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
Total	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

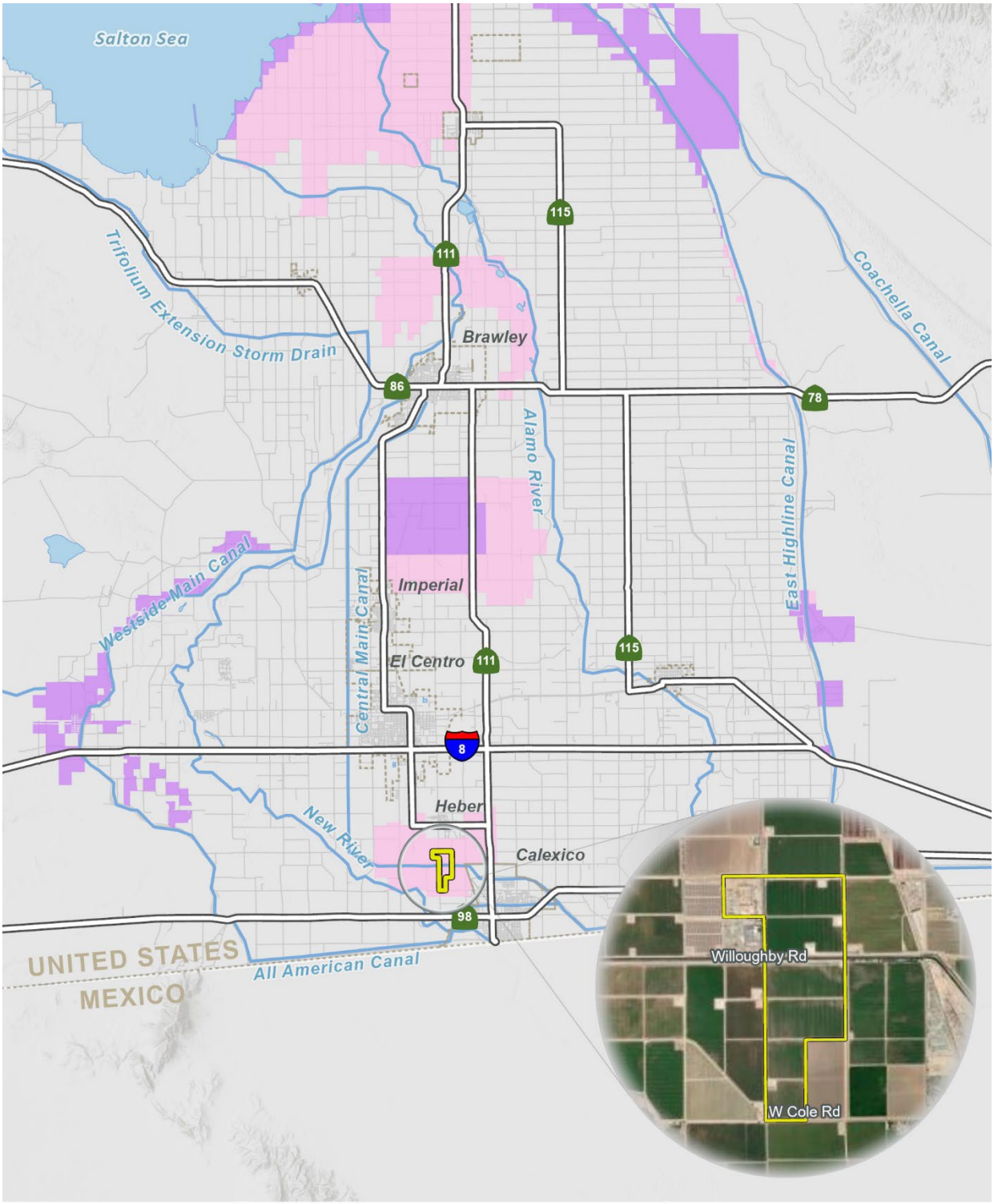


Figure 2-2. Project Location

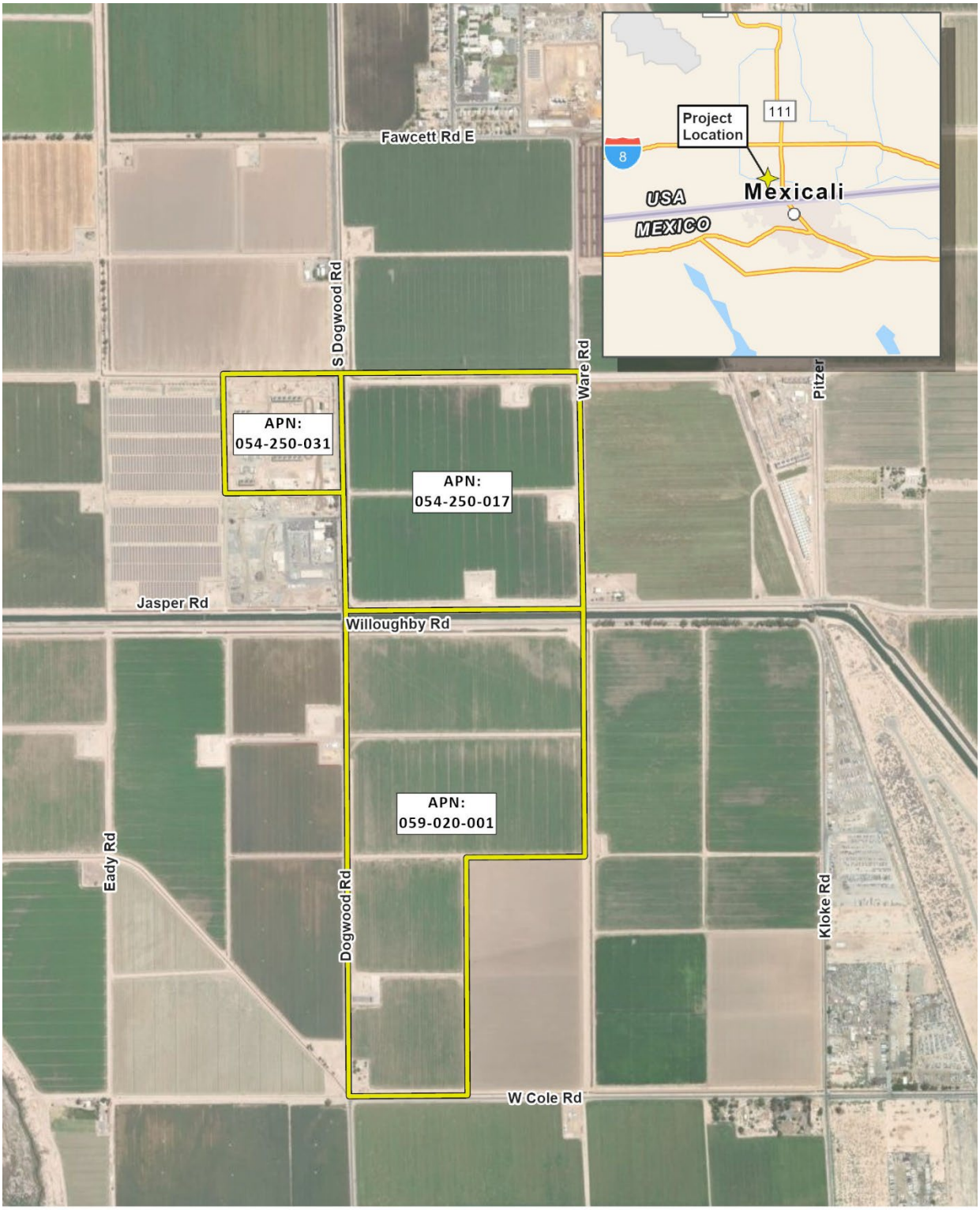
