DOCKETED	
Docket Number:	24-OPT-01
Project Title:	Perkins Renewable Energy Project
TN #:	254459
Document Title:	Perkins Environmental Analysis 4-11 to 5
Description:	Perkins Renewable Energy Project Opt-in Application Environmental Analysis including Soil, Traffic, Visual Resources, Waste Management, Water Resources, Wildfire, Worker Safety, Alternatives
Filer:	Emily Capello
Organization:	Panorama Environmental, Inc.
Submitter Role:	Applicant Consultant
Submission Date:	2/14/2024 12:38:37 PM
Docketed Date:	2/14/2024

4.11 Soils

This section identifies the soils within and adjacent to the Project site that would be affected by construction, operation and maintenance, and decommissioning activities. Soil resource inventory data for the analysis area were gathered from the U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) using Web Soil Survey (NRCS, n.d.).

Section 4.11.1 describes the existing environmental setting, including significant soil characteristics. Section 4.11.2 identifies potential environmental impacts that may result from Project construction, operation (including maintenance), and decommissioning. Section 4.11.3 discusses potential cumulative impacts on soils. Section 4.11.4 discusses measures to address impacts. Section 4.11.5 provides an overview of Project compliance with applicable laws, ordinances, regulations, and standards (LORS).

4.11.1 Environmental Setting

The analysis area is limited to the Project Application Area and consists in total of approximately 6,126 acres of federal land managed by the BLM and BOR in addition to private lands. The analysis area is used to provide context for current conditions and, ultimately, for the direct and indirect impacts related to loss of soil resources or productivity.

Regional Setting

The Project Application Area is located approximately 1.2 miles north of the U.S.–Mexico border, in a region characterized by undeveloped desert and agricultural uses. Agricultural lands are located approximately 2.5 miles west of the Project Application Area. The Imperial Sand Dunes, the largest mass of sand dunes in California, is located approximately 9 miles to the east of the Project Application Area.

Project Setting

Agricultural Lands

The Department of Conservation Farmland Mapping and Monitoring Program (FMMP) prepares, updates, and maintains Important Farmland Series Maps (Maps), as defined in subdivision (f) of section 65560 of the Government Code, and prepares and maintains an automated map and database system to record and report changes in the use of agricultural lands every 2 years on even numbered calendar years. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. In preparing Maps, the Department of Conservation considers all information collected or received on the amount of land converted to or from agricultural use, and between agricultural categories. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) is designated within the Project Application Area (CDOC 2016).

NRCS Soil Map Units

Table 4.11-1, below, summarizes the depth, texture, drainage, permeability, run-off, land capability class, and other characteristics of the NRCS soil map units in the Project Application Area. Figure 4.11-1 illustrates the soil map units within the Project Application Area. The majority of the Project Application Area overlies soil classified as 136: Rositas loamy fine sand, 0 to 2 percent slopes (4,608.3 acres) and 132: Rositas fine sand, 0 to 2 percent slopes (661.7 acres). Both soil types are somewhat excessively drained and have a very low runoff class (NRCS, n.d.).

Table 4.11-1 NRCS Soil Map Unit Descriptions

Map Unit	Percent of AOI (Acres)	Description	Area
100—Antho loamy fine sand	0.1% (7.5)	Landform: Basin floors Parent Material: Alluvium derived from mixed sources Typical Profile: 0 to 13 inches: loamy fine sand; 13 to 60 inches: sandy loam Depth: More than 80 inches Drainage Class: Well drained Runoff Class: Negligible Hydrologic Soil Group: A Hydric Soil Rating: Not hydric T-factor: 5 K-factor: 0.24 Wind Erodibility Group: 2 Risk of Corrosion: Moderate/Moderate (Uncoated Steel/Uncoated Concrete) Linear Extensibility Percent (LEP):1.5	Project site
108—Holtville loam	0.2% (10.5)	Landform: Basin floors Parent Material: Alluvium derived from mixed sources and/or lacustrine deposits derived from mixed sources Typical Profile: 0 to 14 inches: loam; 14 to 22 inches: clay; 22 to 60 inches: silt loam Depth: More than 80 inches Drainage Class: Well drained Runoff Class: Low Hydrologic Soil Group: D Hydric Soil Rating: Not hydric T-factor: 4 K-factor: 0.49 Wind Erodibility Group: 5 Risk of Corrosion: High/Moderate (Uncoated Steel/Uncoated Concrete)	Project site

