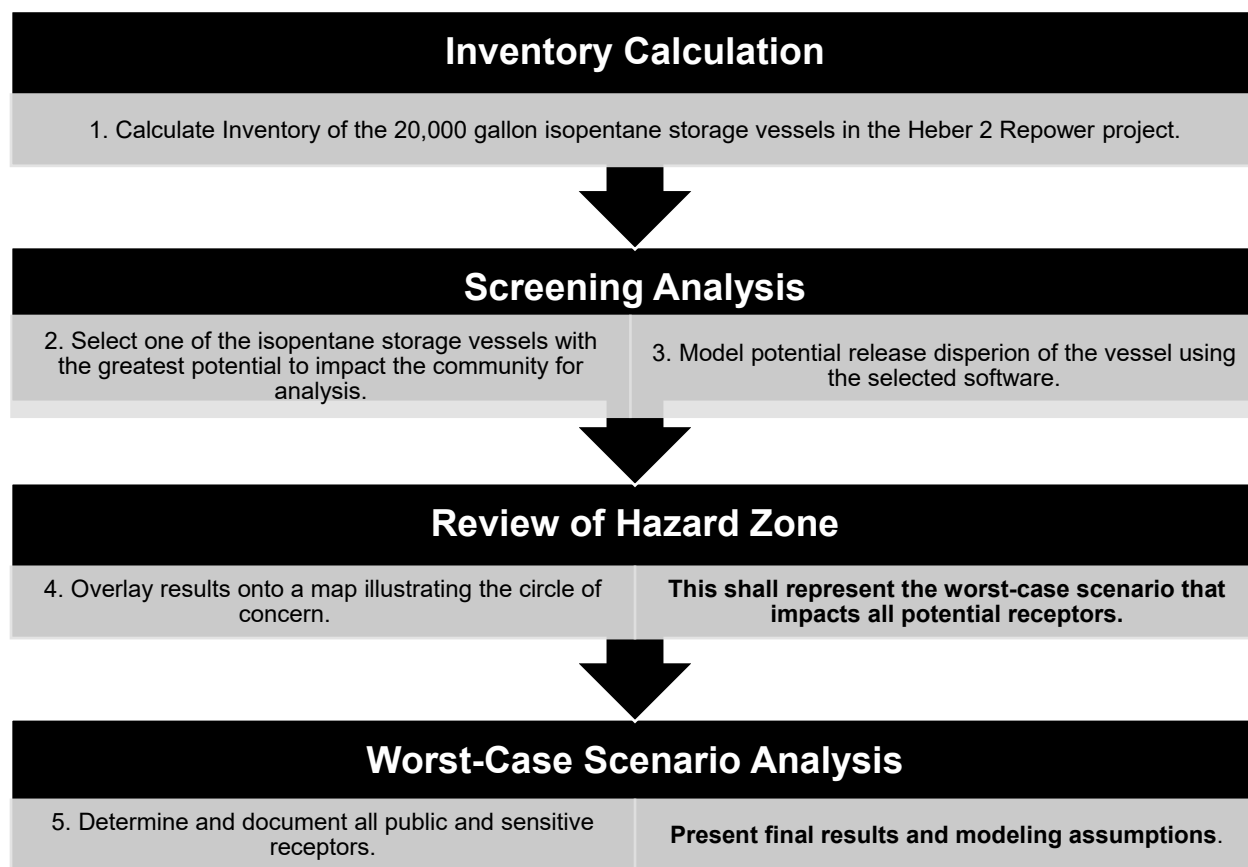
The Areal Locations of Hazardous Atmospheres (ALOHA)<sup>[3]</sup> modeling software was used to determine the distance to the endpoint for the worst-case release scenario analysis. The vulnerability zone resulting from this analysis was then reviewed. A vulnerability zone is defined as a circle whose center is the point of release and its radius is the length of the endpoint, which is predicted by the dispersion model (e.g., ALOHA).

#### 4.1 Worst-Case Scenario Selection Process

The process of worst-case release scenario identification is summarized as follows. Figure 3 on the following page depicts the steps in this process.

- **Inventory Calculation:** The first step was to perform the inventory calculations for the 20,000-gallon storage vessels in the covered units and systems.
- **Screening Analysis:** The 20,000-gallon isopentane storage vessels' location was screened. ALOHA modeling software was used to model the scenario and determine the dispersion endpoints for the worst-case release scenario. This was performed to determine the vulnerability zone associated with the worst-case release scenario.
- **Review of the Vulnerability Zone:** The vulnerability zone resulting from the previous step was reviewed and is representative for the plant's worst-case scenario.
- **Worst-Case Analysis:** To document the worst-case scenario, the potential public receptors within the vulnerability zone were identified. All modeling inputs, calculations and assumptions are documented.

Figure 7: Worst-Case Scenario Selection Process



## 4.2 Flammable Release Potential Consequences

Several possible consequences of releases of flammable substances are discussed below. It should be noted that the following possible consequences apply to not only worst-case release analysis.

- **Flash Fire.** This event may result from dispersion of a flammable vapor cloud and ignition of the cloud following dispersion. Such a fire could flash back and could represent a severe heat radiation hazard to anyone in the area of the cloud. The lower flammability limit (LFL) endpoint, specified in the rule, would be appropriate for flash fires (vapor cloud fires).
- **Pool Fire.** Spill of a liquid whose boiling point is above ambient temperature may form a liquid pool, which could ignite and form a pool fire. The applicable endpoint specified in the rule is the heat radiation level of 5 kW/m<sup>2</sup>.



- **BLEVE.** A BLEVE (Boiling Liquid Expanding Vapor Explosion) is a potential release scenario associated with a large quantity of flammable materials kept at below their boiling points. A BLEVE that may lead to a fireball could produce intense heat. This event may occur if a vessel containing flammable material ruptures as a result of exposure to fire. Heat radiation from the fireball is the primary hazard and vessel fragments and overpressure from the explosion are generally considered unlikely. To estimate the distance to a radiant heat level that can cause second degree burns (a heat “dose” equivalent to the specified radiant heat endpoint of 5 kW/m<sup>2</sup> for 40 seconds). Consistent with the EPA’s “Risk Management Program Guidance for Offsite Consequence Analysis” published guidance, BLEVEs are generally considered unlikely events and were therefore not considered a probable event for the Offsite Consequence Analysis.
- **Vapor Cloud Explosion.** For a vapor cloud explosion to occur, rapid release of a large quantity, turbulent conditions (caused by a turbulent release or congested conditions in the area of the release, or both), and other factors are generally necessary. The endpoint for vapor cloud explosions is 1 psi.
- **Jet Fire.** This may result from the puncture or rupture of a tank or pipeline containing a compressed or liquefied gas under pressure. The gas discharging from the hole can form a jet that “blows” into the air in the direction away from the hole; the jet then may ignite. Jet fires could contribute to BLEVEs and fireballs if they impinge on tanks of flammable substances. A large horizontal jet fire may have the potential to pose an offsite hazard.

For the flammable worst-case release scenario, a vapor cloud explosion was the most appropriate consequence, as defined by the EPA RMP rule.

### 4.3 Endpoints

As mentioned previously, for flammable materials, the endpoints specified by the EPA RMP are:

- Overpressure of 1 pound per square inch (psi) for vapor cloud explosions
- Radiant heat of 5 kilowatts per square meter (kW/m<sup>2</sup>) for jet fires
- Lower flammability limit (LFL) for flash fires

The rule specifies endpoints for fires based on the heat radiation level that may cause second degree burns from a 40-second exposure and the LFL, which is the lowest concentration in air at which a substance will burn. For a vapor cloud explosion, the endpoint is 1 psi, which is the force

to cause partial demolition of houses with potential serious injuries to people, or shattering glass windows with potential skin laceration from flying glass.

#### 4.4 Modeling Assumptions

The EPA RMP regulation imposes several assumptions that were adhered to when performing the offsite consequence analysis of the worst-case release scenario. These are conservative assumptions for weather and release conditions. The distance to the endpoint estimated under worst-case conditions provides an estimate for the maximum possible area that might be affected by these unlikely conditions. It should be noted that EPA's intention for the vulnerability zone representing a worst-case release scenario is to provide a basis for discussion among the regulated industry, emergency responders, and the public, rather than a basis for any specific actions. The EPA RMP regulations, in conjunction with the RMP Guidance for Offsite Consequence Analysis<sup>[4]</sup>, were used to model the worst-case release scenario and prescribe these atmospheric parameters.

- **Meteorological Parameters:** For the worst-case release analysis, the following assumptions were entered into ALOHA, as specific by the EPA RMP regulations / RMP Guidance for Offsite Consequence Analysis.
  - *Atmospheric stability:* F stability (very stable conditions)
  - *Wind speed:* 1.5 meters/second
  - *Ambient Temperature:* 77 °F
  - *Relative Humidity:* The typical relative humidity at the stationary source, which is 50%
- **Dispersion & Impact Modeling Parameters:**
  - *Height of Release:* Ground level, per EPA Rule requirement
  - *Surface Roughness:* Open Country, meaning there are no obstacles in the immediate area; obstacles including buildings or trees, as defined by the EPA RMP regulations
  - *Vapor Cloud Explosion Impact:* A Vapor Cloud Explosion has been modeled with an endpoint of 1 psi

- **Mitigation Systems:** Once a release has occurred, mitigation systems are means (structures, equipment, or activities) that help minimize the transport of material to the atmosphere. Mitigation systems can be characterized as passive or active systems.
  - *Passive mitigation systems do not require activation, an energy source, or movement of components to perform their intended function*
  - *Active mitigation systems do require activation, an energy source, and/or movement of components to perform their intended function*

It should be emphasized that the effectiveness of mitigation systems was taken into account when these systems were considered in the offsite consequence analysis. The effectiveness is determined based on how well the systems are designed and their abilities to respond reliably upon demand. The rule permits consideration of only passive mitigation systems for the worst-case release analysis provided that the systems are capable of withstanding the event triggering the release scenario and would still function as intended. For the worst-case release scenario, the secondary containment area built with concrete around the isopentane vessel was considered as a passive mitigation measure in the offsite consequence analysis.

#### 4.5 Worst-Case Release Scenario

One worst-case scenario (WCS) was developed for the facility. For the worst-case release scenario, the 20,000-gallon storage vessel containing isopentane at the Ormat – Dogwood facility was considered. The storage vessel is capable of storing a maximum of 18,000 gallons of isopentane, taking into account administrative controls. According to the Chevron Philips Chemical Company safety data sheet, the density of isopentane is 5.14 lbs./gal, which yields a total mass of 92,520 pounds of isopentane held in the storage vessel. The worst-case scenario considers the catastrophic failure of the 20,000-gallon isopentane storage vessel, which would result in a release of the entire contents of the vessel, into the secondary containment area. All dispersion modeling parameters utilized in the worst-case release scenario modeling is listed in Table 4 below. A summary of the scenario is presented in Table 5. Appendix A of this report provides a detailed description of the worst-case release scenario, ALOHA modeling output, MARPLOT 5.1.1<sup>[5]</sup> output with population estimates, and maps displaying the vulnerability zone for a release from each tank, denoted by a circle superimposed on the map.

Table 3: Worst Case Release Scenario Dispersion Modeling Parameters

PARAMETER	INPUT VALUE	NOTES
<b>Isopentane Input Parameters</b>		
Quantity Released	18,000 gallons	Entire contents of isopentane storage vessel assumed to be released and from an evaporating puddle in secondary containment area, which is involved in a vapor cloud explosion.
<b>Meteorological Parameters</b>		
Atmospheric Stability	F stability	As per 40 CFR §68.22 (b), “For the worst-case release analysis, the owner or operator shall use a wind speed of 1.5 meters per second and F atmospheric stability class”
Wind Speed	1.5 m/s	
Wind Direction	W	Wind Direction from the west based on the Wind Rose plot for Imperial, CA (closest city with wind rose plot available). Since the endpoint distance and circle of interest is presented in this report, the wind direction does not impact the analysis/distance to endpoint and instead is a generic input that ALOHA modeling software requires.
Measurement Height above Ground	10 m	Wind speed is assumed to be measured at this elevation, as this is the standard height at which the National Weather Service usually reports wind speed.
Ambient Temperature	77°F (25°C)	As per 40 CFR §68.22 (c), “An owner or operator using the RMP Offsite

PARAMETER	INPUT VALUE	NOTES
Relative Humidity	50%	Consequence Analysis Guidance may use 25 °C and 50 percent humidity as values for these variables”
Ground temperature	122°F	As per 40 CFR §68.22 (g), “for worst case, [it] shall be considered to be released at the highest daily maximum temperature, based on data for the previous three years appropriate for the stationary source.” Temperature data was sourced from Weather Underground <sup>[6]</sup> for Imperial, CA (closest available city with temperature history) and the highest daily maximum temperature from the previous 3 years was identified.
<b>Dispersion and Impact Modeling Parameters</b>		
Height of Release	Ground level	As per 40 CFR §68.22(d), “you must assume a ground level release” and as per the RMP Offsite Consequence Analysis Guidance Document, “this guidance assumes a ground-level release”
Topography/Surface Roughness	Open Country	Open Country, meaning there are no obstacles in the immediate area; obstacles including buildings or trees, as defined by the EPA RMP regulations.

PARAMETER	INPUT VALUE	NOTES
Level of Congestion	Congested	The level of congestion was assumed to be congested, which is a conservative assumption since greater turbulence (greater congestion) allows the flame front to accelerate, thereby generating a more powerful blast wave (i.e., greater overpressure). The immediate area within the facility is also considered to be congested with piping and equipment.
<b>Isopentane Mitigation System</b>		
Passive Mitigation	Secondary Containment Area	The amount released from the alternative release scenario is assumed to release into a concrete secondary containment area, which is contained around each storage vessel.

Table 4: Worst-Case Scenario Results Summary

RELEASE SCENARIO	REGULATED SUBSTANCE	ENDPOINT	ENDPOINT DISTANCE
WCS: 20,000-gallon Isopentane Storage Vessel Rupture/Release	Isopentane	Overpressure of 1 psi	119 yd / 357 ft / 0.068 mi

#### 4.6 Worst-Case Analysis Considerations

The worst-case distances to the flammable endpoints are based on a number of very conservative assumptions. The following summarizes the assumptions:

- The likelihood of a vessel rupture is extremely low. As a result, the release of entire inventory of a vessel is an unrealistic assumption.



- An overpressure of 1 psi is unlikely to have serious direct effects on people. This overpressure may cause property damage such as partial demolition of houses, which can result in injuries to people, and shattering of glass windows, which may cause skin laceration from flying glass.

## 5.0 ALTERNATIVE RELEASE SCENARIO

Alternative scenarios are potential releases that may result in consequences whose footprints represented by the endpoints could extend beyond the plant boundary. For a release case to be considered an alternative scenario, two conditions must be met:

1. The likelihood of the alternative release scenarios should be higher than that of the worst-case release scenarios.
2. The distance to endpoint from an alternative release scenario must go beyond the plant fence line.

As put forth in Title 40 CFR Section 68.28(a):

*The owner or operator shall identify and analyze...at least one alternative release scenario to represent all flammable substances held in a covered process*

Title 40 CFR Section 68.28 (b)(2) defines the scenarios typically considered, but not limited to, the following:

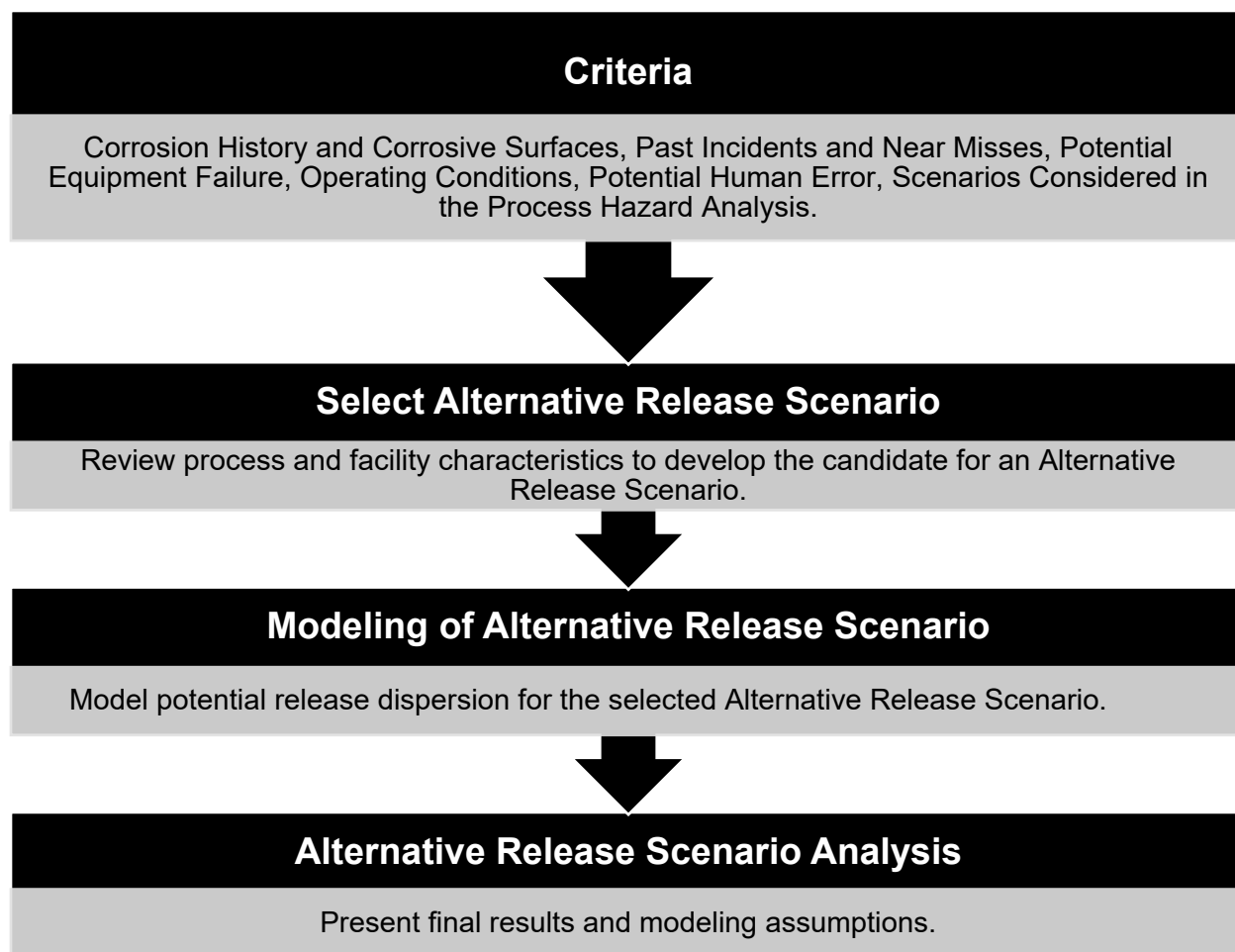
- (i) *Transfer hose releases due to splits or sudden hose uncoupling;*
- (ii) *Process piping releases from failures at flanges, joints, welds, valves and valve seals, and drains or bleeds*
- (iii) *Process vessel or pump release due to cracks, seal failure, or drain, bleed, or plug failure; and*
- (iv) *Vessel overfilling and spill, or over pressurization and venting through relief valves or rupture disks.*
- (v) *Shipping container mishandling and breakage or puncturing leading to a spill.*

For alternative release scenarios, active mitigation systems, such as interlocks, shutdown systems, pressure relieving devices, flares, emergency isolation systems, and fire water and deluge systems, as well as passive mitigation systems are considered, if they were applicable. In order to be credited, the mitigation systems considered must be capable of withstanding the event that triggers the release while remaining functional.

### 5.1 Alternative Release Scenario Selection Process

The process of alternative release scenario identification is summarized as follows and depicted in Figure 4.

- **Selection of Candidate Alternative Release Scenario:** The process of alternative release scenario identification was initiated with the review of the worst-case release case. Additional vessels, containing various quantities of regulated substances, which considered having a higher likelihood of release, were then reviewed. In this process, all covered processes were reviewed and the candidate case for the alternative release scenario analysis was subsequently selected. The following criteria was utilized to identify the potential scenario:
  - Corrosion history and corrosive services
  - Past incidents and near misses
  - Potential equipment failure
  - Operating conditions
  - Potential for human error
  - Consequences considered in the unit Process Hazard Analysis
- **Analysis of the Selected Alternative Release Scenario:** Once the candidate scenario was selected, ALOHA was utilized to model the selected scenario. The vulnerability zone resulting from the analysis of the alternative release scenario was then reviewed. The release duration was limited by the length of time to release the entire contents of the single Isopentane Storage Vessel.
- **Alternative Release Scenario:** The alternative release scenario for the flammable substance was selected and modeled to evaluate potential offsite impacts. Documentation of this scenario included modeling calculations, parameters and assumptions.

**Figure 8: Alternative Release Scenario Selection Process**

## 5.2 Modeling Assumptions

The EPA RMP regulation does not impose any mandatory assumptions for the OCA of the alternative release scenario. All dispersion modeling parameters utilized in the alternative release scenario modeling are listed in Table 6. For the alternative release scenario, a release due to a break in the product transfer hose connection during truck loading has been considered. Appendix B of this report provides a detailed description of the worst-case release scenario, ALOHA modeling output, MARPLOT 5.1.1 output with population estimates, and a map with the vulnerability zone denoted by a circle superimposed on the map.