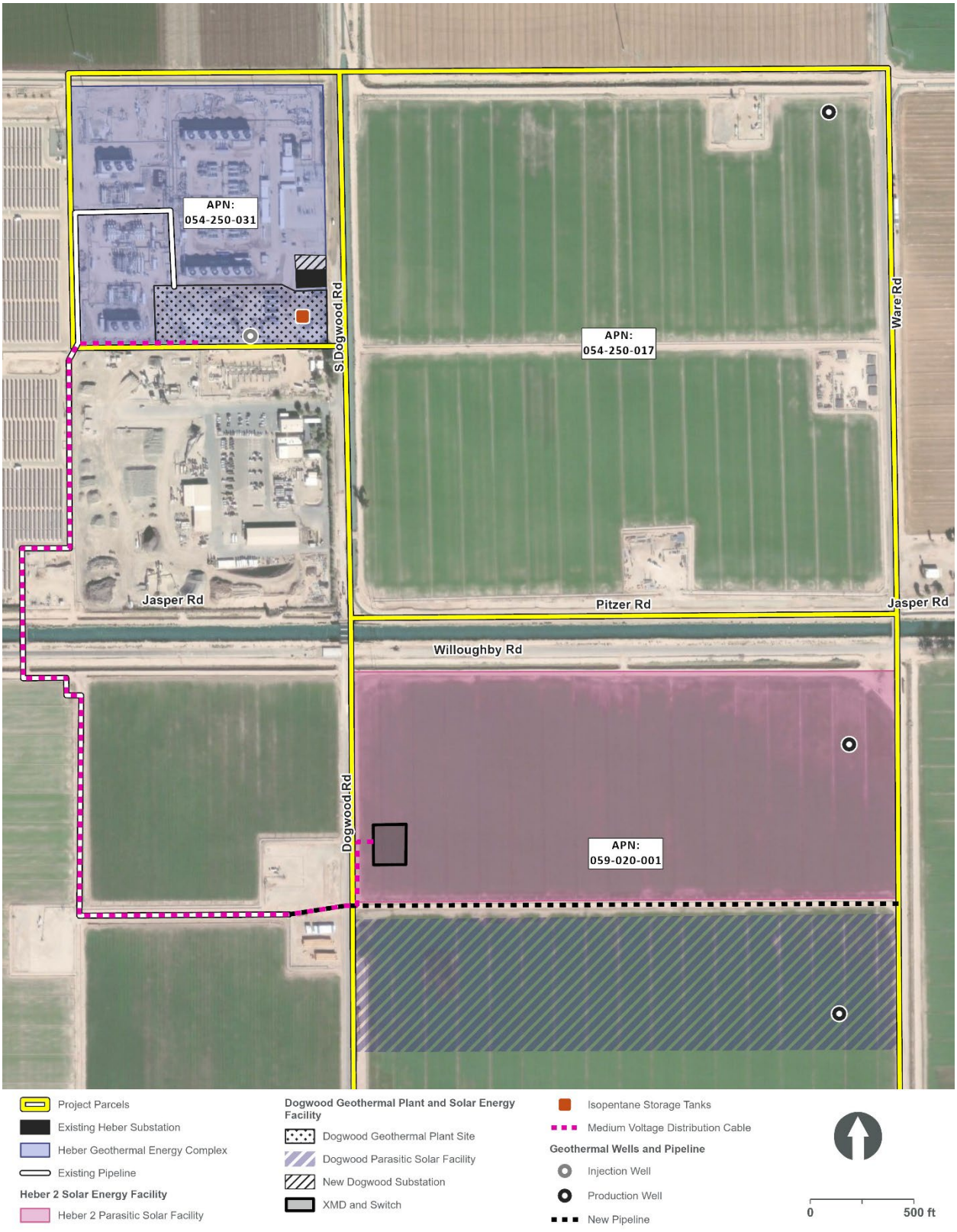


Figure 2-3. Project Overview



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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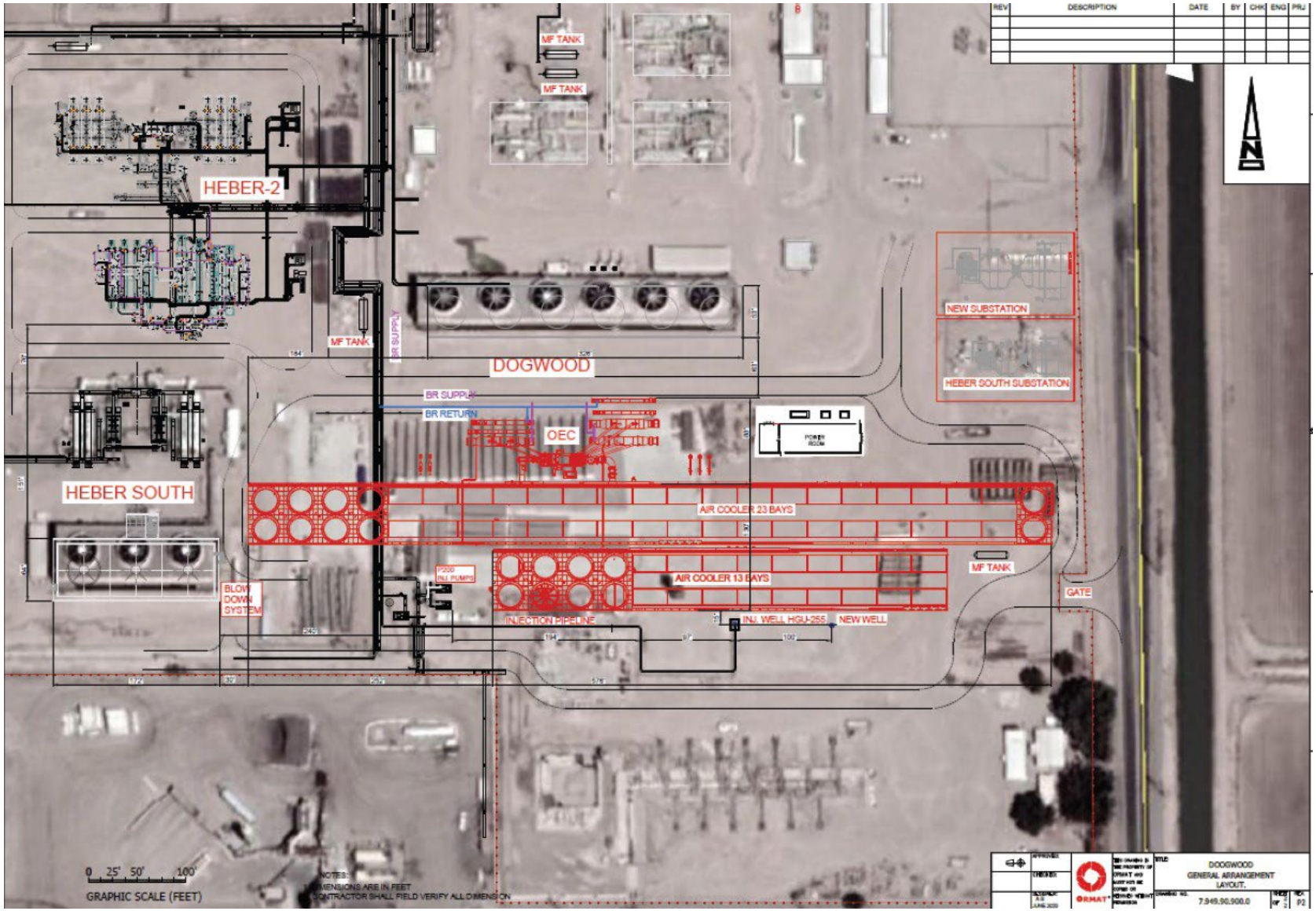
Figure 2-6. ORMAT Energy Converter Site Plan