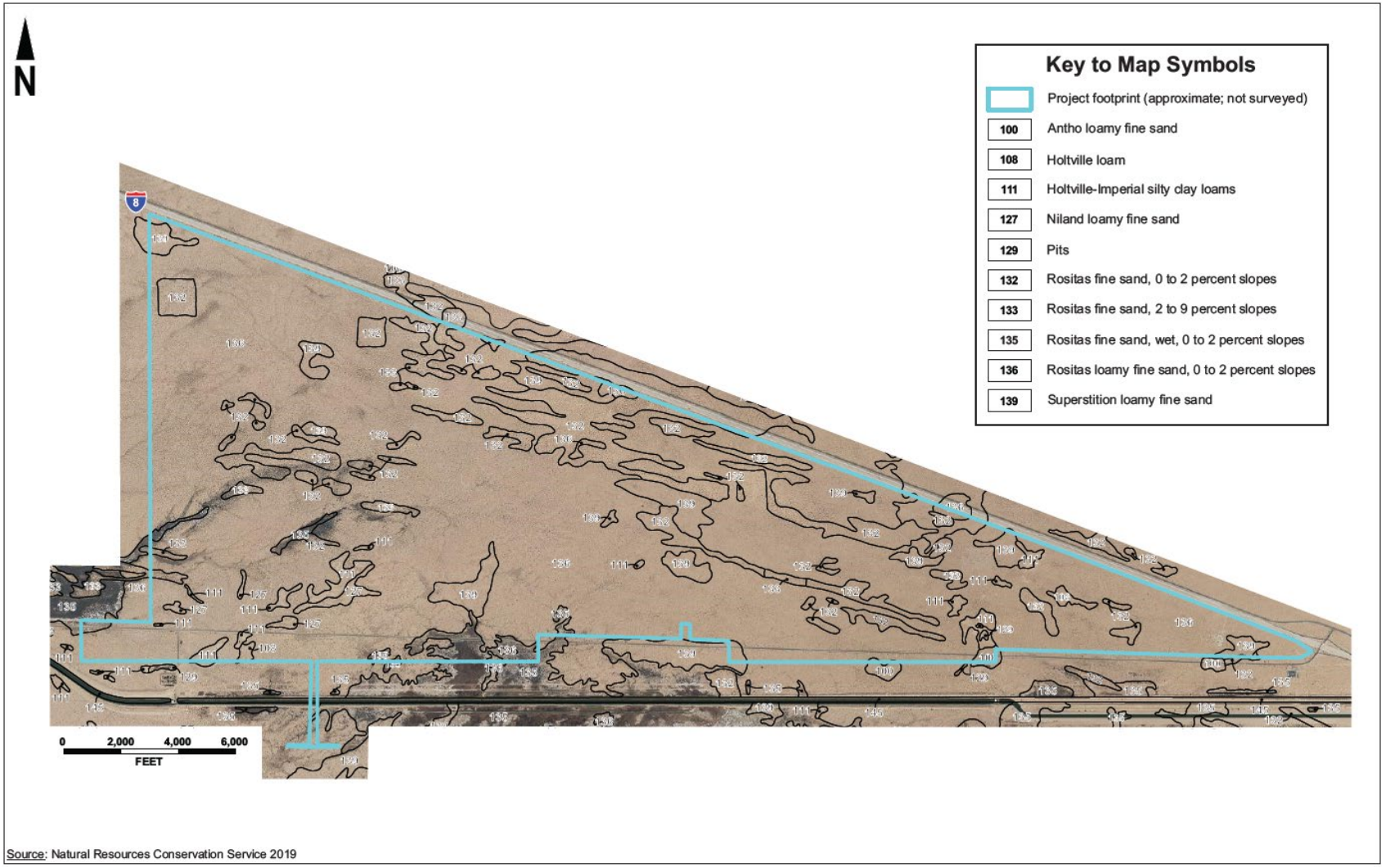
Map Unit	Percent of AOI (Acres)	Description	Area
		Linear Extensibility Percent (LEP): 2.3	
111—Holtville-Imperial silty clay loams	1.3% (92.7)	Landform: Basin floors Parent Material: Alluvium derived from mixed sources Typical Profile: 0 to 10 inches: silty clay loam; 10 to 22 inches: clay; 22 to 60 inches: silt loam Depth: More than 80 inches Drainage Class: Moderately well drained Runoff Class: Low Hydrologic Soil Group: C Hydric Soil Rating: Not hydric T-factor: 5 K-factor: 0.43 Wind Erodibility Group: 6 Risk of Corrosion: High/Moderate (Uncoated Steel/Uncoated Concrete) Linear Extensibility Percent (LEP): 3.2	Project site BAAH
127—Niland loamy fine sand	0.6% (51.4)	Landform: Basin floors Parent Material: Alluvium derived from mixed sources Typical Profile: 0 to 23 inches: loamy fine sand; 23 to 60 inches: silty clay Depth: More than 80 inches Drainage Class: Moderately well drained Runoff class: Low Hydrologic Soil Group: C Hydric Soil Rating: Not hydric T-factor: 4 K-factor: 0.32 Wind Erodibility Group: 2 Risk of Corrosion: High/Moderate (Uncoated Steel/Concrete) Linear Extensibility Percent (LEP): 5.2	Project site Loop-in BAAH
132—Rositas fine sand, 0 to 2 percent slopes	11.3% (661.7)	Landform: Basin floors Parent Material: Alluvium derived from mixed and/or eolian deposits derived from mixed sources Typical Profile: 0 to 9 inches: fine sand; 9 to 60 inches: sand Depth: More than 80 inches Drainage Class: Somewhat excessively drained Runoff class: Very low Hydrologic Soil Group: A	Project site