Table 5: Alternative Release Scenario Dispersion Modeling Parameters

Parameter	Input Value	Notes
<b>Isopentane Input Parameters</b>		
Quantity Released	46,260 lbs.	The most likely alternative release scenario involves the uncoupling of a transfer hose during truck loading operations.  Calculations shown in Appendix B.
Release Rate	19,468 lbs./min	Calculations shown in Appendix B.
Release Duration	2.4 mins	The release duration is limited by the quantity stored in a single Isopentane Storage Vessel (18,000 gallons).
<b>Meteorological Parameters</b>		
Atmospheric Stability	D stability	As per EPA RMP Offsite Consequence Analysis Guidance, for an alternative scenario, “this guidance assumes wind speed of 3 meters per second and D stability”
Wind Speed	3.0 m/s	
Wind Direction	W	Wind Direction from the west based on the Wind Rose plot for Imperial, CA (closest city with wind rose plot available). Since the endpoint distance and circle of interest is presented in this report, the wind direction does not impact the analysis/distance to endpoint and instead is a generic input that ALOHA modeling software requires.

Parameter	Input Value	Notes
Measurement Height above Ground	10 m	Wind speed is assumed to be measured at this elevation, as this is the standard height at which the National Weather Service usually reports wind speed.
Ambient Temperature	77°F (25°C)	As per EPA RMP Offsite Consequence Analysis Guidance, for an alternative scenario, “this guidance assumes 25°C and 50 percent humidity”
Relative Humidity	50%	
Dispersion and Impact Modeling Parameters		
Height of Release	Ground Level	As per EPA RMP Offsite Consequence Analysis Guidance, for an alternative scenario, “this guidance assumes a ground-level release”
Topography/Surface Roughness	Open Country	Open Country, meaning there are no obstacles in the immediate area; obstacles including buildings or trees, as defined by the EPA RMP regulations.
Level of Congestion	Congested	The level of congestion was assumed to be congested, which is a conservative assumption since greater turbulence (greater congestion) allows the flame front to accelerate, thereby generating a more powerful blast wave (i.e., greater overpressure). The immediate area within the facility is also considered to be congested with piping and equipment.

Parameter	Input Value	Notes
<b>Isopentane Mitigation System</b>		
Passive Mitigation	Secondary Containment Area	The amount released from the alternative release scenario is assumed to release into a concrete secondary containment area, which is contained around each storage vessel.
Active Mitigation	None	

### 5.3 Alternative Release Scenario

A summary of the alternative release scenario is presented in Table 7. Appendix B of this report provides a detailed description of the alternative release scenario, ALOHA modeling outputs, MARPLOT 5.1.1 outputs with population estimates, and a map with circles representing the vulnerability zones.

**Table 6: Alternative Release Scenario Result Summary**

RELEASE SCENARIO	REGULATED SUBSTANCE	ENDPOINT	ENDPOINT DISTANCE
ARS: Transfer Hose uncoupling from 10,000-gallon Isopentane Storage Vessel during Truck Loading Operations	Isopentane	Overpressure of 1 psi	84 yd / 252 ft / 0.048 mi

### 5.4 Alternative Release Analysis Considerations

Typically, the same conservative assumptions apply for the alternative release analysis as for the worst-case release analysis. Although the alternative release scenario is intended to be more likely than the worst-case release scenario, the analysis of the alternative release scenario should not be expected to provide a realistic estimate of an area in which off-site impact may occur. The



same conservative endpoints have been used for both the worst-case and the alternative release analysis. These endpoints are intended to represent exposure levels below which most members of the public will not experience serious long-term health effects.

## 6.0 OFFSITE IMPACTS

A summary of the off-site impacts from an accidental release, including population and sensitive receptors, is discussed in the following sub-sections.

### 6.1 Impacted Population

In order to determine the impacted population around the facility, the potential for exposure within the endpoint was determined. The furthest endpoint distances reached by the worst-case scenario and alternative release scenario along with the estimated impacted population are summarized in Table 8:

**Table 7: Impacted Population for OCA Scenarios**

SCENARIO	ENDPOINT DISTANCE	ESTIMATED IMPACTED POPULATION
WCS: 20,000-gallon Isopentane Storage Vessel Rupture/Release	119 yd / 357 ft / 0.068 mi	0
ARS: Transfer Hose uncoupling from 20,000-gallon Isopentane Storage Vessel during Truck Loading Operations	84 yd / 252 ft / 0.048 mi	0

The population was estimated using 2010 census tract data with the MARPLOT 5.1.1 software. When calculating population densities for large areas that encompass many tracts, the accuracy is rated as good; however, for small areas that encompass only two or three partial tracts, the population data may be skewed due to the unequal distribution within the tract. The use of MARPLOT 5.1.1 is pursuant to guidance endorsed by the US EPA. MARPLOT 5.1.1 requires the latitude and longitude of the facility in order to calculate the population. The latitude and longitude were estimated using Google Earth GPS<sup>[7]</sup> software and an aerial photo. In consideration of the unique case of bystanders along facility borders during a vapor cloud

explosion, vessels are placed far enough within company fencing that surrounding walkways and streets are free of severe impacts.

## 6.2 Offsite Sensitive Receptor Data Sources

Table 9 includes a list of websites and software used to locate offsite sensitive receptors. A few sites will perform a distance search in order to determine the eligibility of a possible receptor. For all other sites, a map interpolation determines whether the receptor falls within the circle of concern.

**Table 8: Websites and Software Used**

SOURCE	RECEPTORS THIS SOURCE IS USED TO IDENTIFY	METHOD OF DETERMINING ELIGIBILITY
Google Maps <sup>[8]</sup>	Used to identify all receptors	Distance search in conjunction with a map interpolation
Google Earth	This mapping software is used to locate all receptors. It also incorporates an internet search with the map to locate businesses.	Software will map the location of the receptor.

## 6.3 Offsite Sensitive Receptors

RMP requirements state that sensitive populations such as schools, hospitals, day-care centers, long-term health care facilities, prisons, residential areas, public use parks/recreational areas, and major commercial facilities, located within the “at risk” area must be identified. These sensitive populations include individuals who could not remove themselves from the exposure area without assistance. The sensitive populations also include industrial installations which may have a hazardous process that cannot be immediately left unattended. According to the EPA’s General Risk Management Plan Guidance <sup>[9]</sup>, “The basic test for identifying a public receptor is thus whether an area is a place where it is reasonable to expect that members of the public will routinely gather at least some of the time. Roads and parking lots are not included as such in the

definition of ‘public receptor.’ Neither are places where people typically gather; instead, they are used to travel from one place to another or to park a vehicle while attending an activity elsewhere.” Table 10 shows a summary of offsite population receptors and offsite environmental receptors for isopentane, within the circle of concern as determined by the worst-case and alternative release scenarios.

**Table 9: Summary of Sensitive and Environmental Receptors**

RECEPTOR	WCS (0.068 MI)	ARS (0.032 MI)
<b>Population Receptors</b>		
Schools	No	No
Residences	No	No
Hospitals	No	No
Prisons/Correction Facilities	No	No
Recreation Areas	No	No
Major Commercial, Office, or Industrial Areas	No	No
Child Daycare	No	No
Long-term Health Care (e.g., convalescent homes)	No	No
Other (Government Buildings)	No	No
<b>Environmental Receptors</b>		
National or State Parks, Forests, or Monuments	No	No
Officially Designated Wildlife Sanctuaries, Preserves, or Refuges	No	No
Federal Wilderness Areas	No	No

RECEPTOR	WCS (0.068 MI)	ARS (0.032 MI)
Other (Landmark & Indian Reservations)	No	No

## 7.0 WORST-CASE RELEASE AND ALTERNATIVE RELEASE SCENARIO SUMMARY

The following sections outlines a summary of the parameters used for the one worst case release scenario and the one alternative release scenario analyzed for the Heber 2 Repower project.

### 7.1 Worst-Case Scenario

The worst-case scenario evaluated the release of the entire contents of one of the two 20,000-gallon isopentane storage vessels, containing 18,000 gallons of isopentane. The following table provides a summary of the parameters used for the worst-case scenario and the corresponding inputs.

**Table 10: Worst-Case Scenario Parameter/Input Summary**

Worst-Case Scenario	
Chemical	Isopentane
Model Used	ALOHA
Scenario	Vapor Cloud Explosion
Quantity Released (gal)	18,000 gallons
Endpoint Used	Overpressure of 1 psi
Distance to Endpoint	119 yd / 357 ft / 0.068 mi
Estimated Residential Population within Distance to Endpoint (numbers)	0
Public Receptors within Distance to Endpoint	
Schools	No
Residences	No

Worst-Case Scenario	
Hospitals	No
Prison/Correctional Facilities	No
Recreational Areas	No
Major Commercial, Office, or Industrial Areas	No
Other	None
Environmental Receptors within Distance to Endpoint	
National or State Parks, Forests, or Monuments	No
Officially Designated Wildlife Sanctuaries, Preserves or Refuges	No
Federal Wilderness Area	No
Other	No
Passive Mitigation Considered	
Secondary Containment Area	Yes
Other	No

## 7.2 Alternative Release Scenario

It was determined that a release due to a break in the isopentane transfer hose connection during truck loading, was the most likely release scenario due to human factors associated with manned transfer operations, as well as reliability issues in industry related to hose degradation and coupling failures. The following table provides a summary of the parameters that were used for alternative release scenario and the corresponding inputs.

**Table 11: Alternative Release Scenario Parameter/Input Summary**

Alternative Release Scenario	
Chemical	Isopentane
Model Used	ALOHA

Alternative Release Scenario	
Scenario	Vapor Cloud Explosion
Quantity Released	46,260 lbs.
Endpoint Used	Overpressure of 1 psi
Distance to Endpoint	84 yd / 252 ft / 0.048 mi
Estimated Residential Population within Distance to Endpoint (numbers)	0
Public Receptors within Distance to Endpoint	
Schools	No
Residences	No
Hospitals	No
Prison/Correctional Facilities	No
Recreational Areas	No
Major Commercial, Office, or Industrial Areas	No
Other	None
Environmental Receptors within Distance to Endpoint	
National or State Parks, Forests, or Monuments	No
Officially Designated Wildlife Sanctuaries, Preserves or Refuges	No
Federal Wilderness Area	No
Other	No
Passive Mitigation Considered	
Secondary Containment Area	Yes
Other	No
Active Mitigation Considered	
Sprinkler Systems	No



Alternative Release Scenario	
Deluge Systems	No
Water Curtain	No
Excess Flow Valve	No
Other	No

## 8.0 FIVE YEAR ACCIDENT HISTORY

There have been no applicable CalARP/RMP/PSM releases of isopentane at the facility within the last five years, therefore, this section is not applicable.

## 9.0 REFERENCES

1. Code of Federal Regulations (CFR), Title 40, Chapter I, Subchapter C, Part 68, Subpart B, Sections 68.20 to 68.42, "Hazard Assessment"; 2015, January 1.
2. California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5, Article 4, Sections 2750.1 to 2750.9, "Hazard Assessment"; 2015, January 1.
3. Areal Locations of Hazardous Atmospheres - ALOHA Version 5.4.7, U.S. Environmental Protection Agency, September 2016. <http://www2.epa.gov/cameo/aloha-software>
4. Risk Management Program Guidance for Offsite Consequence Analysis, U.S. Environmental Protection Agency, March 2009.
5. MARPLOT® 5.1.1 Mapping Software (internet download), National Oceanic and Atmospheric Administration and U.S. Environmental Protection Agency. <http://www.epa.gov/oswer01/content/cameo/marplot.htm>. December 2017.
6. Weather History for KIPL (Imperial County Station), Weather Underground, May 11, 2020, <https://www.wunderground.com/history/monthly/us/ca/imperial/KIPL>
7. Google™ Earth, version 7.3.2.5776, Google, Inc. (2019)
8. Google™ Maps, Google, Inc. (2019)
9. General Risk Management Program Guidance – Chapter 2: Applicability of Program Levels, U.S. Environmental Protection Agency, April 2004.

## **APPENDIX A**

### **WORST-CASE SCENARIO CALCULATIONS**

**WORST-CASE SCENARIO (WCS)**

The selected worst-case release scenario analyzes the hypothetical rupture of any one of the 20,000-gallon isopentane vessels, new or existing. Any one vessel can store up to 18,000 gallons of isopentane, taking into account administrative controls, which are in place to limit the quantity stored in each tank. Per requirement of the EPA rule for flammable substances, it was assumed that the whole quantity is released. The entire quantity is released into the secondary containment area, which is credited as a passive mitigation measure, to form an evaporating puddle, for which the vapors form a vapor cloud. If this vapor cloud ignited, the resultant blast could generate overpressure damage. The secondary containment area dimensions are 60 ft length, 16 ft width, 3.5 ft depth (surface area = 960 ft<sup>2</sup>), and it assumed the secondary containment area ground type is concrete.

The ALOHA modeling calculation predicts that the area impacted by the endpoint, which is an overpressure of 1 psi, is a circle with approximately a 119-yard radius (357 ft / 0.0676 mi). According to MARPLOT 5.1.1, there are 0 residents and 0 housing units within this vulnerability zone for both vessels. The table and figures on the following pages illustrate the scenario modeling parameter summary, scenario circle for the release, the ALOHA modeling output, as well as the MARPLOT results. These figures demonstrate Ormat's strategic placement of new storage vessels, showing that one explosion and release of all isopentane contents would not affect the other as demonstrated in the following figures. Each of the new vessels are at least 184 yards (twice the radius of concern) from one another and do not reach any of the three existing vessels.

## SITE DATA:

Location: HEBER, CALIFORNIA  
Building Air Exchanges Per Hour: 0.20 (unsheltered double storied)  
Time: April 12, 2023 1113 hours PDT (using computer's clock)

## CHEMICAL DATA:

Chemical Name: ISOPENTANE  
CAS Number: 78-78-4 Molecular Weight: 72.15 g/mol  
PAC-1: 3000 ppm PAC-2: 33000 ppm PAC-3: 200000 ppm  
LEL: 14000 ppm UEL: 76000 ppm  
Ambient Boiling Point: 82.1° F  
Vapor Pressure at Ambient Temperature: 0.91 atm  
Ambient Saturation Concentration: 904,926 ppm or 90.5%

## ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 1.5 meters/second from W at 10 meters  
Ground Roughness: open country Cloud Cover: 5 tenths  
Air Temperature: 77° F  
Stability Class: F (user override)  
No Inversion Height Relative Humidity: 50%

## SOURCE STRENGTH:

Evaporating Puddle (Note: chemical is flammable)  
Puddle Area: 960 square feet Puddle Volume: 18000 gallons  
Ground Type: Concrete Ground Temperature: 77° F  
Initial Puddle Temperature: Air temperature  
Release Duration: ALOHA limited the duration to 1 hour  
Max Average Sustained Release Rate: 198 pounds/min  
(averaged over a minute or more)  
Total Amount Released: 8,199 pounds

## THREAT ZONE:

Threat Modeled: Overpressure (blast force) from vapor cloud explosion  
Type of Ignition: ignited by spark or flame  
Level of Congestion: congested  
Model Run: Heavy Gas  
Red : LOC was never exceeded --- (8.0 psi = destruction of buildings)  
Orange: 69 yards --- (3.5 psi = serious injury likely)  
Yellow: 119 yards --- (1.0 psi = shatters glass)

Figure 5: WCS ALOHA Modeling Results



Figure 6: WCS MARPLOT 5.1.1 Map for Isopentane Storage Vessel

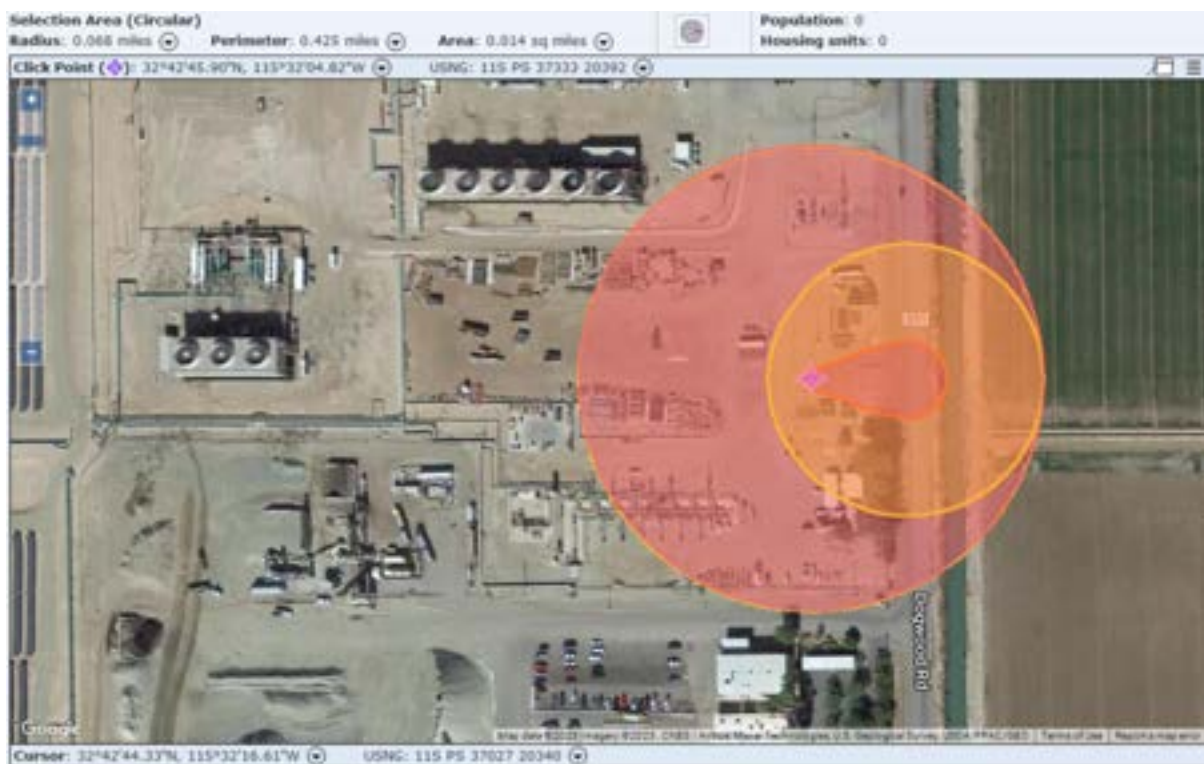


Figure 7: Receptors Within the Threat Zone

## **APPENDIX B**

### **ALTERNATIVE SCENARIO CALCULATIONS**



## ALTERNATIVE RELEASE SCENARIO (ARS)

The selected alternative release scenario is a release due to a break in the product (isopentane) transfer hose connection during truck loading. This was considered the most likely release scenario due to human factors associated with manned transfer operations, as well as reliability issues in industry related to hose degradation and coupling failures. It is assumed that the transfer hose uncouples during isopentane transfer operations and that it is released through an area of 12.6 square inches based on the transfer hose size. The release duration is limited by the volume in the Isopentane Storage Vessel (18,000 gallons), which is 2.4 minutes. In the evaluations of this alternative release scenario, the concrete secondary containment area composed was credited as a mitigation measure.

In order to calculate the release quantity for a transfer hose rupture, the release rate through the transfer hose must be calculated. The following equation, obtained from the EPA Risk Management Plan Guidance for Offsite Consequence Analysis, illustrates the calculation of the release rate for flammable liquids under pressure through a transfer hose:

$$QR = A_h \times 6.82 \sqrt{\frac{11.7}{DF^2} \times LH + \frac{669}{DF} \times P_g}$$

Where:

- QR = Release rate (lbs./min)
- $A_h$  = Hole or puncture area (square inches)
- DF = Density Factor, dimensionless, obtained from the EPA Risk Management Plan Guidance for Offsite Consequence Analysis
- LH = Height of liquid level above hole (inches)
- $P_g$  = Gauge pressure of the vessel (psig)

To calculate the release rate utilizing the above equation, the values for each of the following variables were calculated for isopentane:

**Hole Area**

The transfer hose used in isopentane filling operations at both plants is 4 inches in diameter. Thus, the hole area is based upon the transfer hose rupturing and calculated using the following:

$$HA = \pi r^2 = 12.6 \text{ in}^2$$

**Density Factor**

The Density Factors are obtained from Appendix C of the EPA Risk Management Plan Guidance for Offsite Consequence Analysis. The Density Factor value for isopentane is 0.79.

**Liquid Height**

The height of the liquid level above the hole is determined by the nominal liquid level in the vessel. The isopentane transfer point is taken to be at the bottom of the tank. Assuming that the isopentane storage vessel is 33% full of isopentane, this equates to 5,940 gallons being stored in the vessel (794 ft<sup>3</sup>). This is a conservative assumption as the storage tanks are normally empty and are only used for temporary storage of isopentane. According to the available tank data provided by the facility, the diameter of the Isopentane Storage Vessel is approximately 10.5 feet and length is 31 feet (tangent to tangent length). It should be noted that the Isopentane Storage Vessel is a horizontal vessel. In calculating the height of the liquid column within the tank, the Isopentane Storage Vessel was modeled as a cylinder, and thus the equation for volume of liquid within the tank is that of a horizontal cylinder. The equations below were used to find the height of the liquid column within the Isopentane Storage Vessel:

$$V_L = A_L \times L$$

$$A_L = R^2 \cos^{-1} \left( \frac{R - LH}{R} \right) - (R - LH) \sqrt{2R \cdot LH - LH^2}, \quad \therefore$$

$$V_L = L \times \left[ R^2 \cos^{-1} \left( \frac{R - LH}{R} \right) - (R - LH) \sqrt{2R \cdot LH - LH^2} \right]$$

Where:

$V_L$  = Volume of liquid within the Tank (ft<sup>3</sup>)

$A_L$  = Area of liquid (ft<sup>2</sup>)

$R$  = Radius of the Tank (ft.)