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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 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

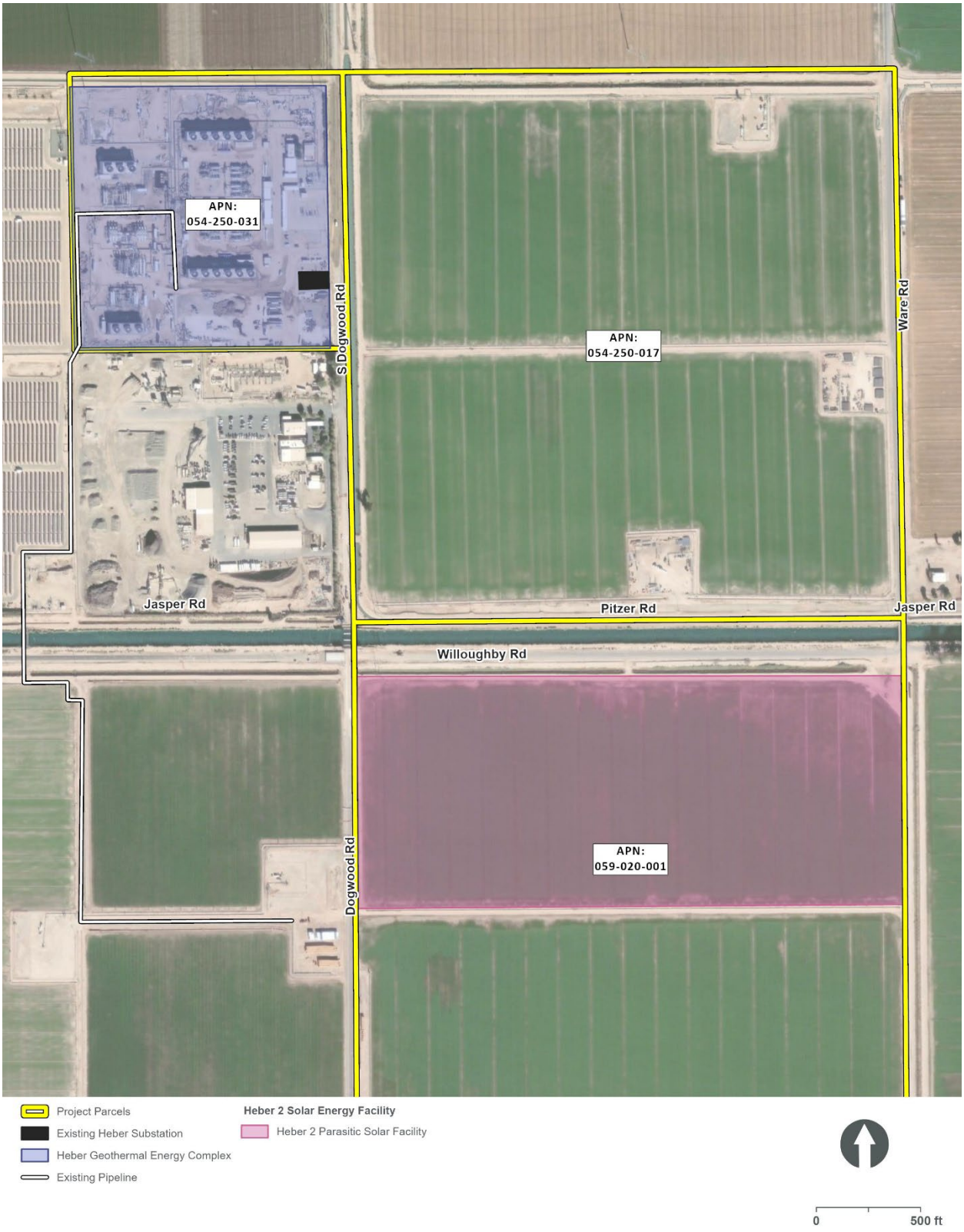
As shown in Figure 2-4, the energy generated by the proposed Dogwood solar facility would be collected at an on-site XMD and switch on the western edge of the Heber 2 solar energy facility site, adjacent to South (S) Dogwood Road. A medium voltage distribution cable would cross S Dogwood Road and be 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

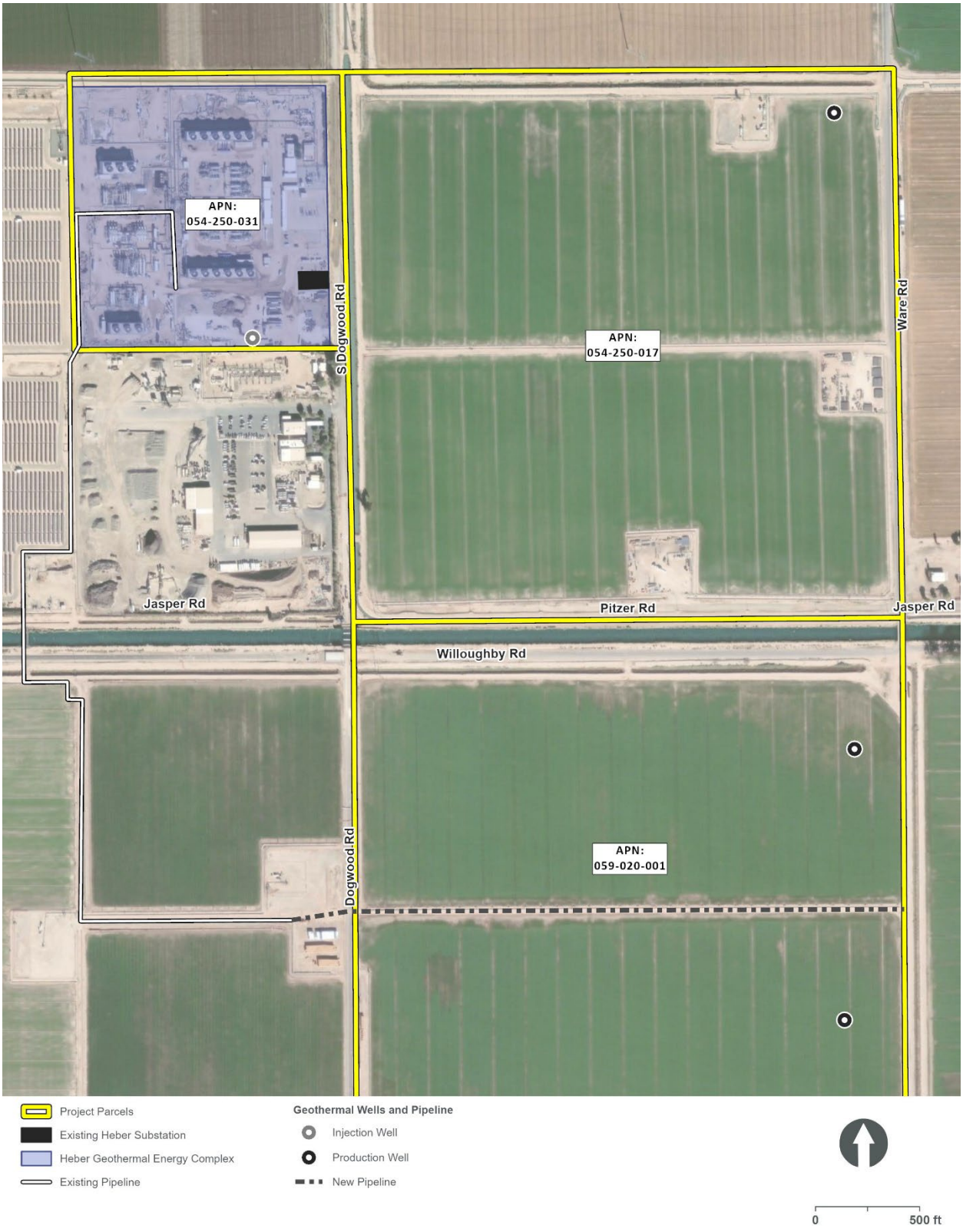


Figure 2-9. Typical Well Pad Layout to Drill a Geothermal Production Well

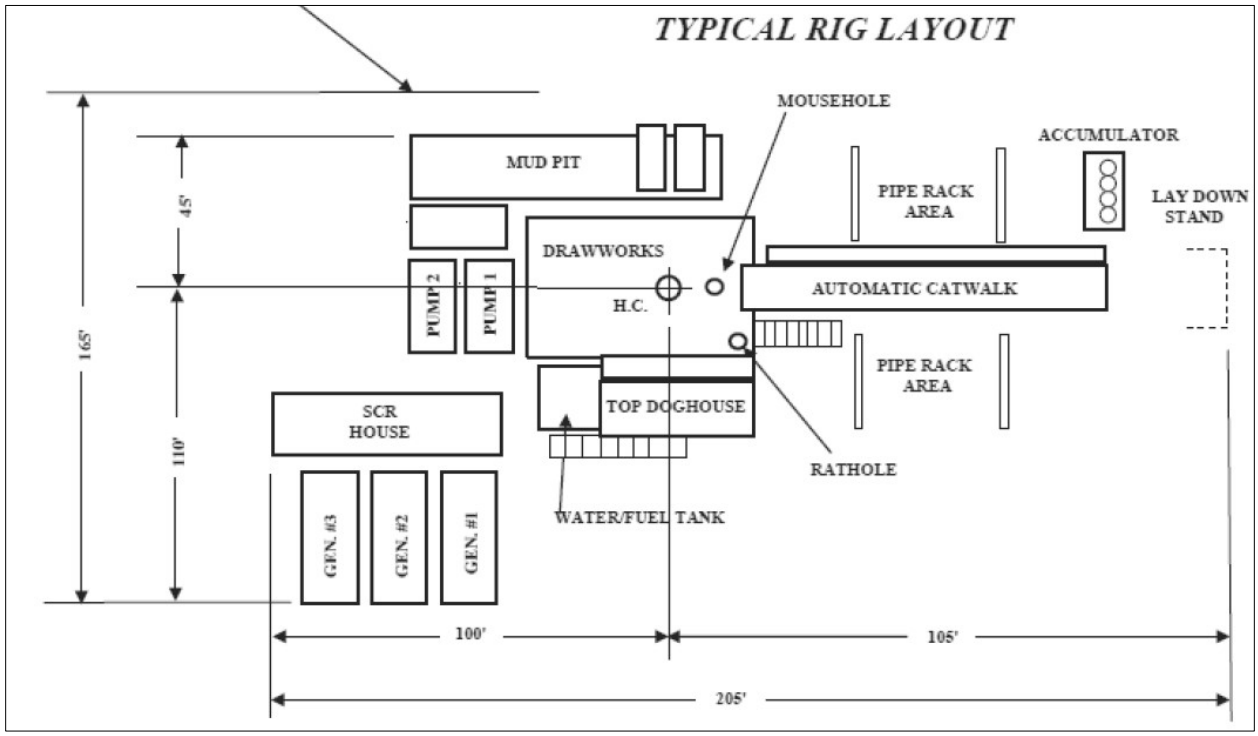