$L$  = Length of the Tank (ft.)

$LH$  = Height of the liquid within the Tank (ft.)

Values for each variable listed in the equations above are provided below, with the exception of LH, as this is the variable to be calculated:

$$V_L = 5,940 \text{ gallons} = 794 \text{ ft}^3$$

$$R = 5.25 \text{ ft.}$$

$$L = 31 \text{ ft.}$$

By using the above values within the equation, the height of the liquid column within the Isopentane Storage Vessel can be calculated, which is approximately 2.3 ft (2.2857 ft) or 27.6 inches.

### **Pressure**

The normal operating pressure of the isopentane motive fluid storage tank was identified to be 60 psig.

### **Modeling**

Using these values, the release rate of isopentane can be determined. Please see the calculations below for determining the isopentane release rate:

$$QR = 12.6 \text{ in}^2 \times 6.82 \sqrt{\frac{11.7}{(0.79^2)} \times 27.6 \text{ in} + \frac{669}{0.79} \times 60 \text{ psig}}$$

$$QR = 19,468.3955 \frac{\text{lbs.}}{\text{min}} \approx 19,468 \frac{\text{lbs.}}{\text{min}}$$

Over the 2.4 minute release period, this results in a total of 46,260 lbs. released to the secondary containment area to form an evaporating puddle, for which the vapors form a vapor cloud. If this vapor cloud ignited, the resultant blast could generate overpressure damage.

The ALOHA modeling calculation predicts that the area impacted by the endpoint, which is overpressure of 1 psi, is a circle with approximately a 57-yard radius (171 ft / 0.032 mi). According to MARPLOT 5.1.1, there are 0 residents and 0 housing units within this vulnerability zone for all six vessels. The table and figures on the following pages illustrate the scenario modeling parameter summary, scenario circle for the release, the ALOHA modeling output, as well as the MARPLOT results.

## SITE DATA:

Location: HEBER, CALIFORNIA  
Building Air Exchanges Per Hour: 0.23 (unsheltered double storied)  
Time: April 28, 2024 1949 hours PDT (using computer's clock)

## CHEMICAL DATA:

Chemical Name: ISOPENTANE  
CAS Number: 78-78-4 Molecular Weight: 72.15 g/mol  
PAC-1: 3000 ppm PAC-2: 33000 ppm PAC-3: 200000 ppm  
LEL: 14000 ppm UEL: 76000 ppm  
Ambient Boiling Point: 82.1° F  
Vapor Pressure at Ambient Temperature: 0.91 atm  
Ambient Saturation Concentration: 904,926 ppm or 90.5%

## ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

Wind: 3 miles/hour from W at 3 meters  
Ground Roughness: open country Cloud Cover: 5 tenths  
Air Temperature: 77° F  
Stability Class: D (user override)  
No Inversion Height Relative Humidity: 50%

## SOURCE STRENGTH:

Evaporating Puddle (Note: chemical is flammable)  
Puddle Area: 960 square feet Puddle Mass: 46260 pounds  
Ground Type: Concrete Ground Temperature: 77° F  
Initial Puddle Temperature: Air temperature  
Release Duration: ALOHA limited the duration to 1 hour  
Max Average Sustained Release Rate: 193 pounds/min  
(averaged over a minute or more)  
Total Amount Released: 6,646 pounds

## THREAT ZONE:

Threat Modeled: Overpressure (blast force) from vapor cloud explosion  
Type of Ignition: ignited by spark or flame  
Level of Congestion: congested  
Model Run: Heavy Gas  
Red : LOC was never exceeded --- (8.0 psi = destruction of buildings)  
Orange: 43 yards --- (3.5 psi = serious injury likely)  
Yellow: 84 yards --- (1.0 psi = shatters glass)

Figure 8: ARS ALOHA Modeling Results

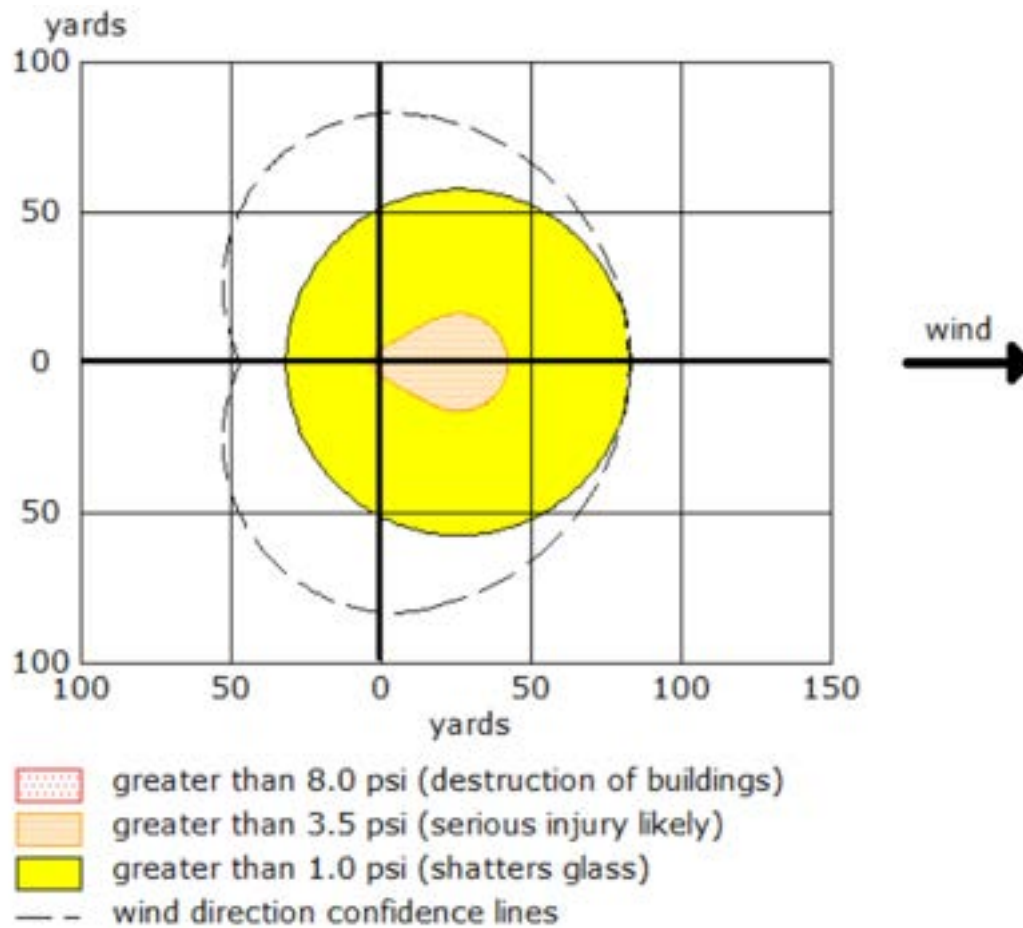


Figure 9: ARS Threat Zone









## Water Quality Management Plan

### *Dogwood Geothermal Energy Project Heber 2 Solar Energy Project HFC Geothermal Wells & Pipeline Project*

Prepared for: Imperial County Planning and  
Development Services

Submitted by: ORMAT

June 20, 2023

# Document Information

<b>Prepared for</b>	OrHeber 3 LLC, Heber Field Company, and the Second Imperial Geothermal Company (collectively, the Applicants, all wholly owned subsidiaries of Ormat Technologies, Inc.)
<b>Project Name</b>	Dogwood Geothermal Energy Project, Dogwood Solar, and Heber 2 Solar Facilities APN 054-250-031; APN 059-020-001; APN 054-250-017
<b>Address</b>	ORMAT 6140 Plumas Street Reno, NV 89519-6075
<b>Project Manager</b>	Ben Pogue <a href="mailto:bpogue@ce.solutions">bpogue@ce.solutions</a>
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<b>Date</b>	June 10, 2023

# Professional Certification

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## Water Quality Management Plan

### Dogwood Geothermal Energy Project, Dogwood Solar, and Heber 2 Solar Facilities

This report has been prepared by Catalyst Environmental Solutions Corporation under the professional supervision of the Principal(s) and/or staff whose signature(s) appear hereon.

The scope of work and specifications are presented in accordance with generally accepted professional engineering practice and those of the California State Water Resources Control Board Order No. 2013-001-DWQ. There is no other warranty either expressed or implied.



Paden Voget, PE  
State of California Professional Engineer #69238

## Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for OrHeber 3 (OH), LLC, Heber Field Company, LLC (HFC), and the Second Imperial Geothermal Company (collectively, the Applicants, all subsidiaries of Ormat Technologies, Inc. [ORMAT]) by Catalyst Environmental solutions. The WQMP is intended to comply with the requirements of the County of Imperial and the Phase II Small MS4 General Permit Imperial Valley Watershed. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of the site consistent with the Phase II Small MS4 Permit and the intent of the County of Imperial and the unincorporated community of Heber. Once the undersigned transfers its interest in the property, its successors in interest and the city/county/town shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

Project Data			
Permit/Application Number(s):	New CUP for Dogwood Geothermal Energy Project  New CUP for Heber 2 Solar Energy Project  Amendment to CUP No. 06-0028 for the HFC Geothermal Wells & Pipeline Project	Grading Permit Number(s)	N/A
Tract/Parcel Map Number(s):	APN 054-250-031 APN 059-020-001 APN 054-250-017	Building Permit Number(s)	N/A
CUP, SUP, and/or APN:			06-0028 (for HFC)
Owner's Signature			
Owner Name:	Alissa Sanchez		
Title:	Senior Manager, Environmental Permitting		
Company:	ORMAT		
Address:	6140 Plumas Road, Reno, NV		
Email:	asanchez@ormat.com		
Telephone:	775-356-9029 ext. 32234		
Signature:		Date:	June 20, 2023

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## SECTION 1      **Project Description**

---

OrHeber 3, LLC, Heber Field Company, LLC, and the Second Imperial Geothermal Company (collectively, the Applicants, and all subsidiaries of Ormat Technologies, Inc. [ORMAT]) proposes to develop a new 25-megawatt (MW; net generation) geothermal energy facility (Dogwood Project), Dogwood Solar, and Heber 2 Solar Parasitic Facilities. Proposed developments would occur on Assessor Parcel Numbers (APNs) 054-250-31; APN 059-020-001; and APN 054-250-017, near the existing geothermal energy complex located at 855 Dogwood Road, Heber, California. The Project site(s) is within the Imperial County Geothermal Overlay Zone that allows for Major Geothermal Projects to be permitted via a Conditional use Permit (CUP) process (Imperial County General Plan; Renewable Energy and Transmission Element of County of Imperial General Plan, 2015). The following facilities are proposed for development, provided by the Applicant:

### **Dogwood Project (OrHeber 3, LLC) – New CUP**

- One (1) Integrated Two Level Unit (ITLU) Air Cooled ORMAT Energy Converter (OEC) generating unit
- Two (2) 20,000-Gallon Isopentane Tanks for Motive Fluid Storage
- One (1) Project substation for transmission to the grid
- Ancillary and auxiliary facilities (including, compressed air system and fire prevention system)
- A seven (7) megawatt (MW) solar photovoltaic field dedicated to the Dogwood geothermal plant
- Underground medium voltage distribution cable from Dogwood solar facilities to Dogwood geothermal plant (and Heber 2 solar facilities to the Heber 2 OEC)

### **Heber 2 Parasitic Solar Energy Facilities (Second Imperial Geothermal Company) – Amendment to CUP No. 19-0017**

- A fifteen (15) MW solar photovoltaic field dedicated to the Heber 2 geothermal plant
- Interconnecting cable line from Heber 2 solar facilities to Heber 2 geothermal plant

### **Wells and Pipeline (Heber Field Company, LLC) – Amendment to CUP No. 06-0028**

- Up to six (6) new production wells (3 sited, 3 unsited)
- One (1) new injection well
- Brine pipelines

As provided in **Table 1** below, the total project disturbance from the proposed development is approximately 124 acres. **Figure 1** and **Figure 2** provide a site plan of the proposed facilities and brief descriptions of each facility are provided below.

**Table 1. Dogwood Project Area of Disturbance Estimate**

Facility	Disturbance (Acres)
Geothermal Energy Facilities and Project Substation	5 acres (site currently completely disturbed)
Solar Field and Connection Line	~ 95 acres
Production and Injection Wells and Connecting Pipeline	~ 24 acres
<b>TOTAL</b>	<b>124 acres</b>

The Project will result in approximately 1,400 square feet of area converted to impervious surface area resulting from installation of equipment footings/foundations. Although some minor grading will be performed for the installation of the parasitic solar fields, the existing drainage pattern of the sites will not be altered from existing conditions. Accordingly, the Project will not result in a change to the existing grade and stormwater flows and drainage will not be altered from existing conditions. **Figure 3** illustrates the existing drainage facilities in the vicinity of the Project. **Figure 4** provides a site plan of the proposed facilities.

#### *1.1.1 Geothermal Production and Injection Wells*

Heber Field Company (HFC) owns and operates the geothermal wells and pipeline network that provides geothermal fluid/brine to the entire Heber Geothermal Energy Complex (HGE), which includes the existing Heber 2, Heber South, and Goulds II geothermal power plants. HFC holds a CUP (No. 06-0028) for this wellfield and through a CUP amendment process, the new production and injection wells and pipelines are proposed to be added to this existing CUP. HFC proposes to develop up to six production wells. Three of these wells are sited to support the new Dogwood geothermal facility. **Figure 1** provides the locations of the three Dogwood wells. HFC is also seeking to permit three unsited wells that would be developed in the future. The unsited wells would be developed within one-mile of the HGE and not near any sensitive receptors. HFC would anticipate construction in close proximity to an existing well pad and pipeline connections. The surrounding area is predominantly agricultural and the unsited wells would likely convert a small amount for geothermal production or injection use (approximately 1.5 acres of disturbance per well pad).

The production wells would be completed to depths between 1,000 and 4,000 feet, averaging approximately 3,500 feet. Casing depth will comply with California Department of Conservation – Geologic Energy Management Division (CalGEM) Regulations (Chapter 4, Article 3, §§ 1723, 2018) and vary depending on the total depth of the well. After the production well is completed, a well head will be installed and connected to a transmission pipeline that will convey geothermal fluid to the Dogwood Project (as discussed below). An industrial grate will be placed over the well to prevent falls. An insulated electric conductor running from the OEC to the wellheads along the connecting pipelines will supply electricity to the wellhead pump motors. During normal well operations, total geothermal fluid production rates are expected to be approximately 8,000 gallons per minute (gpm) at 280°F. One new injection well would be installed directly adjacent to the Dogwood plant. This well would also be owned and operated by HFC. This well is designed to provide direct service to the Dogwood Project, in addition to the available capacity in the existing HFC injection well/system. Injection will occur at the same approximate levels (i.e., 8,000 gpm) but at lower temperatures of approximately 170°F.

### *1.1.2 Geothermal Fluid Pipeline*

A short segment of new pipeline is proposed within the solar energy fields to collect and deliver the new geothermal fluid/brine from two of the new production wells. This new pipeline would connect to the existing pipeline network to deliver fluid/brine to the Dogwood plant. Construction of the pipeline segment would include auguring 24-inch diameter holes into the ground about three to five feet deep at approximately 30-foot intervals along the pipeline route. When complete, the top of the new geothermal pipelines will average three feet above the ground surface. Electrical power and instrumentation cables for the wells may also be installed in steel conduit constructed along the pipe.

### *1.1.3 ORMAT Energy Converter (Geothermal Energy Production Unit)*

The proposed ORMAT Energy Converter (OEC) unit is a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists of a generator, turbines, a vaporizer, Air Cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).

### *1.1.4 Isopentane Storage Tanks*

Two double-walled 20,000-gallon above-ground storage tanks would be installed for motive fluid (isopentane) storage. Numerous safety and fire prevention measures will be installed on/near the ABST, including:

- Concrete foundations with blast walls separating the tank from the OEC
- An automated water suppression system.
- Concrete containment areas.
- Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
- A gas detector, which will immediately detect any isopentane leak and notify the control room (manned by 24/7).

### *1.1.5 Cooling Tower*

A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid.

### *1.1.6 Parasitic Solar Energy Facilities*

Two separate solar photovoltaic energy fields are proposed – a seven (7) megawatt solar field to provide supplemental/auxiliary energy to the Dogwood geothermal plant and a fifteen (15) MW solar field to provide supplemental/auxiliary energy for the Heber 2 geothermal plant. These solar facilities are classified as behind-the-meter and would provide supplemental energy directly to the Dogwood and Heber 2 geothermal units (OECs), this energy would not enter the transmission grid. The solar facilities

will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy and to allow more geothermal energy to enter the grid. The energy generated by the solar fields would be collected on-site by a XMR and switch and transmitted along a short interconnecting cable line (approximately 1,000 feet) on Dogwood Road to the Dogwood and Heber 2 OECs.

### *1.1.7 Project Substation*

The Project will require a new substation to step up the low voltage electrical energy generated at the Dogwood geothermal unit to the higher voltage required for commercial transmission. No upgrades to off-site transmission facilities is necessary and the new Dogwood substation will connect directly to the existing point of interconnection with the Imperial Irrigation District (IID) controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection.

### *1.1.8 Water Use and Source*

Water required for facility construction activities, including grading and dust control, will be obtained from the applicant's existing contract with IID. Up to 5,000 gallons per day (gpd) of water will be required for the first 2-4 months of development of the facility. Approximately 2,000 gpd will be consumed during the remaining development schedule of approximately 12-18 months. Thus, approximately 1.1 million gallons of water (10.1 acre-feet) will be used on-site during construction. Once operating, up to approximately 325 gpd (0.36 acre-feet per year) of non-potable water will be required and provided by the applicant's existing IID contract/allocation. Water required for well drilling would typically average 50,000 gpd. Water necessary for these activities would be obtained from local irrigation canals in conformance with IID requirements. Alternatively, a temporary pipeline from the respective irrigation canal could be used for water delivery to the well site. Any temporary pipeline would be laid on the surface immediately adjacent to the access road. The Project will not require additional water from the Imperial Irrigation District (IID) for operations and will be covered under the existing contract.

## **1.2 SITE LOCATION**

The Site includes approximately 4 acres within the Heber quadrangle of the U.S. Geological Survey (USGS) 7.5" topographic map, and sits within Township 16 South, Range 14 East of the San Bernardino Base and Meridian in Imperial County, California.

## **1.3 LAND USE AND TOPOGRAPHY**

The Project is located on private lands owned by ORMAT in southern Imperial County as shown in **Figure 1**. The Proposed development includes approximately 124 acres within APN 054-250-31; APN 059-020-001; and APN 054-250-017, near the existing geothermal energy complex located at 855 Dogwood Road, Heber, California. The Project site is zoned as A-2-G SPA, for General Agriculture (A-2), Geothermal Overlay Zone (G), and in the Heber Specific Plan Area (SPA). The Project site lies at an elevation of approximately 5 feet below mean sea level (msl) in the Imperial Valley region of the California low

desert. The surrounding properties lie on terrain, which is flat, part of a large agricultural valley. The existing geothermal energy complex is devoid of vegetation and is actively disturbed as part of the ongoing energy generation operations at Heber 2. The sites identified for the Dogwood Parasitic Solar Facility, Heber 2 Parasitic Solar Facility, and production wells are currently actively cultivated agricultural fields. Adjacent properties consist of agricultural land to the north and a solar farm to the west.

## 1.4 SITE GEOLOGY, HYDROGEOLOGY, AND SOILS

The part of Imperial County containing Heber lies within the Pliocene to Holocene, Q Geologic Unit (McCrink et al. 2011). Three natural geomorphic provinces underlay Imperial County, including the Peninsular Ranges, the Colorado Desert, and the Mojave Desert. The Colorado Desert geomorphic province spans central Imperial County and contains the Salton Sea and the Imperial valley. This Basin and Range province, sometimes referred to as the Salton Trough, is composed of a low-lying barren desert basin located between alluvium-covered, active branches of the San Andreas Fault containing Cenozoic sedimentary rocks and alluvial, lacustrine, and eolian deposits. The surface of sediments in the middle of the trough are about 275 feet below sea-level (bsl) (Digital Desert 2019).

Surface water in the area of the Site consists of canals and agricultural drains operated and maintained by the Imperial Irrigation District. Canals adjacent to the Project Site include Date Drain No. 3 and Beech Drain as illustrated in **Figure 3**. These canals ultimately drain to the Alamo River, a tributary to the Salton Sea. Surface runoff within the Project Site occurs primarily as sheetflow across the lot generally to the north, eventually flowing into the adjoining ditches.

The regional groundwater flow direction within the Imperial Valley is toward the Salton Sea, a closed basin with a surface elevation of approximately 225 feet below sea level. Groundwater flow in the Project area flows in a general northwest direction.

Dry lean silty clays dominate the project site surface extending to approximately 4 to 5 feet below ground surface (bgs). These silty clays are underlain by moist stiff clays from approximately 6 feet to 38-40 feet bgs. Silty clay to clayey silt dominate 40-50 feet bgs to the extent of geotechnical exploration (Landmark 2019).

## 1.5 HYDROMODIFICATION APPLICABILITY

As discussed above, the Project would result in less than 1,400 square feet of impervious area from pre-Project conditions. For construction of the parasitic solar fields, limited grading is proposed for the Project that would not result in changes to the permeability of the site nor alter the existing drainage patterns. As such, the post-development runoff volume, time of concentration, and peak flow velocity would not be altered from that of the pre-development condition.

## 1.6 POTENTIAL STORMWATER POLLUTANTS

**Table 2** summarizes expected stormwater pollutants of concern based on land use and site activities.



**Table 2. Pollutants of Concern**

<b>Pollutant</b>	<b>Potential to Impact Stormwater (Y/N)</b>	<b>Additional Information and Comments</b>
Pathogens (Bacterial/Virus)	N	--
Nutrients – Phosphorous	N	--
Nutrients - Nitrogen	N	--
Noxious Aquatic Plants	N	--
Sediment	Y	Overland flows over unpaved surface may result in sediment in stormwater runoff
Metals	Y	Leaks/spills in Project area may result in metals in stormwater runoff
Oil and Grease	Y	Leaks/spills in Project area may result in oil and grease in stormwater runoff
Trash/Debris	Y	Improperly disposed of trash/debris may result in trash in stormwater runoff
Pesticides/Herbicides	N	--
Other	N	--

This section describes the Best Management Practices (BMPs) that will be implemented and maintained throughout the life of the project. The BMPs will be used to prevent and minimize water pollution that can be caused by stormwater runoff. **Table 3** details the BMPs selected to be implemented at the Project site based on the potential pollutants. Note that the OEC, isopentane tanks, cooling tower, and substation are located within the existing operational footprint and is subject to the existing policies and programs implemented by ORMAT for the facility as would the proposed development outside of the existing HGEC. Because the Project does not propose any changes to the existing stormwater volume, peak flow velocity, time of concentration or drainage patterns, no structural BMPs are proposed.

**Table 3. Non-Structural Source Control BMPs**

Pollutant Source	Pollutant	BMP	Existing?	New/ Revised?
Stormwater run-on and runoff	Erosion, sediment, contaminated stormwater	<ul style="list-style-type: none"> <li>Stabilize drainage with rocks, gravel, vegetation, or riprap</li> <li>Provide perimeter control to isolate sediment (loose dirt). Includes earthen berms, fiber rolls, silt fence, etc.</li> </ul>	X	
Vehicle Track Out	Sediment, Dust	<ul style="list-style-type: none"> <li>Provide tracking control device</li> <li>Conduct street sweeping</li> </ul>	X	
Work Areas	Trash	<ul style="list-style-type: none"> <li>Regularly monitor and clean trash</li> <li>Provide employee training for good housekeeping</li> </ul>	X	
Equipment Areas (OECs, ITLUs, pipes)	Isopentane, sediment	<ul style="list-style-type: none"> <li>Control drainage patterns with berms</li> <li>Use water truck for dust control</li> <li>Conduct routine inspections</li> </ul>	X	X
Stored materials and equipment maintenance	Oil, grease, hydraulic fluid, anti-freeze, metals	<ul style="list-style-type: none"> <li>Provide good housekeeping training</li> <li>Store materials in secondary containment</li> <li>Spill kit and response training</li> </ul>	X	

In addition to the activities listed above, ORMAT follows all approved operational guidelines that are currently in place. Temporary and permanent soil erosion control BMPs will be implemented in conformance with the BMP Fact Sheets provided in the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbook – Industrial and Commercial (2019).

## 2.1 NON-STRUCTURAL BMPS

The following are prevention practices utilized to minimize the probability of pollution of stormwater discharge.

### *2.1.1 Good Housekeeping*

As a component of this program, good housekeeping practices are performed so that facility is kept in a clean and orderly condition. Proper housekeeping practices include:

- Periodic cleanup of equipment, as needed, based upon facility inspections,
- Sweeping impervious surfaces, as needed, based upon facility inspections,
- Proper waste disposal practices and covering of waste storage areas at all times,
- Proper storage and covering of materials at all times,
- Removal of any oil-stained soil/gravel, especially around equipment locations and loading areas,
- Cleaning of significant oil and grease stains on surfaces that drain to the stormwater drainage areas, and
- Cleaning the exterior of oil containers on hydraulic machinery upon discovery of an accumulation of hydraulic fluid.

### *2.1.2 Preventative Maintenance*

As a component of this program, operations and maintenance staff perform preventative maintenance of stormwater management devices to assure their proper operation. Preventative maintenance of stormwater management devices includes the following:

- Cleaning of accumulated sediment, potential contaminants, and debris from the Site;
- Inspection of secondary containment structures as part of the regular daily visual inspections;
- Maintenance and inspection of secondary containment structures, as needed, based upon inspections;
- Daily inspection and maintenance of equipment and associated piping and valves as required by preventive maintenance procedures;
- Inspection and maintenance of rainfall protection coverings for waste storage bins and receptacles on a periodic basis; and
- A comprehensive preventive maintenance schedule is performed on all facility operations equipment as part of routine procedures.

### *2.1.3 Spill Response*

Spill prevention and response is performed according to the facility's SPCC Plan . Copies of this plan are located in the on-site ORMAT office.

A limited amount of spill cleanup equipment is stored onsite. This equipment is found within hazardous material storage areas. Detailed information concerning spill cleanup equipment and resources is included in the SPCC Plan.

The volume of containment areas surrounding each potential source is designed to hold the contents of a spill from the largest vessel / container. The SPCC Plan summarizes the capacity of potential sources and volume of the respective secondary containment areas.

#### *2.1.4 Material Handling and Storage*

The primary hazardous material to be stored on-site is isopentane. The additional isopentane will be stored in the appropriately designed (2x) 20,000 gallon above ground storage tanks, as well as the existing (2x) 10,000 gallon tanks for Heber 2 OEC. The isopentane is used as a motive fluid for geothermal energy generation and is not directly discharged, rather is released as an air emission. Therefore, the isopentane would not be directly exposed to stormwater. All other hazardous waste would be stored in 55-gallon drums and other Department of Transportation (DOT) approved packaging within a contained area located on the Site. Stormwater that accumulates within the hazardous material and hazardous waste containment area is collected via vacuum truck and disposed of off-site or recycled back into the production system. A bill of lading, non-hazardous waste manifest or uniform hazardous waste manifest is used to document all such shipments.

#### *2.1.5 Employee Training*

A combined annual Storm Water Compliance / SPCC Plan training program is conducted for the Pollution Prevention Team members and operations personnel. Participants undergo stormwater management training for all areas and operations at this facility, as well as reviewing the spill response, control and countermeasure procedures. Other stormwater training is done on an as-needed basis.

#### *2.1.6 Waste Handling/Recycling*

At times, product or oily waste streams are transferred from the facility in 55-gallon drums. A bill of lading, non-hazardous waste manifest or uniform hazardous waste manifest is used to document all such shipments. Operations or contractor personnel closely monitor loading of transport vehicles. Collection and satellite accumulation containers for hazardous and non-hazardous waste are kept covered to prevent contact with stormwater. Appropriate spill control equipment and supplies are kept readily available in case of a spill.

#### *2.1.7 Record Keeping and Internal Reporting*

All inspection, sampling, maintenance, corrective action records, and any other information that is a part of this plan are maintained at the facility office. All records are maintained for a period of at least three (3) years.

#### *2.1.8 Erosion Control and Site Stabilization*

Permanent BMPs used at the existing HGEC facility to prevent soil erosion include routing runoff along earthen swales or drainage areas, and preventing run-off with berms along certain sections of the property line. Temporary BMPs used at the Site to prevent soil erosion include the use of sandbags, crushed rock, and silt fence. These BMPs are used as and where needed, especially in areas that are undeveloped or in the process of being developed.

## SECTION 3      **Operation and Maintenance Plan**

---

The Dogwood Project is located within APN 054-250-31; APN 059-020-001; and APN 054-250-017, near the existing geothermal energy complex located at 855 Dogwood Road, Heber, California. The following non-structural water quality best management practices (BMPs) are proposed for the Project:

- Good Housekeeping
- Preventative Maintenance
- Spill Response
- Material Handling and Storage
- Employee Training
- Waste Handling/Recycling
- Record Keeping and Internal Reporting
- Erosion Control and Site Stabilization

### **3.1 MAINTENANCE RESPONSIBILITY**

The Heber Field Company (subsidiary of ORMAT) is the property owner and is responsible for BMP maintenance. Since HFC/ORMAT is the owner, no access agreement or easement is necessary to maintain the BMPs. HFC/ORMAT funds will be used to support Operation and Maintenance (O&M) activities to maintain BMP functionality. HFC/ORMAT maintenance staff are expected to perform the maintenance.

### **3.2 MAINTENANCE ACTIONS AND FREQUENCY**

Maintenance actions are generally grouped into two categories: routine and intermittent.

#### *Routine Maintenance*

Routine inspections of the Project facilities and grounds will be performed annually. During these inspections staff evaluate if there is significant accumulation of trash, debris, or sediment that would need to be removed. Cleaning is done as needed based on the results of the inspections. The inspection frequency may be adjusted based on experience at the site (e.g., if inspections rarely find any material that needs to be cleaned out, then the inspection frequency can be reduced).

#### *Intermittent Maintenance*

Intermittent maintenance activities include more substantial maintenance that is not required as frequently as routine maintenance. The most likely form of intermediate maintenance is removal of sediment from existing drainage infrastructure and detention basins where necessary to maintain the capacity of the basins. Given that the Project Site is pervious and will not be graded or significantly altered and that rain is infrequent in Heber, this type of maintenance is expected to be required approximately once every year.

### 3.3 MAINTENANCE PROCEDURES

During each maintenance visit, the maintenance crew will evaluate existing drainage paths and infrastructure by inspecting for the maintenance indicators in **Table 4**. When a maintenance indicator is observed, the action described in the “Maintenance Actions” column will be taken.

Note that regardless of the projected maintenance type (routine or intermittent) described in the previous section, when a maintenance indicator is observed, the required maintenance action will be taken. For example, if significant sediment accumulation is observed in year three instead, then the accumulated sediment will still be cleaned out, even though the estimated frequency was once every year.

**Table 4. Maintenance Indicators and Actions for BMPs**

Typical Maintenance Indicator	Maintenance Action
Erosion due to concentrated stormwater runoff flow	Repair eroded areas and make appropriate corrective measures such as adding berm or stone at flow entry points, or re-grading as necessary.
Accumulated sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to stormwater drainage structures.
Standing water	Remove any obstructions or debris or invasive vegetation, loosing or replace top-soil to allow for better infiltration, or minor re-grading for proper drainage.
Obstructed inlet or outlet structures	Clear obstructions.
Damage to structural components such as inlet or outlet structures	Repair or replace as applicable.



## SECTION 4      **References**

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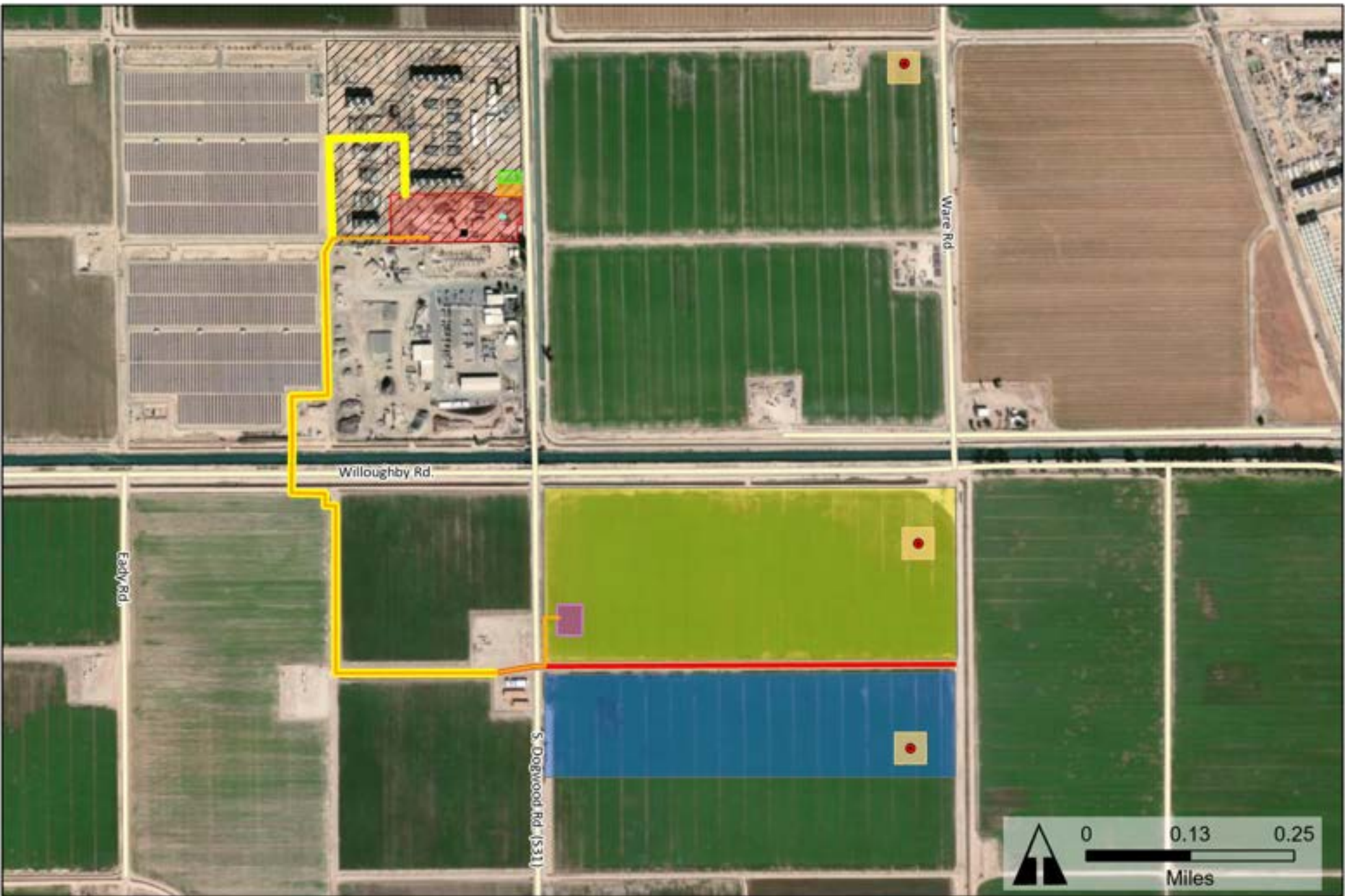
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# Figures





- Legend**
- |                                           |                                       |                           |
|-------------------------------------------|---------------------------------------|---------------------------|
| Dogwood Geothermal Plant                  | New Dogwood Substation                | Existing Pipeline         |
| Dogwood Parasitic Solar Energy Facilities | XMR and Switch                        | New Pipeline              |
| Heber 2 Parasitic Solar Facilities        | Heber Geothermal Energy Complex       | Proposed Production Wells |
| Approximate Well Pad                      | Isopentane Storage Tanks (25,000-gal) | Injection Well            |
| Existing Heber Substation                 | Medium Voltage Cable                  |                           |



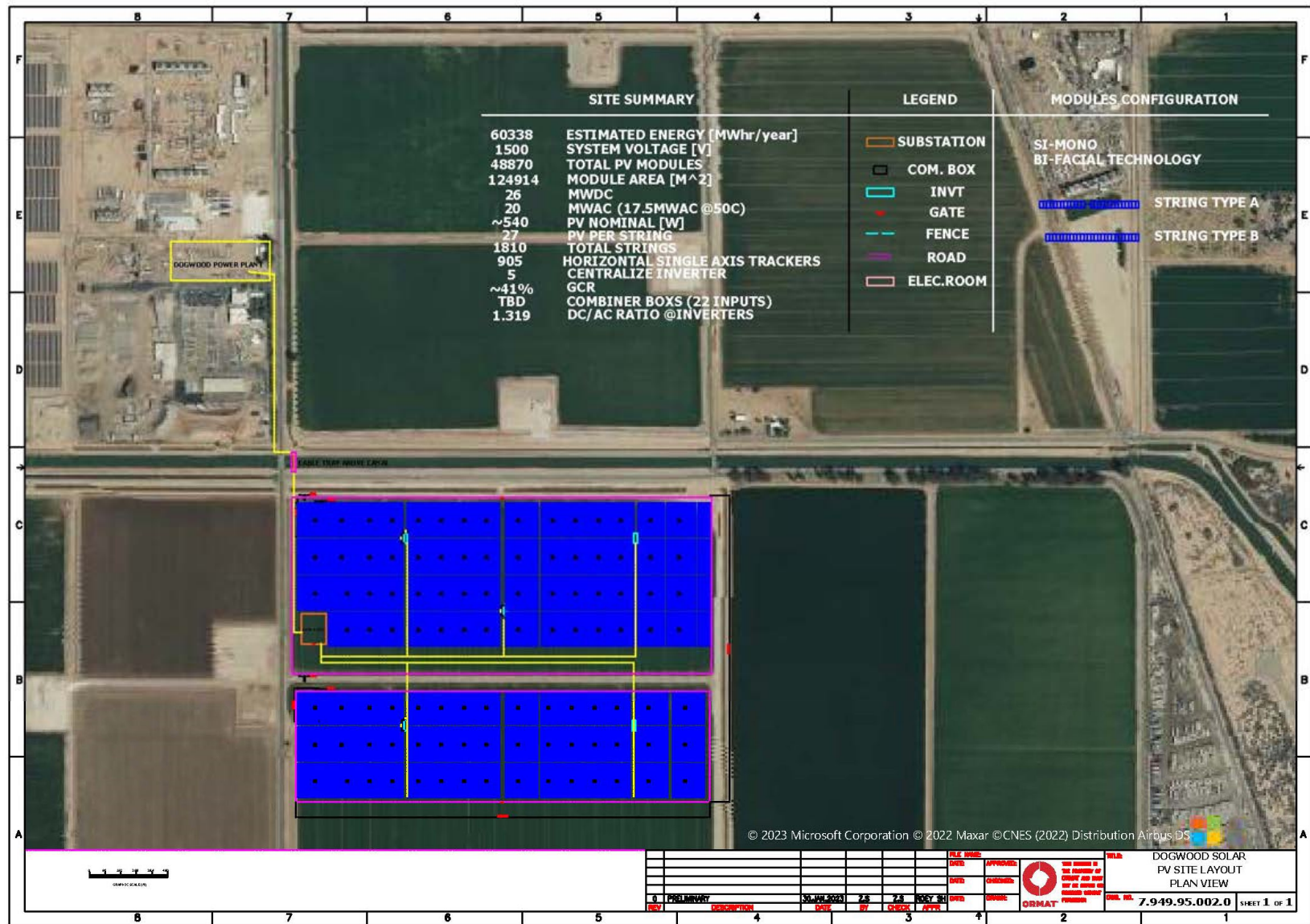


Figure 2. Dogwood and Heber 2 Solar Site Plan



Figure 3. IID Canals and Drains.



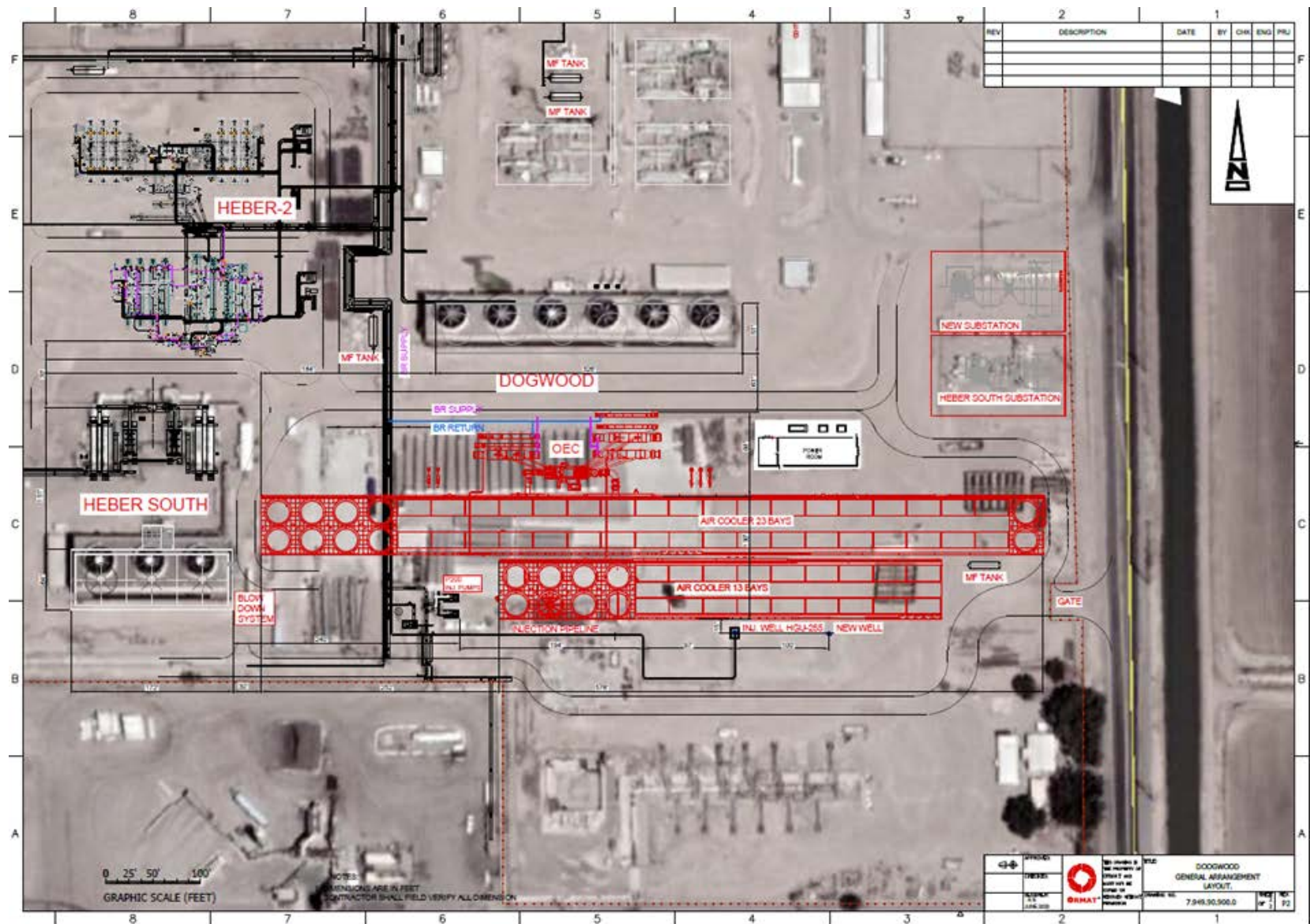


Figure 4. Dogwood Geothermal Site Plan





# Noise Technical Report

*Dogwood Geothermal Energy Project*

*Heber 2 Solar Energy Project*

*Heber Field Company Geothermal Wells & Pipeline Project*

Prepared for: Imperial County Planning & Development Services  
Submitted by: Catalyst Environmental Solutions

March 15, 2024

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## SECTION 1 Introduction

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Catalyst Environmental Solutions Corporation (Catalyst) has prepared this report to evaluate the potential for impacts related to noise resulting from implementation of the proposed Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and the Heber Field Company Geothermal Wells and Pipeline Project (collectively, the Project) in the Imperial County, California. This report includes an evaluation of potential impacts associated with temporary and permanent increases in noise in the vicinity of the Project site and whether Project-induced noise is in excess of standards established by the applicable local jurisdiction (i.e., Imperial County). Site-specific construction and operations activity information used for noise models are based on information provided by ORMAT.