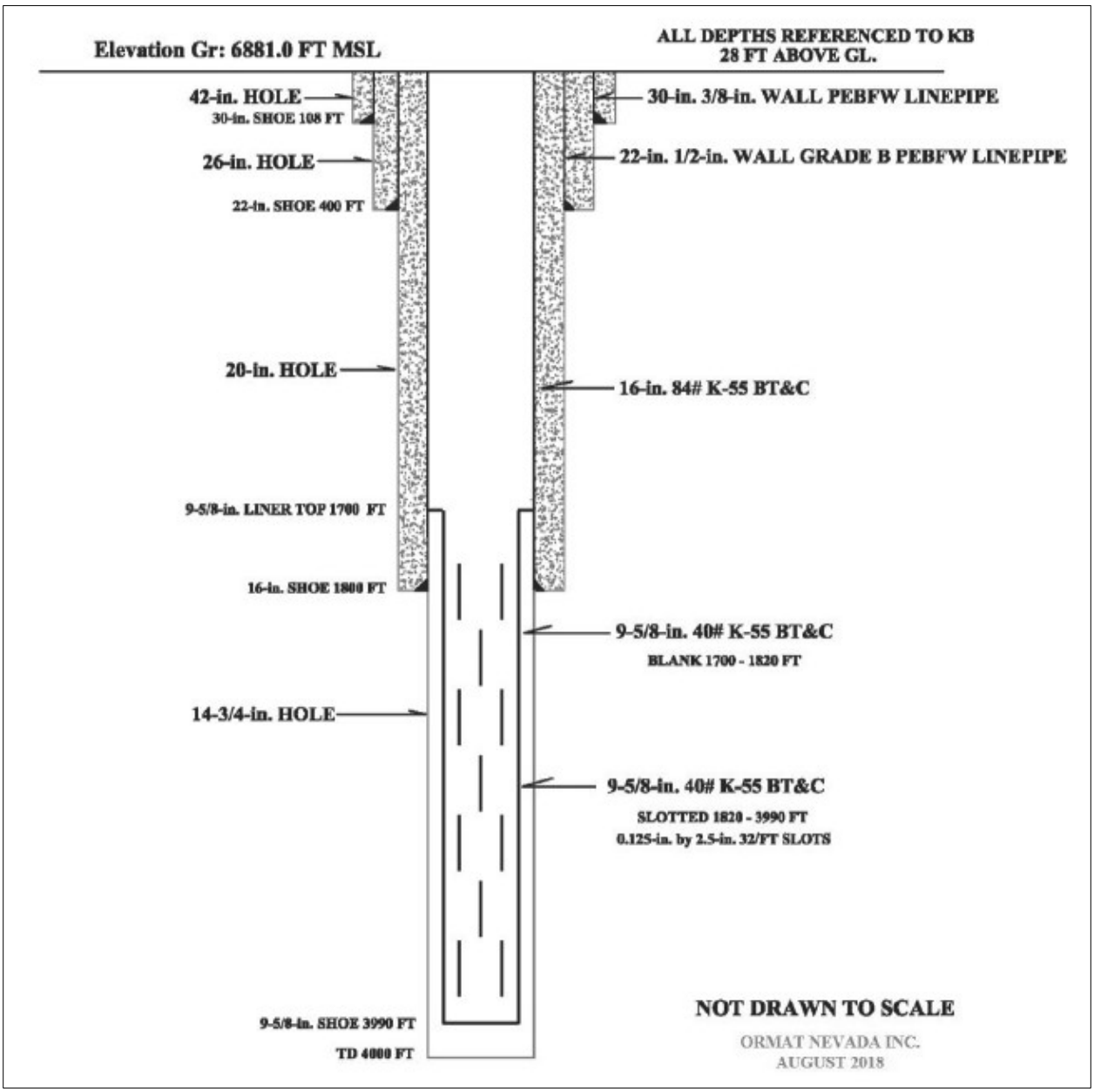


Figure 2-10. Profile of a Geothermal Production Well



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)[2]
Site Preparation (Plant Site and Solar Fields) (2 months)	Workers[1]	46	10.2
	Vendors	10	11.9
	Haul	8	20
Project Construction (16 months)	Workers[1]	46	10.2
	Vendors	40	225
	Haul	2	20
Well Drilling and Pipe Interconnection (12 months)	Workers[1]	46	10.2
	Vendors	10	11.9
	Haul	0	20
Substation Development and Interconnection (4 months)	Workers[1]	46	10.2
	Vendors	10	11.9
	Haul	0	20
Testing (1 month)	Workers[1]	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_{10} 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 roads 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