### 1.1 Project Overview

#### 1.1.1 Project Location and Description

The Dogwood Project entails the development of a 25 MW (net generation) geothermal power plant that will include one ORMAT Energy Converter (OEC), cooling towers, two isopentane tanks, a supplemental solar field, up to three production wells, a project substation, and ancillary facilities. The Project site includes the existing Heber 2, Heber South, and Goulds 2 geothermal power stations, on Assessor's Parcel No. (APN) 054-250-31-01, a 39.99-acre parcel that is approximately  $\frac{3}{4}$  mile southwest of the town of Heber. The Dogwood geothermal facilities would be supplemented by an auxiliary solar field. The location for the supplemental solar photovoltaic field is still under consideration but will likely be near the Dogwood Project site. The solar photovoltaic field will provide behind-the-meter power used to offset the auxiliary load of the facility. Proposed facilities include:

- **Dogwood Project (OrHeber 3, LLC) – New CUP**
  - One (1) Integrated Two Level Unit (ITLU) Air Cooled ORMAT Energy Converter (OEC) generating unit
  - Two (2) 20,000-Gallon Isopentane Tanks for Motive Fluid Storage
  - One (1) Project substation for transmission to the grid
  - Ancillary and auxiliary facilities (including, compressed air system and fire prevention system)
  - A seven (7) megawatt (MW) solar photovoltaic field dedicated to the Dogwood geothermal plant
  - Interconnecting cable line from Dogwood solar facilities to Dogwood geothermal plant
- **Heber 2 Parasitic Solar Energy Facilities (Second Imperial Geothermal Company) – Amendment to CUP No. 19-0017**
  - A fifteen (15) MW solar photovoltaic field dedicated to the Heber 2 geothermal plant
  - Interconnecting cable line from Heber 2 solar facilities to Heber 2 geothermal plant

– **Wells and Pipeline (Heber Field Company, LLC) – Amendment to CUP No. 06-0028**

- Up to six (6) new production wells (3 sited, 3 unsited)
- One (1) new injection well
- Brine pipelines

The Dogwood Project would rely on fluid from the existing wellfield and up to three (3) new production wells proposed by the Heber Field Company (HFC) which owns and operates the wells that service the Heber 2, Heber South, and Goulds 2 facilities. HFC also proposes to utilize the existing available injection capacity from an existing well on-site and one (1) new injection well that would be installed on-site adjacent to the Dogwood Project. The location of the new production and injection wells has not been finalized, but would be within 1-mile from the Dogwood Project site. HFC would install new on-site connections and pipelines segments to connect the Dogwood Project with the new and existing well system. The total project area of disturbance from the proposed development is approximately 124 acres as summarized in **Table 1**.

Table 1. Dogwood Project Area of Disturbance Estimates

Facility	Disturbance (Acres)
Geothermal Energy Facilities and Project Substation	5.0 acres
Solar Field and Connection Line	~95 acres
Production and Injection Wells and Connecting Pipeline	~24 acres
<b>TOTAL</b>	<b>124 acres</b>

### 1.1.2 Geothermal Production and Injection Wells

HFC will complete geothermal production wells in compliance with California Geologic Energy Management Division (CalGEM) Regulations (California Code of Regulations, Chapter 4, Subchapter 4) to depths between 1,000 and 4,000 feet, averaging approximately 3,500 feet. These wells are in the locating/siting process but are likely to be located within 1-mile of the proposed Dogwood Project. Casing depth will vary depending on the total depth of the well. After the well is completed, a well head will be installed and connected to a new transmission pipeline that will convey geothermal fluid to the Dogwood Project (as discussed below). An insulated electric conductor running from the OEC to the wellheads along the connecting pipelines will supply electricity to the wellhead pump motors. During normal well operations, total geothermal fluid production rates are expected to be approximately 8,000 gallons per minute (gpm) at 280°F.

One new injection well would be installed directly adjacent to the Dogwood plant. This well would also be owned and operated by HFC. This well is designed to provide direct service to the Dogwood Project, in addition to the available capacity in the existing HFC injection well/system. Injection will occur at the same approximate levels (i.e., 8,000 gpm) but at lower temperatures of approximately 170°F. Individual production well flow rates are expected to be approximately 4,000 gpm, with a wellhead pressure of about 100 pounds per square inch.

### 1.1.3 Geothermal Fluid Pipeline

Geothermal fluid and brine pipelines proposed by HFC will be used to transport geothermal fluid from the production wells to the Dogwood Project, the cooling unit, and the injection wells. Construction of the pipeline network will include auguring 24-inch diameter holes into the ground about three to five feet deep at approximately 30-foot intervals along the pipeline route. When complete, the top of the new geothermal pipelines will average three feet above the ground surface. Electrical power and instrumentation cables for the wells may also be installed in steel conduit constructed along the pipe.

### 1.1.4 ORMAT Energy Converter (OEC)

The proposed OEC unit is a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists of a generator, turbines, a vaporizer, Air-Cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).

### 1.1.5 Isopentane Storage Tanks

Two double-walled 20,000-gallon above-ground storage tank (AST) will be installed for the Project. Numerous safety and fire prevention measures will be installed on/near the isopentane tanks, including:

- Concrete foundations with blast walls separating the tank from the OEC
- An automated water suppression system.
- Concrete containment areas.
- Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
- A gas detector, which will immediately detect any isopentane leak and notify the control room (manned by 24/7).

### 1.1.6 Cooling Tower

A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid.

### 1.1.7 Supplemental Solar Energy Plant

An approximately 7 MW (net) solar photovoltaic field would provide power directly to the Dogwood Project to offset auxiliary/parasitic loads during operations. The solar arrays will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy.

The solar facility will not connect to the substation or generate power that will enter the transmission grid; rather, the solar facility will be entirely behind-the-meter and would serve as an integrated part of the operation of the geothermal power plant.



### 1.1.8 Project Substation

The Project will require a new substation to step up the low voltage electrical energy generated at the Dogwood Project to the higher voltage required for transmission. No upgrades to the off-site transmission will occur, and the Dogwood substation will connect directly to the existing point of interconnection with the Imperial Irrigation District controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection.

### 1.1.9 Water Use and Source

Water required for well drilling would typically average 50,000 gpd. Water necessary for road grading, construction, and dust control would average approximately 4,000 gpd. Water necessary for these activities would be obtained from local irrigation canals in conformance with Imperial Irrigation District (IID) requirements. Alternatively, a temporary pipeline from the respective irrigation canal could be used for water delivery to well site. Any temporary pipeline would be laid on the surface immediately adjacent to the access road. The Project will not require additional water from the IID for operations and will be covered under the existing contract.

## 1.2 Construction Activities

The Project is anticipated to take 16 to 24 months to install, test, and become fully operational as summarized in **Table 2**.

Table 2. Project Construction Process/Phasing

Construction Phase	Tentative Schedule	Total Duration
Site Preparation (Plant and Solar Fields)	2 Months	35 Months
Project Construction	16 Months	
Well Drilling and Pipe Interconnection	12 Months	
Substation Development and Interconnection	4 Months	
Testing	1 Month	

The estimated construction equipment and vehicle and truck trip counts associated with construction activities are detailed **Table 3** and **Table 4**, respectively.

Table 3. Project Construction Equipment List by Project Activity

Construction Phase	Equipment	Quantity	No. Days Used	Daytime Operating Hours	Nighttime Operating Hours	Typical $L_{max}$ (dBA) at 50 feet from Source <sup>1</sup>
Site Preparation (Plant Site and Solar Fields) (2 Months)	Heavy Duty Trucks	3	30	5	0	76
	Excavator	1	30	8	0	81
	Roller	2	30	8	0	80
	Light-Duty Truck	8	30	4	0	75
Project Construction (16 Months)	Aerial Man Lifts	8	160	6	0	75
	Excavator	1	40	8	0	81
	Crane	2	160	6	0	81

Construction Phase	Equipment	Quantity	No. Days Used	Daytime Operating Hours	Nighttime Operating Hours	Typical L <sub>max</sub> (dBA) at 50 feet from Source <sup>1</sup>
	Forklift	1	40	8	0	75
	Forklift	6	245	8	0	75
	Generator Set	1	320	8	0	81
	Grader	1	30	8	0	85
	Heavy Duty Trucks	2	90	8	0	76
	Rubber Tired Loader	1	30	8	0	84
	Backhoe	1	30	8	0	78
	Welders	15	245	6	0	74
	Light Duty Truck	1	40	4	0	75
	Light Duty Truck	15	245	4	0	75
Well Drilling and Pipe Interconnection (12 Months)	Light Tower	2	90	0	9	73
	Drill Rig	1	180	15	9	84
	Rig Mud Pump	1	180	15	9	81
	Rig Generator	1	180	15	9	81
	Heavy Duty Trucks (Mob/Demob)	8	24	8	0	76
	Crane	2	24	2.5	2.5	81
	Backhoe	1	24	6	0	78
	Forklift	1	24	6	0	75
	Vacuum Truck	1	24	10	0	85
	Concrete Truck	1	3	4	0	79
	Concrete Pumper	1	3	4	0	81
	Light Duty Truck	4	24	4	0	75
Substation Development and Interconnection (4 Months)	Crane	1	80	8	0	81
	Bore/Drill Rig	1	80	8	0	84
	Aerial Lift	2	80	8	0	81
	Heavy Duty Trucks (Delivery)	2	20	4	0	76
	Backhoe	1	14	8	0	78
	Forklift	1	80	8	0	75
	Ditch Digger	1	20	8	0	78
	Generator Set	2	80	8	0	73
	Light Duty Truck	5	80	4	0	75
Testing (1 Months)	Generator	1	30	15	9	81
	Light Tower (27 hp)	2	30	3	9	73
	Light Tower (9 hp)	2	30	3	9	73
	Pump (115 hp)	1	30	15	9	81
	Pump (415 hp)	1	30	15	9	81
	Light Duty Truck	1	30	4	0	75

## Notes:

Adapted from FHWA Roadway Construction Noise Model User's Guide (FHWA 2006)

Table 4. Construction Vehicle Trips

Construction Phase	Trip Type	Number of One-Way Trips per Day	One-Way Trip Length (miles) <sup>2</sup>
Site Preparation	Workers <sup>1</sup>	46	10.2
	Vendor	10	11.9
	Haul	8	20
Project Construction	Workers <sup>1</sup>	46	10.2
	Vendor	40	225
	Haul	2	20
Well Drilling and Pipe Interconnection	Workers <sup>1</sup>	46	10.2
	Vendor	10	11.9
	Haul	0	20
Substation Development and Interconnection	Workers <sup>1</sup>	46	10.2
	Vendor	10	11.9
	Haul <sup>3</sup>	0	20
Testing	Workers <sup>1</sup>	46	10.2
	Vendor	4	11.9
	Haul	0	20

## Notes:

- <sup>1</sup> Trip generation rate is calculated at roughly 3 trips/worker (assumed 50 percent of 15 workers leave/return once during the day) for a total of 46 trips, and 2 trips/vehicle (in/out) for vendor and haul trips.
- <sup>2</sup> Trip lengths consist of default CalEEMod values with exception of vendors for delivery of Project equipment during construction, with deliveries of solar panels, geothermal equipment, etc. assumed to originate at Port of Long Beach, approximately 225 miles from Project site.
- <sup>3</sup> All truck trips are assigned to vendor deliveries.

### 1.3 Operation Activities

Once the proposed Project is complete, the site will be staffed with 1-2 onsite employees. The proposed Project would require routine maintenance and unscheduled maintenance as needed. The parasitic solar facilities will be monitored remotely with visitation on an as-needed basis, and security personnel will perform periodic site visits. 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.

## SECTION 2 Fundamental of Noise and Vibration

### 2.1 Fundamentals of Sound and Environmental Noise

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. When sound becomes excessive or unwanted, it is referred to as noise. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day and the type of activity during which the noise occurs, and the sensitivity of the individual.

Sound (noise) levels are measured and quantified with several metrics. All of them use the logarithmic decibel (dB) scale with 0 dB roughly equal to the threshold of human hearing. A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a 50 dB sound is added to another 50 dB sound, the total is only a 3 dB increase (to 53 dB). Thus, every 3 dB change in sound levels represents a doubling or halving of sound energy. Related to this is the fact that a less-than-3 dB change in sound levels is imperceptible to the human ear. Sound power level is the acoustic energy emitted by a source which produces a sound pressure level at some distance. While the sound power level of a source is fixed, the sound pressure level depends upon the distance from the source and the acoustic characteristics of the area in which it is located.

The frequency of sound is a measure of the pressure fluctuations per second, measured in hertz (Hz). Most sounds do not consist of a single frequency but consist of a broad band of frequencies differing in level. The characterization of sound level magnitude with respect to frequency is the sound spectrum. Many rating methods exist to analyze sound of different spectra. The method used for this analysis is A-weighting (there are also B- and C-weighting filters). The A-weighted scale (dBA) most closely approximates how the human ear responds to sound at various frequencies by progressively deemphasizing frequency components below 1,000 Hz and above 6,300 Hz and reflects the relative decreased sensitivity of humans to both low and extremely high frequencies (Federal Highway Administration [FHWA] 2018). **Table 5** lists typical sound levels from representative sources.

Table 5. Typical Noise Levels (Measured at a Distance a Person Would Typically be From the Source)

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 miles per hour	— 80 —	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	— 60 —	
Quiet urban daytime	— 50 —	Large business office, Dishwasher next room

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 30 —	Library, Bedroom at night
Quiet rural nighttime	— 20 —	
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: California Department of Transportation (CalTrans) 2013

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise. Several methods are used for describing variable sounds including the equivalent level ( $L_{eq}$ ), the maximum level ( $L_{max}$ ), and the percent-exceeded levels. These metrics are derived from a large number of moment-to-moment A-weighted sound level measurements. Some common metrics reported in community noise monitoring studies are described below:

- $L_{eq}$ , the equivalent level, can describe any series of noise events of arbitrary duration, although the most common averaging period is hourly. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events, and  $L_{eq}$  is the common energy-equivalent sound/noise descriptor.
- $L_{max}$  is the maximum sound level during a given time.  $L_{max}$  is typically due to discrete, identifiable events such as an airplane overflight, car or truck passing by, or a dog barking.
- $L_{90}$  is the sound level in dBA exceeded 90 percent of the time during the measurement period.  $L_{90}$  is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when no obvious nearby intermittent noise sources occur.
- $L_{50}$  is the median sound level in dBA exceeded 50 percent of the time during the measurement period.
- $L_{10}$  is the sound level in dBA exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period.  $L_{10}$  is sometimes called the intrusive sound level because it is caused by occasional louder noises like those from passing motor vehicles.

In determining the daily measure of community noise, it is important to account for the difference in human response to daytime and nighttime noise. Noise is more disturbing at night than during the day, and noise indices have been developed to account for the varying duration of noise events over time as well as community response to them. The Day-Night Average Level ( $L_{dn}$ ) is such an index.  $L_{dn}$  represents the 24-hour A-weighted equivalent sound level with a 10 dBA penalty added to the “nighttime” hourly noise levels between 10:00 p.m. and 7:00 a.m. Because of the time-of-day penalties associated with the  $L_{dn}$  index, the  $L_{eq}$  for a continuously operating sound source during a 24-hour period will be numerically less. The Community Noise Equivalent Level (CNEL), similar to  $L_{dn}$ , applies a 10 dBA penalty for noise levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m., and a 5 dBA penalty for noise levels the sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m. CNEL has

been adopted by the State of California to define the community noise environment for development of the community noise element of a General Plan. Noise is also more disturbing the closer a receptor is to the source; noise levels decrease by 6 dB as the distance from its source doubles (FHWA 2011).

## 2.2 Fundamentals of Vibration

Ground-borne vibration consists of waves transmitted through solid material. Several types of wave motions exist in solids, unlike air, including compressional, shear, torsional, and bending. The solid medium can be excited by forces, moments, or pressure fields. Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hz. Most environmental vibrations consist of a composite or “spectrum” of many frequencies and are generally classified as broadband or random vibrations. The normal frequency range of most ground-borne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz.

Vibration may be defined in terms of the displacement, velocity, or acceleration of the particles in the medium material. In environmental assessments, where human response is the primary concern, velocity is commonly used as the descriptor of vibration level, typically expressed in inches per second (in/sec) or millimeters per second (mm/s). The amplitude of vibration can be expressed in terms of the wave peaks or as an average, called the root mean square. The root mean square level is generally used to assess the effect of vibration on humans. Like noise, vibration can be expressed in terms of decibels with a reference velocity of  $1 \times 10^{-6}$  in/sec. The abbreviation “VdB” is often used for vibration decibels to reduce the potential for confusion with sound decibels.

Vibration can produce several types of wave motion in solids including compression, shear, and torsion, so the direction in which vibration is measured is significant and should generally be stated as vertical or horizontal. Human perception also depends to some extent on the direction of the vibration energy relative to the axes of the body. In whole-body vibration analysis, the direction parallel to the spine is usually denoted as the z-axis, while the axes perpendicular and parallel to the shoulders are denoted as the x- and y-axes, respectively.

The two primary concerns with project-induced vibration, the potential to damage a structure and the potential to annoy people, are evaluated against different vibration limits. Studies have shown that the threshold of perception for the average person is a peak particle velocity (PPV) in the range of 0.2 to 0.3 mm/s (0.008 to 0.012 in/sec). Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level. Vibration levels for typical construction-related sources of ground-borne vibration are shown in **Table 6** below.



Table 6. Vibration Source Amplitudes for Construction Equipment

Equipment	PPV at 25 feet (in/sec)		Approximate Vibration Velocity Level (Velocity Level in Decibels [VdB])	
	25 feet	50 feet	25 feet	50 feet
Large Bulldozer	0.089	0.031	87	78
Caisson Drilling	0.089	0.031	87	78
Loaded Trucks	0.076	0.027	86	77
Jackhammer	0.035	0.012	79	70
Small Bulldozer	0.003	0.001	58	49

Source: Adapted from CalTrans 2020 and Federal Transit Administration (FTA) 2018

## SECTION 3 Regulatory Framework

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Federal, state, and local noise regulations and policies that may apply to the proposed Project are described below.

### 3.1 Federal

#### 3.1.1 Noise Control Act of 1972

USEPA, pursuant to the Noise Control Act of 1972, established guidelines for acceptable noise levels for sensitive receptors such as residential areas, schools, and hospitals. The levels set forth are 55 dBA  $L_{dn}$  for outdoor use areas and 45 dBA  $L_{dn}$  for indoor use areas, and a maximum level of 70 dBA  $L_{dn}$  is identified for all areas to prevent hearing loss (USEPA 1974). These levels provide guidance for local jurisdictions but do not have regulatory enforceability. In the absence of applicable noise limits, the USEPA levels can be used to assess the acceptability of project-related noise.

#### 3.1.2 U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) has also established guidelines for acceptable noise levels for sensitive receivers such as residential areas, schools, and hospitals (24 CFR 51). HUD's noise levels include a two-pronged guidance, one for the desirable noise level and the other for the maximum acceptable noise level. The desirable noise level established by HUD conforms to the USEPA guidance of 55 dBA  $L_{dn}$  for outdoor use areas of residential land uses and 45 dBA  $L_{dn}$  for indoor areas of residential land uses. The secondary HUD standard establishes a maximum acceptable noise level of 65 dBA  $L_{dn}$  for outdoor use areas of residential areas.

#### 3.1.3 Federal Transit Authority

The FTA has published guidance relevant to assessing ground-borne vibration associated with construction activities, which have been applied by other jurisdictions to other types of projects (FTA 2018). For example, engineered concrete and masonry (no plaster) buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage. Buildings extremely susceptible to vibration damage (e.g., historic buildings) can be exposed to ground-borne vibration levels of 0.12 in/sec without experiencing structural damage.

### 3.2 State

The California Code of Regulations (CCR) has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as shown in **Table 7** below.

The extensive state regulations pertaining to worker noise exposure are applicable to the proposed project (for example California Occupational Safety and Health Administration Occupational Noise Exposure Regulations [8 CCR General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.]), for workers in a "central plant" and/or maintenance facility, or for those involved in the use of maintenance equipment or heavy machinery.

Table 7. Estimated Existing Noise Exposure for General Assessment

Land Use Category	Noise Exposure Ranges (dB CNEL) Normally Acceptable <sup>1</sup>	Noise Exposure Ranges (dB CNEL) Conditionally Acceptable <sup>2</sup>	Noise Exposure Ranges (dB CNEL) Normally Unacceptable <sup>3</sup>	Noise Exposure Ranges (dB CNEL) Clearly Unacceptable <sup>4</sup>
Residential: Low-density Single Family, Duplex, Mobile Homes	<60	55-70	70-75	>75
Residential: Multiple Family	<65	60-70	70-75	>75
Transient Lodging: Motels, Hotels	<65	60-70	70-80	>80
Schools, Libraries, Churches, Hospitals, Nursing Homes	<70	60-70	70-80	>80
Auditoriums, Concert Halls, Amphitheaters	Undefined	<70	>65	Undefined
Sports Arena, Outdoor Spectator Sports	Undefined	<75	>70	Undefined
Playgrounds, Neighborhood Parks	<70	67-75	>73	Undefined
Golf Courses, Riding Stables, Water Recreation, Cemeteries	<75	Undefined	70-80	>80
Office Buildings, Business Commercial and Professional	<70	67-77	>75	Undefined
Industrial, Manufacturing, Utilities, Agriculture	<75	70-80	>75	Undefined

Source: California Office of Planning and Research (OPR) 2017

## Notes:

1. Normally Acceptable: specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction without any special noise insulation requirements.
2. Conditionally Acceptable: New construction or development should only be undertaken after a detailed analysis of the noise reduction requirements is made and the needed insulation features included in the design.
3. Normally Unacceptable: New construction or development should generally be discouraged. If new development is to proceed, a detailed analysis of the noise reduction requirements is made, and the needed insulation features are included in the design.
4. Clearly Unacceptable: New development or construction should not be undertaken.

### 3.3 Local

Imperial County is the agency responsible for regulating and controlling noise through the Noise Element of the County General Plan and the Noise Ordinance of the County's Codified Ordinances. The Noise Element of the Imperial County General Plan provides a program for incorporating noise issues into the land use planning process with a goal of minimizing adverse noise impacts to noise-sensitive receptors. The Noise Element specifies construction hours and noise limits and the acceptable property line operational noise levels at various land uses for day, evening, and night periods for the County Noise Ordinance.

#### 3.3.1 Imperial County General Plan Noise Element

The Noise Element of the Imperial County General Plan examines noise sources and provides information to be used in setting land use policies to protect noise-sensitive land uses and for developing and enforcing a local noise ordinance. The Noise Element (2015) provides a program for incorporating noise issues into the land use planning process with a goal of minimizing adverse noise impacts to receptors such as residences, schools, and hospitals, which are sensitive to noise. The County identifies Noise Impact Zones for sensitive receptors likely to be exposed to significant noise (greater than 60 dB CNEL or 75 dBA  $L_{eq}$ ) from roadways, railroads, airports, and agricultural activities. The purpose of the Noise Impact Zone is to define areas and properties where an acoustical analysis of a proposed project is required to demonstrate project compliance with land use compatibility requirements and other applicable environmental noise standards. Any property within 1,500 feet of an interstate highway or 1,100 feet of a State highway is within a Noise Impact Zone, as is any property within 0.25 mile (1,320 feet) of existing farmland that is in an agricultural zone.

An acoustical analysis is required for any action that would be located, all or in part, in a Noise Impact Zone. According to the Noise Element, if the future noise levels from the action are within the normally acceptable noise level guidelines but result in an increase of 5 dBA CNEL or greater, the action would have a potentially significant noise impact; and mitigation measures must be considered. If the future noise level after the action is completed is greater than the normally acceptable noise level, a noise increase of 3 dBA CNEL or greater should be considered a potentially significant noise impact; and mitigation measures must be considered.

Land use compatibility defines the acceptability of a land use in a specified noise environment. Noise/Land Use Compatibility Guidelines are provided in the Noise Element to evaluate potential noise impacts and provide criteria for environmental impact findings and conditions for project approval. An acoustical analysis is required to demonstrate conformance of a proposed project with Noise/Land Use Compatibility Guidelines. These guidelines categorize noise levels at residential land uses as "normally acceptable" up to 60 dBA day-night average sound level ( $L_{dn}$ ) or CNEL and as "conditionally acceptable" up to 70 dBA  $L_{dn}$  or CNEL.

Construction noise standards included in the Noise Element restrict construction equipment noise levels to 75 dBA  $L_{eq}$  when averaged over an eight-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  $L_{eq}$  when averaged over a one-hour period. In addition, construction equipment operation

is limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. on Saturday. Further, no commercial construction operations are permitted on Sunday or holidays.

### 3.3.2 Imperial County Noise Ordinance

The County enforces construction and operation noise standards specified in the Noise Element through the Noise Ordinance. Noise-generating sources in Imperial County are regulated under the County of Imperial Codified Ordinances, Title 9, Division 7 (Noise Abatement and Control). The noise standards of the Ordinance limit the hours of construction and the level of noise emitted by the construction, as well as the operational noise levels at various land uses for day, evening, and night. Noise limits are established in Chapter 2 of this ordinance and shown in **Table 8**.

Table 8. Imperial County Property Line Noise Limits.

Zone	Time	Average Hourly Sound ( $L_{eq}$ )
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

Source: Imperial County Ordinance - Title 9, Division 7 (Noise Abatement and Control)

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  $L_{eq}$ .

Property line noise limits 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 enforced through the County's code enforcement program on the basis of complaints received from persons impacted by excessive noise. 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. Noise received at the property line of a residence is limited to 50 dBA  $L_{eq}$  in the daytime and 45 dBA  $L_{eq}$  at night.

Under Section 90702.00 of the County's Codified Ordinances, sound level limits for industrial noise are set at 75 dBA  $L_{eq}$  on or beyond the boundary of the property line at any time. Average hourly noise in residential areas is limited to 50 to 55 dBA from 7:00 a.m. to 10:00 p.m. and to 45 to 50 dBA from 10:00 p.m. to 7:00 a.m.

## SECTION 4 Existing Conditions

### 4.1 Noise Sensitive Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses, as are commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

There are numerous sensitive receptors in proximity to Project components including residences, Mt. View Cemetery, and Heber Elementary School. **Table 9** summarizes the sensitive receptors in the Project area and distance to the nearest Project components.

Table 9. Sensitive Receptors in Proximity to Project Components

Sensitive Receptor	Nearest Project Component	Distance to Nearest Project Component
Residence (104 E. Jasper Rd.)	Heber 2 Parasitic Solar Facility	540
Residence (600 Dogwood Rd.)	Dogwood Parasitic Facility	2,900
Residential Area (E. Fawcett Rd.)	Production Well	2,985
Heber Elementary School	Production Well	3,400
Residences (153, 185, 195 E. Cole Blvd.)	Dogwood Parasitic Facility	3,825
Mt. View Cemetery	Production Well	6,890

### 4.2 Existing Noise Sources and Ambient Noise Levels

Existing ambient noise in the vicinity of the Project sites is consistent with a rural agricultural landscape with the dominant noise sources consisting of vehicular traffic on local roads, the existing Heber 2 Complex, and the operation of agricultural equipment. The major source of vehicular noise is traffic along State Route (SR) 86 and SR 111 and the Regional Arterials Dogwood Road and Jasper Road. SR 86 is a principal farm-to-market route for Imperial County agricultural products and carries a high percentage of heavy trucks. SR 86 also carries heavy recreational traffic on weekends (Imperial County 2015). The Noise Element of the Imperial County General Plan provides calculated noise contours for the area's highways based on vehicle volumes, speed, and vehicle mix. Calculated noise levels for SR 86 south of Interstate 8 indicate that the 60 dBA (CNEL) noise contour would be met at 1,600 feet from the



travel corridor under 2015/future conditions (i.e., with consideration to increases in traffic volumes in the years following the preparation of the Noise Element in 2015).

The existing geothermal facilities adjacent to the Project site also contribute to the existing noise environment. Typical sound power levels for the existing power plants and geothermal well pads are in the range of 113 dBA at the loudest noise source of the power plant and 92 dBA directly adjacent to each well. Noise from these stationary sources lessens at a rate of approximately 6 dB per doubling of distance, depending on such environmental conditions as topography, vegetation, and weather. Specifically, operational noise levels of an existing geothermal facility in Imperial County were recorded at 70 dBA  $L_{eq}$  at approximately 100 feet (Chambers Group, Inc. 2015).

### 4.3 Existing Vibration Environment

Similar to the environmental setting for noise, the vibration environment is dominated by traffic from nearby roadways. Heavy trucks can generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions. According to the FTA (2018), *Transit noise and Vibration Impacts Assessments*, “if the roadway is fairly smooth, the vibration from rubber-tired traffic is rarely perceptible.” Roads in the Project area are smooth asphalt and it is unlikely that traffic on the local roadway is perceptible.

## SECTION 5 Project Noise Prediction

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### 5.1 Methodology

The Project construction and operation noise levels were estimated using the computer noise propagation model SoundPLAN Essential (version 5.1), which calculates noise impacts taking into account terrain features including relative elevations of noise sources, receivers, and intervening objects, ground effects due to areas of pavement and unpaved ground, and atmospheric effects on sound propagation. The following assumptions and parameters are included in the SoundPLAN supported noise source assessment:

- Ground effect acoustical absorption coefficient equal to 0.0, which represents the acoustically reflective “hard” surface for the majority of the geothermal plant site. Vegetated fields surrounding the Project site were assigned a coefficient of 1.0, which represents the acoustically “soft” surface associated with the vegetated ground cover;
- Reflection order of 1, which allows for a single reflection of sound paths on encountered structural surfaces such as buildings and structures; and
- Calm meteorological conditions (i.e., no wind) with 70 degrees Fahrenheit and 83% relative humidity.

#### 5.1.1 Operations

Project features were input as sound sources in the SoundPLAN Essential three-dimensional model space and defined with the following assumptions and available project design information.

Noise data from the ORMAT Tungsten Mountain facility, which is similar in design to the Proposed Project, was used to model noise associated with geothermal plant operations using SoundPLAN Essential methodology for industrial sites. Accordingly, operation of the power plant is assumed to generate an average noise level of 62 dBA at 450 feet (equivalent to approximately 105 dBA at the source) with continuous operation (i.e., 24-hours per day). Similarly, the proposed Project wells would generate an average noise level of 72 dBA at 25 feet (equivalent to approximately 90 dBA at the source) with continuous operation. In addition to these sound source inputs, potential sound-occluding terrain and proposed Project features that define the three-dimensional sound were included in the propagation model space.

Due to the low number of additional trips associated with operation of the proposed Project, vehicles traveling to/from the Project site are not expected to result in changes to noise levels in the surrounding area.

##### 5.1.1.1 Vibration

Anticipated charging systems are designed and manufactured to feature rotating and reciprocating components (e.g., fans) that are well-balanced with isolated vibration within or external to the equipment casings. On this basis, potential vibration impacts due to operation of the stationary sources

are not expected. The speed limit on the adjacent roadways is 55 miles per hour and the road surface is in good condition. As trucks enter and exit the site, they would traverse the asphalt drive at very low speeds. As noted in FTA (2018), rubber tires and suspension systems provide vibration isolation, and therefore, it is unusual for ground-borne vibration associated with on-road vehicle movement to be perceptible. As such, vibration impacts associated with Project operation are not expected to be significant and have not been evaluated herein.

## 5.1.2 Construction

### 5.1.2.1 Onsite Construction Noise

The potential construction noise levels onsite associated with proposed Project construction activities were estimated for each distinct construction phase. The noise model conservatively assumes that construction equipment presented in **Table 3** above for each respective construction activity will be operated simultaneously and in a concentrated area nearest to the closest sensitive receptors. In actual practice, however, the types and numbers of construction equipment near any specific receptor location will vary over time.

### 5.1.2.2 Offsite Noise (Construction Traffic)

Estimated vehicle trips associated with each phase of construction is presented above in **Table 4**. For the purpose of this analysis, the principals of logarithmic summation are applied to estimate the maximum noise increase associated with construction traffic along local surface streets. Specifically, noise levels increase by 3 dBA when the number of similar noise sources double. The increase in delivery/haul trucks and construction worker vehicle trips are not anticipated to double the amount of traffic that currently exist in the surrounding area. As such, the increase in delivery/haul trucks and worker vehicles in the surrounding roadways is not anticipated to incrementally increase noise levels in the surrounding area by 3 dBA or more and are not analyzed further herein.

## 5.2 Predicted Results

### 5.2.1.1 Operations

Predicted daytime/nighttime noise levels attributed to concurrent operation of the proposed Project onsite stationary sources (i.e., OEC, ITLU, substation transformers, auxiliary facilities, production wells, injection wells) are propagated to two nearest sensitive receptors shown in **Figure 1**. **Table 10** presents a summary of predicted Project operational noise levels at the two nearest sensitive receptors. **Figure 1** illustrates the predicted daytime and nighttime sound levels (which are equivalent since operations are 24-hours per day) associated with Project operations in the surrounding area. As summarized in **Table 10**, Project-related operational noise would be below, and thus in compliance with the Imperial County noise standards which limits the increase in future noise levels to 5 dBA CNEL as a result of the action within Noise Impact Zones that are currently within normally acceptable noise level guidelines (i.e., 60 dB CNEL). Specifically, the Project-related operation noise is estimated to be less than the assumed ambient daytime noise level of 50 dBA  $L_{eq}$  and nighttime noise level of 45 dBA  $L_{eq}$ . Thus, the Project would not result in an increase in the assumed ambient noise level of 60 dBA CNEL. Therefore, the

proposed Project would also not result in noise levels exceeding the threshold of 65 dBA CNEL established by the Imperial County noise standards.

Table 10. Modeled Maximum Project Operations Sound Levels (dBA)

Modeled Receptors	Modeled 24-Hour Project Operation Noise Level <sup>1</sup> (L <sub>eq</sub> )	Presumed Ambient Noise Level (CNEL)	Calculated CNEL (Project + Ambient)	Noise Standard <sup>2</sup> (CNEL/L <sub>eq</sub> )	Exceed Standard?
S1 (Resident at 104 E. Jasper Road)	27.7	60	60	65/75	No
S2 (Residential Area off E. Fawcett Road)	14.3	60	60	65/75	No

Notes:

1. Modeled noise level is associated with construction equipment. Modeled construction noise levels less than ambient would not be expected to increase noise levels at the modeled receptors.
2. The noise standard for as provided in the Imperial County Noise Element specifies that noise levels shall not increase more than 5 dBA CNEL from measured ambient noise level in Noise Impact Zones that are currently within normally acceptable noise level guidelines. Per Section 90702.00 of the County's Codified Ordinances, sound level limits for industrial noise are set at 75 dBA L<sub>eq</sub> on or beyond the boundary of the property line at any time.

#### 5.2.1.2 Construction

Based on the types and number of equipment to be used, construction activities associated with Project site construction (solar fields and plant site) and well drilling and pipe interconnection are identified to have the greatest potential to increase noise levels in the Project area. For a conservative analysis, the cumulative noise for both phases of construction including drilling of all three production wells and injection well is assumed to occur simultaneously (although only one well would actually be drilled at any given time) and is propagated to the nearest sensitive receptors to estimate the maximum change in noise levels resulting from the proposed Project as summarized in **Table 11** and illustrated in **Figure 2** and **Figure 3**. As shown in **Table 11**, **Figure 2** and **Figure 3**, construction activities would not exceed the Imperial County daytime noise standard for construction activities of 75 dBA L<sub>eq</sub> at the nearest sensitive receptor and nighttime well drilling activities would not result in perceptible noise levels at the nearest sensitive receptors.

Table 11. Modeled Maximum Project Construction Sound Levels ( $L_{eq}$ , dBA).

Modeled Receptors	Modeled Daytime Construction Noise Level <sup>1</sup>	Modeled Nighttime Construction Noise Level <sup>1</sup>	Presumed Ambient Noise Level (Day/Night)	Noise Standard <sup>2</sup> (Day/Night)	Exceed Standard ?
S1 (Resident at 104 E. Jasper Road)	30.2	25.8	50/45	75	No
S2 (Residential Area off E. Fawcett Road)	7.4	4.7	50/45	45	No

## Notes:

1. Modeled noise level is associated with construction equipment. Modeled construction noise levels less than ambient would not be expected to increase noise levels at the modeled receptors.
2. The noise standard for construction activities as provided in the Imperial County General Plan Noise Element specifies that construction noise shall not exceed 75 dBA at the nearest sensitive receptor. This standard is applicable for daytime noise given the restrictions on construction hours per the Noise Element. Nighttime noise standards are presumed to be any perceptible noise at the nearest sensitive receptor (i.e., and increase in 3 dBA above presumed ambient nighttime noise level of 45 dBA).

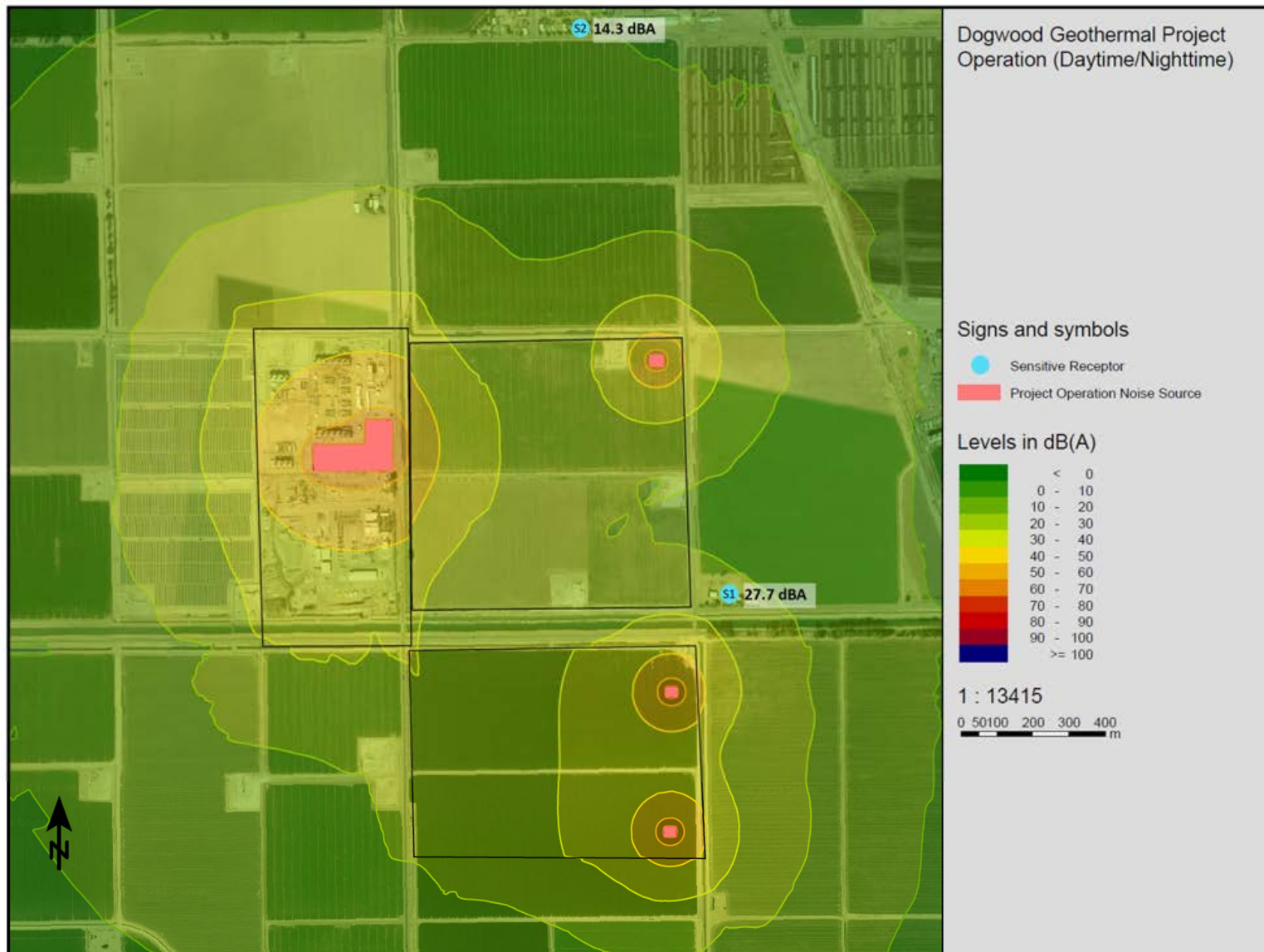


Figure 1. Modeled Operational Noise – Daytime/Nighttime



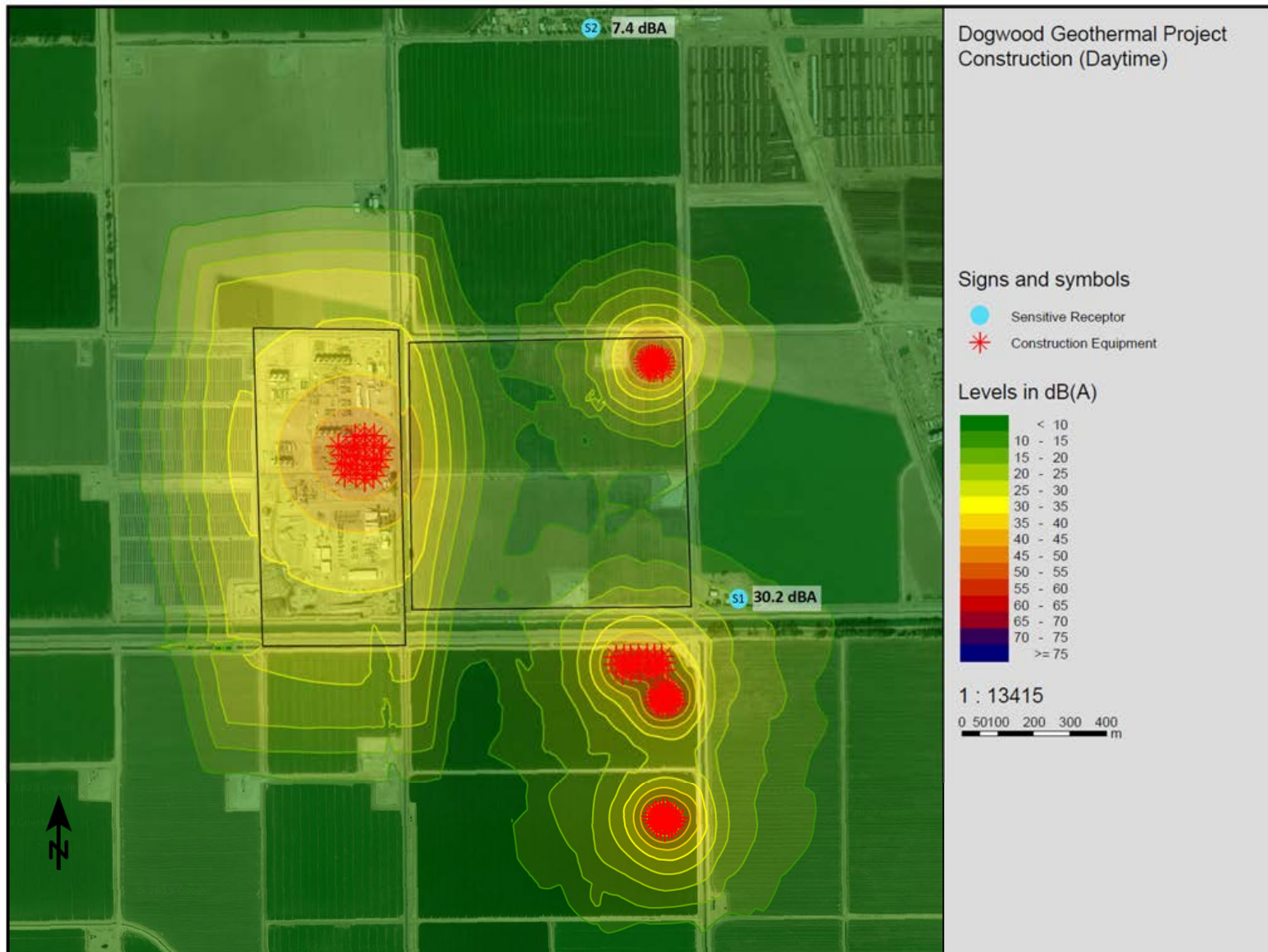


Figure 2. Modeled Project Construction Noise - Daytime

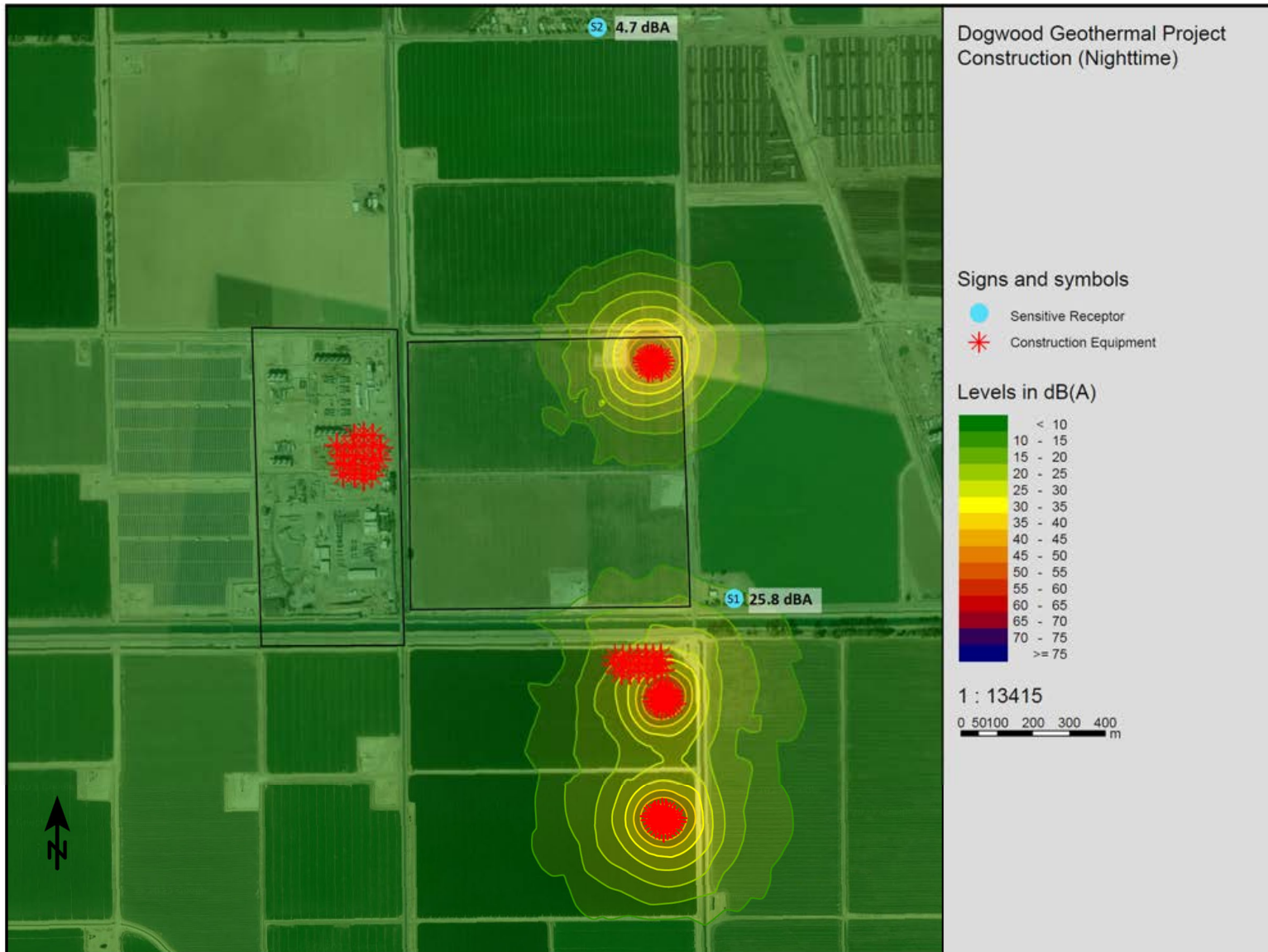


Figure 3. Modeled Project Construction Noise - Nighttime

## SECTION 6 Conclusions

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Based on the SoundPLAN modeling of the Project, anticipated operational and construction noise levels would not exceed local thresholds and would comply with local guidelines set forth in the County's Noise Element and Noise Ordinance. Therefore, the Project would not generate significant noise levels that would disturb noise-sensitive land uses (i.e., residential) in the vicinity.

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## Transportation Technical Report

*Dogwood Geothermal Energy Project*

*Heber 2 Solar Energy Project*

*Heber Field Company Geothermal Wells & Pipeline Project*

Prepared for: Imperial County Planning & Development Services  
Submitted by: Catalyst Environmental Solutions

March 15, 2024



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## SECTION 1 Introduction

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Catalyst Environmental Solutions Corporation (Catalyst) has prepared this report to evaluate the potential for impacts related to transportation and circulation resulting from implementation of the proposed Dogwood Geothermal Energy Project, Heber 2 Parasitic Solar Project, and the Heber Field Company Geothermal Wells and Pipeline Project (collectively, the Project) in the Imperial County, California. This report includes an evaluation of potential impacts associated with temporary and permanent increases in traffic in the vicinity of the Project site and whether Project-induced traffic is in excess of standards established by the applicable local jurisdiction (i.e., Imperial County). Information given in this report is based on transportation and circulation information obtained from available public resources including the Imperial County General Plan Circulation and Scenic Highways Element (Imperial County 2008) and California Department of Transportation (Caltrans) Traffic Census Program (Caltrans 2022). Imperial County Department of Public Works provides a set of criteria within its published *Traffic Study and Report Policy* (2007). Those guidelines are incorporated herein.

### 1.1 Project Overview

#### 1.1.1 Project Location and Description

The Dogwood Project entails the development of a 25 MW (net generation) geothermal power plant that will include one ORMAT Energy Converter (OEC), cooling towers, two isopentane tanks, a supplemental solar field, up to three production wells, a project substation, and ancillary facilities. The Project site includes the existing Heber 2, Heber South, and Goulds 2 geothermal power stations, on Assessor's Parcel No. (APN) 054-250-31-01, a 39.99-acre parcel that is approximately  $\frac{3}{4}$  mile southwest of the town of Heber. The Dogwood geothermal facilities would be supplemented by an auxiliary solar field. The location for the supplemental solar photovoltaic field is still under consideration but will likely be near the Dogwood Project site. The solar photovoltaic field will provide behind-the-meter power used to offset the auxiliary load of the facility. Proposed facilities include:

- **Dogwood Project (OrHeber 3, LLC) – New CUP**
  - One (1) Integrated Two Level Unit (ITLU) Air Cooled ORMAT Energy Converter (OEC) generating unit
  - Two (2) 20,000-Gallon Isopentane Tanks for Motive Fluid Storage
  - One (1) Project substation for transmission to the grid
  - Ancillary and auxiliary facilities (including, compressed air system and fire prevention system)
  - A seven (7) megawatt (MW) solar photovoltaic field dedicated to the Dogwood geothermal plant
  - Interconnecting cable line from Dogwood solar facilities to Dogwood geothermal plant

- **Heber 2 Parasitic Solar Energy Facilities (Second Imperial Geothermal Company) – Amendment to CUP No. 19-0017**
  - A fifteen (15) MW solar photovoltaic field dedicated to the Heber 2 geothermal plant
  - Interconnecting cable line from Heber 2 solar facilities to Heber 2 geothermal plant
- **Wells and Pipeline (Heber Field Company, LLC) – Amendment to CUP No. 06-0028**
  - Up to six (6) new production wells (3 sited, 3 unsited)
  - One (1) new injection well
  - Brine pipelines

The Dogwood Project would rely on fluid from the existing wellfield and up to three (3) new production wells proposed by the Heber Field Company (HFC) which owns and operates the wells that service the Heber 2, Heber South, and Goulds 2 facilities. HFC also proposes to utilize the existing available injection capacity from an existing well on-site and one (1) new injection well that would be installed on-site adjacent to the Dogwood Project. The location of the new production and injection wells has not been finalized, but would be within 1-mile from the Dogwood Project site. HFC would install new on-site connections and pipelines segments to connect the Dogwood Project with the new and existing well system. The total project area of disturbance from the proposed development is approximately 124 acres as summarized in **Table 1**.

Table 1. Dogwood Project Area of Disturbance Estimates

Facility	Disturbance (Acres)
Geothermal Energy Facilities and Project Substation	5.0 acres
Solar Field and Connection Line	~95 acres
Production and Injection Wells and Connecting Pipeline	~24 acres
<b>TOTAL</b>	<b>124 acres</b>

### 1.1.2 Geothermal Production and Injection Wells

HFC will complete geothermal production wells in compliance with California Geologic Energy Management Division (CalGEM) Regulations (California Code of Regulations, Chapter 4, Subchapter 4) to depths between 1,000 and 4,000 feet, averaging approximately 3,500 feet. These wells are in the locating/siting process but are likely to be located within 1-mile of the proposed Dogwood Project. Casing depth will vary depending on the total depth of the well. After the well is completed, a well head will be installed and connected to a new transmission pipeline that will convey geothermal fluid to the Dogwood Project (as discussed below). An insulated electric conductor running from the OEC to the wellheads along the connecting pipelines will supply electricity to the wellhead pump motors. During normal well operations, total geothermal fluid production rates are expected to be approximately 8,000 gallons per minute (gpm) at 280°F.

One new injection well would be installed directly adjacent to the Dogwood plant. This well would also be owned and operated by HFC. This well is designed to provide direct service to the Dogwood Project, in addition to the available capacity in the existing HFC injection well/system. Injection will occur at the same approximate levels (i.e., 8,000 gpm) but at lower temperatures of approximately 170°F. Individual

production well flow rates are expected to be approximately 4,000 gpm, with a wellhead pressure of about 100 pounds per square inch.

### 1.1.3 Geothermal Fluid Pipeline

Geothermal fluid and brine pipelines proposed by HFC will be used to transport geothermal fluid from the production wells to the Dogwood Project, the cooling unit, and the injection wells. Construction of the pipeline network will include auguring 24-inch diameter holes into the ground about three to five feet deep at approximately 30-foot intervals along the pipeline route. When complete, the top of the new geothermal pipelines will average three feet above the ground surface. Electrical power and instrumentation cables for the wells may also be installed in steel conduit constructed along the pipe.

### 1.1.4 ORMAT Energy Converter (OEC)

The proposed OEC unit is a two-turbine combined cycle binary unit, operating on a subcritical Rankine cycle, with isopentane as the motive fluid. The OEC system consists of a generator, turbines, a vaporizer, Air-Cooled condensers, preheaters and recuperators, and an evacuation skid/vapor recovery maintenance unit (VRMU) for purging and maintenance events. The design capacity for the unit is 25 MW (net).

### 1.1.5 Isopentane Storage Tanks

Two double-walled 20,000-gallon above-ground storage tanks (AST) will be installed for the Project. Numerous safety and fire prevention measures will be installed on/near the isopentane tanks, including:

- Concrete foundations with blast walls separating the tank from the OEC
- An automated water suppression system.
- Concrete containment areas.
- Two flame detectors, which will immediately detect any fire and immediately trigger the automatic fire suppression system.
- A gas detector, which will immediately detect any isopentane leak and notify the control room (manned by 24/7).

### 1.1.6 Cooling Tower

A cooling tower array will perform air-cooling operations of the geothermal fluid. The cooling tower will include a series of heat-absorbing evaporators and condensers to capture and transfer heat stored in the geothermal fluid.

### 1.1.7 Supplemental Solar Energy Plant

An approximately 7 MW (net) solar photovoltaic field would provide power directly to the Dogwood Project to offset auxiliary/parasitic loads during operations. The solar arrays will effectively reduce the margin between gross and net geothermal energy generation, allowing for the more efficient generation of geothermal energy.

The solar facility will not connect to the substation or generate power that will enter the transmission grid; rather, the solar facility will be entirely behind-the-meter and would serve as an integrated part of the operation of the geothermal power plant.

### 1.1.8 Project Substation

The Project will require a new substation to step up the low voltage electrical energy generated at the Dogwood Project to the higher voltage required for transmission. No upgrades to the off-site transmission will occur, and the Dogwood substation will connect directly to the existing point of interconnection with the Imperial Irrigation District controlled grid. The substation will include a 13.8 kV circuit breaker to protect the electric generator, a minimum of 80 megavolt ampere 13.8 kV/115 kV transformer, and 115 kV potential and current transformers for metering and system protection.

### 1.1.9 Water Use and Source

Water required for well drilling would typically average 50,000 gpd. Water necessary for road grading, construction, and dust control would average approximately 4,000 gpd. Water necessary for these activities would be obtained from local irrigation canals in conformance with Imperial Irrigation District (IID) requirements. Alternatively, a temporary pipeline from the respective irrigation canal could be used for water delivery to well site. Any temporary pipeline would be laid on the surface immediately adjacent to the access road. The Project will not require additional water from the IID for operations and will be covered under the existing contract.

## 1.2 Construction Activities

The Project is anticipated to take 16 to 24 months to install, test, and become fully operational as summarized in **Table 2**.

Table 2. Project Construction Process/Phasing

Construction Phase	Tentative Schedule	Total Duration
Site Preparation (Plant and Solar Fields)	2 Months	35 Months
Project Construction	16 Months	
Well Drilling and Pipe Interconnection	12 Months	
Substation Development and Interconnection	4 Months	
Testing	1 Month	

The estimated construction schedule and vehicle and truck trip counts associated with construction activities is detailed **Table 3**.

Table 3. Construction Vehicle Trips

Construction Phase	Trip Type	Number of One-Way Trips per Day <sup>1</sup>	One-Way Trip Length (miles) <sup>2</sup>
Site Preparation	Workers	46	10.2
	Vendor	10	11.9
	Haul	8	20
Project Construction	Workers	46	10.2

	Vendor	40	225
	Haul	2	20
<b>Well Drilling and Pipe Interconnection</b>	Workers	46	10.2
	Vendor	10	11.9
	Haul	0	20
<b>Substation Development and Interconnection</b>	Workers	46	10.2
	Vendor	10	11.9
	Haul <sup>3</sup>	0	20
<b>Testing</b>	Workers	46	10.2
	Vendor	4	11.9
	Haul	0	20

## Notes:

1. Trip generation rate is calculated at roughly 3 trips/worker (assumed 50 percent of 15 workers leave/return once during the day) for an estimate of 46 total worker trips, and 2 trips/vehicle (in/out) for vendor and haul trips.
2. Trip lengths consist of default CalEEMod values with exception of vendors for delivery of Project equipment during construction, with deliveries of solar panels, geothermal equipment, etc. assumed to originate at Port of Long Beach, approximately 225 miles from Project site.
3. All truck trips are assigned to vendor deliveries.

### 1.3 Operation Activities

Once the proposed Project is complete, the site will be staffed with 1-2 onsite employees. The proposed Project would require routine maintenance and unscheduled maintenance as needed. The parasitic solar facilities will be monitored remotely with visitation on an as-needed basis, and security personnel will perform periodic site visits. 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.



## SECTION 2 Regulatory Framework

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The following summarizes the regulatory framework as applicable to the proposed Project with respect to transportation and circulation.

### 2.1 California Department of Transportation

The State of California Department of Transportation (Caltrans) has responsibility over the design, construction, maintenance, and operation of the California State Highway System. Caltrans has jurisdiction over State highway right-of-way and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. The proposed Project does not include any components which would encroach into Caltrans jurisdiction.

### 2.2 Southern California Association of Governments

The Southern California Association of Governments (SCAG) is a joint powers authority that was established in 1965. Federally, SCAG is a Metropolitan Planning Organization; under State law it is a Regional Transportation Planning Agency and a Council of Governments. SCAG includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. SCAG's responsibilities include developing long-range regional transportation plans, including the consideration of sustainable growth, growth forecasting, housing needs, and transportation improvement (SCAG 2014).

### 2.3 Imperial County General Plan

The Circulation and Scenic Highways Element of the Imperial County General Plan provides information about the transportation needs of Imperial County and provides guidance to meet these needs and to facilitate regional transportation coordination. Objectives noted in the Circulation and Scenic Highways Element include:

- Objective 1.2: Require a traffic analysis for any new development which may have a significant impact on County roads. A traffic analysis may not be necessary in every situation, such as when the size or location of the project will not have a significant impact upon and generate only a small amount of traffic. Also, certain types of projects, due to the trip generation characteristics, may add virtually no traffic during peak periods. These types of projects may be exempt from the traffic analysis requirements. Whether a particular project qualifies for any exemption will be determined by the Department of Public Works Road Commissioner.
- Objective 1.12: Review new development proposals to ensure that the proposed development provides adequate parking and would not increase traffic on existing roadways and intersection to a level of service (LOS) worse than "C" without providing appropriate mitigations to existing infrastructure. This can include fair share contributions on the part of developers to mitigate traffic impacts caused by such proposed developments.

## 2.4 Imperial County Traffic Study Criteria

The Imperial County Department of Public Works provides a set of criteria within its published Traffic Study and Report Policy (2007) to identify the need for a traffic study and report to be prepared. The basic criteria used to make the determination for providing a complete traffic study are:

- a. Any project that adds more than 8% of the total existing vehicle trips on the adjacent road system at full build-out of the project.
- b. Any project that generates more than 400 daily residential trips, 800 commercial or industrial trip ends, or 200 peak hour trip ends, as determined by the average trip rates contained in the ITE Trip Generation Informational Report or the Imperial County local exceptions.
- c. Any project that has the potential to degrade an existing road section, an existing signalized intersection, or an existing unsignalized intersection to below the existing level of service or cause it to be lower than a level of service "C" during any peak hour, using the Highway Capacity Manual (HCM) methods of analysis on any individual, existing traffic movement.
- d. Any project, within section b above, which generates more than 10% of its total traffic in the form of truck traffic.
- e. Any project that intensifies the usage of the site above the level currently allowed by zoning codes and requires a CUP, zone change, variance, or other discretionary permit.

Any project that may cause an existing or proposed intersection to meet traffic signal warrants or cause a proposed intersection to be lower than LOS "C".

## SECTION 3 Existing Conditions

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### 3.1 Existing Roadway Network

Key roadways in the study area are described here. The discussion is limited to specific roadways that traverse the study intersections and serve the Project site.

#### 3.1.1 Roads

As described in the Imperial County Circulation and Scenic Highways Element (Imperial County 2008) and the Imperial County Long Range Transportation Plan (Imperial County Transportation Commission [ICTC] 2013), the regional roadway network consists of one interstate route (I-8), seven State routes (SR-7, SR-78, SR-86, SR-98, SR-111, SR-115, and SR-186), and several regionally significant arterials. Additionally, three international Ports of Entry (POEs) between the United States and Mexico are within the Imperial County limits: Calexico, Calexico East, and Andrade (ICTC 2013). **Figure 1** shows the major roadways in Imperial County.



Figure 1. Regional Network in Project Area

### 3.1.2 Freeways

Freeways are controlled-access, high-speed roadways with grade-separated interchanges. They are intended to carry high volumes of traffic from region to region. The following freeways provide regional access to the Project area:

- **Interstate 8 (I-8)** is the primary east-west route through Imperial County and runs for 172 miles from San Diego, California, to Yuma, Arizona. With two travel lanes, it spans 79 miles within Imperial County. From the west it connects to the western end of SR-98. In Imperial County, it intersects with SR-86, SR-111 (access to the international POE at Calexico), SR-7, and SR-115 and then reconnects to SR-98 at its eastern end. It also accesses the SR-186 connection to the Andrade POE. It serves regional, cross-border, and interstate traffic and provides access to desert recreational areas.

### 3.1.3 Major Highways

Major arterial roadways typically consist of four to six travel lanes with two to three lanes travel in each direction separated by either a raised or painted median. These roadways are designed to carry high volumes of traffic and typically provide the necessary links to the regional freeway system. These roadways also serve the major developments in the County that generate higher traffic volumes. Major roadways in the Project area providing access include:

- **State Highway 98 (SR-98)** is a 56.9-mile east-west route that is entirely contained within Imperial County. It traverses the southern portion of Imperial Valley parallel to I-8 and the U.S./Mexico International Border. It begins at I-8 near Ocotillo, intersects SR-111 and SR-7, and terminates at I-8 near Midway Well. It is mostly two lanes with the exception of having four lanes through portions of the City of Calexico. It serves as an alternate route to I-8, providing access to many agricultural areas in the eastern part of the region, and is used for cross-border traffic.
- **State Highway 78 (SR-78)** is an 81.8-mile east-west route that crosses Imperial County from the San Diego County line to the north junction of SR-86, where it then merges and becomes SR-86 for 24 miles, and then becomes SR-78 again to the Riverside County line. It is typically a two-lane conventional highway except for where it is co-designated SR-86, where it was upgraded to a four-lane expressway or four-lane conventional highway.
- **State Highway 86 (SR-86)** is a 90.8-mile north-south route serving Imperial and Riverside counties. It begins at SR-111 near the U.S./Mexico International Border and extends northward (roughly parallel to SR-111) along the western shore of the Salton Sea, where it ends at Avenue 46 in the City of Indio. It is a two-lane road in Imperial County and ends at the Riverside County line as a four-lane expressway. It intersects several State routes, including I-8 and SR-78 (where it shares the 24-mile alignment) and continues north to cross the Imperial County/Riverside County line, intersecting SR-195 and SR-111.
- **State Highway 111 (SR-111)** runs north from the downtown Calexico POE for 64 miles except for a 1.2-mile break within Brawley, where it shares an alignment with SR-78. From the Calexico POE to SR-98, it functions primarily as a city street and provides access to many local businesses.



- **State Highway 7 (SR-7)** is a 6.7-mile north-south route from the Calexico East POE to I-8. It is a four-lane highway with access control at the Calexico East POE, SR-98, and direct access to I-8 for the movement of international commercial goods.
- **State Highway 115 (SR-115)** is a 33.6-mile north-south route that begins at the junction with I-8 east of Holtville and ends at the junction with SR-111 in Calipatria. It includes a segment that shares alignment with SR-78, and it is typically a two-lane conventional highway with some short four-lane segments. It serves as an alternate route to SR-86 and SR-111 and is important in facilitating the movement of interregional agricultural goods and intraregional travel between various cities within the County.

### 3.1.4 Regional Arterials

The regional roadway system also features several important arterials that generally run in either an east-west or north-south orientation. The important north-south arterials (listed from west to east) include Forrester Road, Austin Road, Imperial Avenue, and Dogwood Road. The important east-west arterials in the Project area (listed from south to north) include Jasper Road, Heber Road, McCabe Road, and Ross Road.

### 3.1.5 Scenic Highways

No designated state scenic highways occur in Imperial County; however, portions of I-8, SR-78, SR-111, and Borrego-Salton Seaway within Imperial County are considered eligible for State Scenic Highway Designation.

### 3.1.6 Existing Traffic Volumes

As detailed in Section 2.4 above, Imperial County establishes Level of Service (LOS) standards to assess the performance of a street or highway system and the capacity of a roadway. LOS is a professional industry standard by which the operating conditions of a given roadway segment or intersection are measured. LOS ranges from A through F, where LOS A represents the best operating conditions and LOS F represents the worst operating conditions. LOS A facilities are characterized as having free flowing traffic conditions with no restrictions on maneuvering or operating speeds; traffic volumes are low and travel speeds are high. LOS F facilities are characterized as having forced flow with many stoppages and low operating needs. Additionally, with the growth of Imperial County, transportation management and systems management will be necessary to preserve and increase roadway “capacity.” LOS standards are used to assess the performance of a street or highway system and the capacity of a roadway.

**Table 4** summarizes the existing Annual Average Daily Trips (ADT) for road segments in the vicinity of the proposed Project. Note that Imperial County targets LOS C as the minimum acceptable level of service (Imperial County 2008). Currently Dogwood Road from SR-86 to SR-98 exceeds this guideline, and is currently operating at LOS D.



Table 4. Existing Road Conditions

Segment	Direction	Limits	Capacity at LOS C <sup>1</sup>	ADT <sup>2</sup>	LOS <sup>1</sup>
I-8	E-W	From Forrester Rd. to SR-111	60,000	35,000	B
SR-86	E-W	From Dogwood Rd. to SR-111	44,600	4,200	A
SR-98	E-W	From Dogwood Rd to SR-111	7,100	21,800	F
SR-111	N-S	From I-8 to Northern Calexico City Limits	40,000	34,500	C
McCabe Rd.	E-W	From SR-86 to Dogwood Rd.	7,100	4,146	C
McCabe Rd.	E-W	From Dogwood Rd. to SR-111	7,100	2,607	B
Jasper Rd.	E-W	From SR-111 to Bowker Rd.	7,100	495	A
Forrester Rd.	N-S	From I-8 to McCabe Rd.	7,100	1,366	A
Austin Rd.	N-S.	From I-8 to McCabe Rd.	7,100	1,408	A
Dogwood Rd.	N-S	From SR-86 to SR-98	7,100	8,360	D

Notes:

1. Capacity based on Table 5 (Imperial County Standard Street Classification Average Daily Vehicle Trips) from Imperial County's General Plan Circulation and Scenic Highways Element (Imperial County 2008)
2. Regional highway volumes on Caltrans facilities were obtained from Caltrans Traffic Census Program (Caltrans 2022). Regional arterial volumes on Imperial County facilities were obtained from Imperial County (2022).

## 3.2 Transit Network

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 2023).

The project site is not within the Fixed Route Transportation system and, therefore, would not receive regular bus service to the project site or within the vicinity of the project site. The nearest IVT bus stop is located at the Imperial Valley Mall, which is approximately four miles north of the project site.

## 3.3 Bicycle Facilities

The *Imperial County Regional Active Transportation Plan* (ICTC 2022) classifies bikeways into four types:

- **Class I: Multi-Use Paths** - Class I multi-use paths (frequently referred to as "bicycle paths") are physically separated from motor vehicle travel routes, with exclusive rights-of-way for non-

motorized users like bicyclists and pedestrians. They require physical buffers to ensure safety and comfort of the user.

- **Class II: Bicycle Lanes** - Bicycle lanes are one-way facilities that carry bicycle traffic in the same direction as the adjacent motor vehicle traffic. They are typically located along the right side of the street (although can be on the left side) and are between the adjacent travel lane and curb, road edge, or parking lane. They are not physically separated from motor vehicle traffic.
- **Class III: Bicycle Routes** - A bicycle route is a suggested bicycle corridor marked by signs designating a preferred street between destinations. They are recommended where traffic volumes and roadway speeds are low (35 mph or less).
- **Class IV: Separated Bikeways (Cycle Tracks)** - Separated bikeways are bicycle-specific facilities that combine the user experience of a multi-use path with the on-street infrastructure of a conventional bicycle lane. Separated bikeways are physically separated from motor vehicle traffic and are designed to be distinct from any adjoining sidewalk. Physical protection measures can include raised curbs, parkway strips, reflective bollards, or parked vehicles. Separated bikeways can be either one-way or two-way, depending on the street network, available right-of-way, and adjacent land use. The safety of two-way separated bikeways must be carefully evaluated because few motor vehicle drivers are accustomed to two-way separated bikeways and they may tend to look only to the left when deciding whether it is safe to proceed across the separated bikeways.

Although none of the roadway segments within proximity of the Project site are designated a bikeway classification, the *Imperial County Regional Active Transportation Plan* lays out a framework for creating and expanding programs and improvements designed to increase bicycling activity in Imperial County. Although there are no bike paths currently in the Project area, Dogwood Road is a proposed Class I Multi-Use Path.

## SECTION 4 Project Trip Generation

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### 4.1 Construction Trips

Project construction activities will require workers to arrive and depart the Project site daily. Additionally, some heavy-truck traffic will occur to deliver and remove equipment and materials to/from the site. Apart from the direct construction traffic described above, some ancillary trips would also occur related to non-heavy truck deliveries, construction management staff, periodic inspections, etc. Project construction scheduling and phasing is detailed in **Table 2** above. Approximately 15 workers will be onsite during the construction period.

Construction activities at the site is expected to occur between 6:00 AM and 6:00 PM weekdays. Typically, each worker would be expected to arrive and depart the site at least once, resulting in a daily trip rate of two vehicle trips per worker per day for all 15 workers. Given the site's close proximity to Heber, some workers could be expected to leave and return to the site once per day on breaks. Conservatively assuming 50 percent of workers left and returned once per day (e.g., for lunch), this would result in a daily trip rate of four vehicle trips per worker per day for 8 workers. Based on the forecasted work start/stop times, no worker trips would occur during AM commuter peak period of 7:00 AM to 9:00 AM as they would arrive at the site by 6:00 AM. Similarly, the PM commuter peak period is defined as 4:00 PM to 6:00 PM. With a 6:00 PM finish time, all workers would be departing the site after the commuter peak hour has ended. However, for a conservative analysis, all workers traveling to/from the site are assumed to occur during peak AM and PM hours.

Vendor and haul trips consist of heavy vehicle trips to the site includes delivery of construction equipment and materials, as well as transport of equipment and other materials to be removed from the site. Heavy-vehicle trips would not be expected to occur uniformly over the course of the construction period, but rather on occasion as delivery and removal of equipment/materials is required. For the purposes of this temporary construction traffic generation evaluation, 40 daily vendor truck trips and 10 haul trips were conservatively assumed to occur in conjunction with the estimated construction worker load of 15 workers. The daily distribution of truck trips over the course of the 12-hour workday is also expected to be variable; for this analysis, a conservative estimate of 20 percent of daily trips was assumed to occur during both the AM and PM commuter peak hours. As trucks are larger and heavier than passenger cars, the reduced acceleration, braking, and handling characteristics, a Passenger Car Equivalence (PCE) factor of 2.5 is applied to each truck trip to account for the effects of these heavy vehicles within the traffic stream on flat terrain (Per the HCM methodology).

Construction trip generation is summarized in **Table 5** below. Accordingly, the total number of vehicle trips generated by Project construction is conservatively estimated at 165 PCE trips per day, with 91 total trips during the AM peak hour and 91 total trips during the PM peak hour. The estimated number of short-term construction trips is fewer than the 800 daily trips or 200 peak hour trips described by the Imperial County criteria (see Section 1.2 above).

Table 5. Construction Vehicle Trips

Trip Type	Qty	Maximum Daily Volumes (ADT)			AM Peak Hour			PM Peak Hour		
		Rate <sup>1</sup>	PCE <sup>2</sup>	Volume	In	Out	Total	In	Out	Total
<b>Workers</b>	15 Workers	3/worker	1.0	46	46	0	46	0	46	46
<b>Vendor</b>	20 vehicles	2/vehicle	2.5	100	10	10	20	10	10	20
<b>Haul</b>	5 vehicles	2/vehicle	2.5	25	12.5	12.5	25	12.5	12.5	25
<b>Total</b>				<b>165</b>	<b>68.5</b>	<b>22.5</b>	<b>91</b>	<b>22.5</b>	<b>68.5</b>	<b>91</b>

Notes:

1. Trip generation rate is calculated at roughly 3 trips/worker (assumed 50 percent of 15 workers leave/return once during the day) for an estimate of 46 total worker trips, and 2 trips/vehicle (in/out) for vendor and haul trips.
2. PCE = Passenger Car Equivalence Factor

## 4.2 Operations Trips

As detailed in Section 1.3, once the proposed Project is complete, the site will be staffed with 1-2 onsite employees. The daily trip rates used for determining the Project's operations worker trip generation are based on the 10th Edition of ITE Trip Generation manual for General Light Industrial workers. Deliveries of materials required for operations to the site would vary and would be sporadic throughout the work week. However, for a conservative analysis, it is assumed that one delivery of materials per day will be supplied to the Project site (i.e., one vendor truck per day). These vendor trips would generally not occur during peak hours but are considered as such herein for a conservative analysis. **Table 6** provides the estimated average daily on-road Project trip generation (i.e., trips to and from the site) for operation of the proposed Project. As shown in **Table 6**, the estimated number of trips associated with long-term operation of the Project is fewer than the 800 daily trips or 200 peak hour trips described by the Imperial County criteria (see Section 2.4 above).

Table 6. Operations Vehicle Trips

Trip Type	Qty	Maximum Daily Volumes (ADT)			AM Peak Hour			PM Peak Hour		
		Rate <sup>1</sup>	PCE <sup>2</sup>	Volume	In	Out	Total	In	Out	Total
<b>Workers<sup>1</sup></b>	2 Workers	3.05/worker	1.0	6	6	0	6	0	6	6
<b>Vendor</b>	1 vehicle	2/vehicle	2.5	5	2.5	2.5	5	2.5	2.5	5
<b>Total</b>				<b>11</b>	<b>8.5</b>	<b>2.5</b>	<b>11</b>	<b>2.5</b>	<b>8.5</b>	<b>11</b>

Notes:

1. The daily trip rates used for determining the project's operation worker trip generation are based on the 10th Edition of ITE Trip Generation manual for General Light Industrial workers.
2. PCE = Passenger Car Equivalence Factor

## 4.3 VMT Assessment

Construction of the proposed facilities may result in nominal and short-term increases in vehicle trips by construction workers and construction vehicles on area roadways. These trips would include construction workers commuting to and from the Project Site, haul truck trips associated with the transfer and disposal of materials, and material and equipment deliveries. The number of construction-

related trips would vary each day, depending on construction phase, planned activity, and material needs. **Table 7** summarizes the maximum estimated Project daily VMT for construction and operations.

Table 7. Maximum Project Daily VMT

Trip Type	Number of One-Way Trips	One-Way Trip Length (miles) <sup>2</sup>	Daily VMT (miles)
<b>Workers<sup>1</sup></b>	46	10.2	469
<b>Vendor</b>	40	225	9,000
<b>Haul</b>	2	20	40
<b>Temporary Construction Maximum Total Daily VMT</b>			<b>9,509</b>
<b>Workers<sup>1</sup></b>	6	10.2	61.2
<b>Vendor</b>	2	11.9	23.8
<b>Haul<sup>3</sup></b>	0	20	0
<b>Operations Total Daily VMT</b>			<b>85</b>

Notes:

1. The daily trip rates used for determining the project's construction and operation worker trip generation are based on the 10th Edition of ITE Trip Generation manual for General Light Industrial workers. A maximum of 15 construction workers are assumed and 2 operational workers for this conservative estimate.
2. Trip lengths consist of default CalEEMod values with exception of vendors for delivery of Project equipment during construction, with deliveries of solar panels, geothermal equipment, etc. assumed to originate at Port of Long Beach, approximately 225 miles from Project site.
3. All truck trips are assigned to vendor deliveries.

In their Technical Advisory on Evaluating Transportation Impacts on CEQA (December 2018), the Governor's Office of Planning and Research (OPR) recommends the use of VMT metrics when analyzing land use projects and plans. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than significant transportation impact. Per CEQA Guidelines, §15064.3 subdivision (a), 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks and is not applied for heavy-duty trucks. Accordingly, construction of the Project would result 46 on-road passenger vehicle trips and operations would result in 6 daily passenger vehicle trips which is much fewer than the screening threshold for small project of 110 on-road passenger vehicle trips. As such, the Project can be assumed to result in less than significant impacts on transportation and circulation.

## 4.4 Traffic Impacts

Lone site access is provided via Dogwood Road, which is classified as a Regional Arterial in the Imperial County Long Range Transportation Plan (2014). As summarized in **Table 4** above, the ADT on Dogwood Road from SR-86 to SR-98 is approximately 8,360 vehicles per day and currently at a LOS D. LOS D indicates there is increased speed reduction, and significant platooning of vehicles. The presence of Project-related construction trucks, with their slower speeds and larger turning radii, may temporarily reduce roadway capacities in the immediate vicinity of the Project site. These nominal impacts of construction traffic would be most noticeable in the immediate vicinity of the Project site and less noticeable farther away and on regional roadways. Construction traffic-related impacts would be

temporary and only occur during the construction phase (35 months). Although Project construction would cause incremental, short-term increases in traffic, construction-related trips are expected to be approximately 165 per day and well under the thresholds for developing a transportation management plan (i.e., 800 commercial/industrial trips [Imperial County 2007]). In addition, the Project would generate less than 110 passenger vehicle trips per day which can be assumed to not result in significant transportation impacts per CEQA Guidelines, §15064.3. Therefore, Project construction and operation would not conflict with any applicable transportation plans (i.e., Imperial County State Transportation Improvement Plan [ICTC 2022]) or contribute to a long-term decrease in LOS.

The medium voltage distribution cable from the Dogwood solar facility to the Dogwood geothermal plant site would cross Dogwood Road overhead and be attached via trays to the existing pipeline that runs west before turning north to cross the Beech Drain and Main Canal at the existing above-ground pipeline span (with an overhead crossing over Willoughby Road). The cable would continue to follow the existing pipeline alignment and connect into the new Dogwood OEC. No new footings or foundations are required for the cable trays. The overhead road crossings at Dogwood Road and Willoughby Road may require an encroachment permit from the County Public Works Department for any work onto, into or within the County road or street right of way. For any work requiring an encroachment permit, a Temporary Traffic Control Plan would be developed and submitted to the County Public Works Department for approval. The Temporary Traffic Control Plan would include measures to mitigate traffic impacts to the satisfaction of the County Public Works Department. Traffic control would be in accordance with the current California Temporary Traffic Control Handbook or as directed by the Imperial County Traffic Engineer. Further, all other proposed facilities would be constructed within the property boundaries of the Project site and would not affect emergency vehicle access to the facility or any roadway. Emergency vehicle access is identified and designated at the Dogwood site, and these areas would not be changed as result of the proposed developments. Therefore, no impacts to emergency access to the plant site or surrounding area would occur under the Project.



## SECTION 5 Conclusions

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Based on the VMT Assessment and the Imperial County guidelines, the project meets the VMT project type screening criteria for small projects as it would generate less than 110 trips per day. Therefore, the proposed Project meets the applicable screening criteria which allows a determination of a less-than-significant impact on VMT, thus a project-specific VMT assessment is not required. In addition, the Project would generate a total of 91 AM Peak Hour trips and 91 PM Peak Hour trips during construction. Based on existing traffic volumes on adjacent roadways, the presence of Project-related construction trucks, with their slower speeds and larger turning radii, may temporarily reduce roadway capacities in the immediate vicinity of the Project site. These nominal impacts of construction traffic would be most noticeable in the immediate vicinity of the Project site and less noticeable farther away and on regional roadways. Construction traffic-related impacts would be temporary and only occur during the construction phase (35 months). However, construction-related trips are expected to be approximately 165 per day and well under the thresholds for developing a transportation management plan (i.e., 800 commercial/industrial trips [Imperial County 2007]). The overhead road crossings at Dogwood Road and Willoughby Road may require an encroachment permit from the County Public Works Department for any work onto, into or within the County road or street right of way. For any work requiring an encroachment permit, a Temporary Traffic Control Plan would be developed and submitted to the County Public Works Department for approval. The Temporary Traffic Control Plan would include measures to mitigate traffic impacts to the satisfaction of the County Public Works Department. Traffic control would be in accordance with the current California Temporary Traffic Control Handbook or as directed by the Imperial County Traffic Engineer. Further, all other proposed facilities would be constructed within the property boundaries of the Project site and would not affect emergency vehicle access to the facility or any roadway. Emergency vehicle access is identified and designated at the Dogwood site, and these areas would not be changed as result of the proposed developments. Therefore, no impacts to emergency access to the plant site or surrounding area would occur under the Project.

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