Map Unit	Percent of AOI (Acres)	Description	Area
		Hydric Soil Rating: Not hydric T-factor: 5 K-factor: 0.02 Wind Erodibility Group: 1 Risk of Corrosion: Moderate/Moderate (Uncoated Steel/Concrete) Linear Extensibility Percent (LEP): 1.5	
133—Rositas fine sand, 2 to 9 percent slopes	1.3% (76.3)	Landform: Sand sheets, alluvial fans Parent Material: Eolian deposits derived from mixed sources Typical Profile: 0 to 9 inches: fine sand; 9 to 60 inches: sand Depth: More than 80 inches Drainage Class: Somewhat excessively drained Runoff class: Low Hydrologic Soil Group: A Hydric Soil Rating: Not hydric T-factor: 5 K-factor: 0.02 Wind Erodibility Group: 1 Risk of Corrosion: Moderate/Moderate (Uncoated Steel/Concreate) Linear Extensibility Percent (LEP): 1.5	Project site
135—Rositas fine sand, wet, 0 to 2 percent slopes	1.7% (99.4)	Landform: Basin floors Parent Material: Alluvium derived from mixed and/or eolian deposits derived from mixed sources Typical Profile: 0 to 9 inches: fine sand; 9 to 60 inches: sand Depth: More than 80 inches Drainage Class: Moderately well drained Runoff class: Very low Hydrologic Soil Group: A Hydric Soil Rating: Not hydric T-factor: 5 K-factor: 0.02 Wind Erodibility Group: 1 Risk of Corrosion: Moderate/Moderate (Uncoated Steel/Concrete) Linear Extensibility Percent (LEP): 1.5	Project site Loop-in

Map Unit	Percent of AOI (Acres)	Description	Area
136—Rositas loamy fine sand, 0 to 2 percent slopes	78.6% (4608.3)	Landform: Basin floors Parent Material: Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources Typical Profile: 0 to 4 inches: loamy fine sand; 4 to 60 inches: sand Depth: More than 80 inches Drainage Class: Somewhat excessively drained Runoff class: Very low Hydrologic Soil Group: A Hydric Soil Rating: Not hydric T-factor: 5 K-factor: 0.24 Wind Erodibility Group: 2 Risk of Corrosion: Moderate/Moderate (Uncoated Steel/Concrete) Linear Extensibility Percent (LEP): 1.5	Project site Loop-in BAAH
139—Superstition loamy fine sand	4.7% (278.1)	Landform: Alluvial fans Parent Material: Alluvium derived from mixed sources Typical Profile: 0 to 6 inches: loamy fine sand; 6 to 60 inches: loamy fine sand Depth: More than 80 inches Drainage Class: Somewhat excessively drained Runoff class: Very low Hydrologic Soil Group: A Hydric Soil Rating: No T-factor: 5 K-factor: 0.32 Wind Erodibility Group: 2 Risk of Corrosion: Moderate/Low (Uncoated Steel/Concrete) Linear Extensibility Percent (LEP): 1.5	Project site

Source: (NRCS, n.d.)

Figure 4.11-1 Soil Map Units



Potential for Soil Loss and Erosion

Erosion is a natural process whereby soil and weathered rock particles are worn away and transported, most commonly by wind or water. Erosions presents hazards to structures because it removes soils, which can undermine foundational elements, and transports and deposits the eroded material at other locations where it could cover roads, fill in reservoirs, and cause other impairments to infrastructure.

Water Erosion (K-Factor)

The soil erodibility factor, or K-value, of the Universal Soil Loss Equation (USLE) and Revised Universal Soil Loss Equation (RUSLE), was used to assess the Project Application Area's vulnerability to erosion by surface water run-off (sheet and rill erosion). The K-value is a measure of the susceptibility of soil particles to detach and transport by rainfall and runoff. K-values range from 0.02 to 0.69, and other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by surface water flows (Soil Science Division Staff 2017). Soil erodibility and the associated K-factor ranges are presented in Table 4.11-2, below.

Table 4.11-2 Soil Erodibility and K-Factor Ranges

K-factor range	Soil Erodibility
0.05 – 0.2	Low
0.25 – 0.4	Moderate
> 0.45	High

Source: (USDA RUSLE Development Team 2001)

As shown in Table 4.11-1, the soils with the highest K-factors are 108: Holtville loam and 111: Holtville-Imperial silty clay loams, which have K-factors of 0.49 and 0.43, respectively and comprise 1.5 percent of the Project Application Area (103.2 acres). Two soils, Niland loamy fine sand and Superstition loamy fine sand, have a moderate K-factor of 0.32 and make up a total of 5.3 percent of the Project Application Area (4645.3 acres). Soil types within the remaining 93.2 percent of the Project Application Area has soils with a low K-factor of below 0.25.

Wind Erosion (Wind Erodibility Groups)

The purpose of wind erodibility groups (WEGs) is to predict a soil type's susceptibility to wind erosion, which varies according to soil texture, organic matter content, soil carbonate, rock fragment content, and mineralogy. WEG values are assigned to soil map units within the SSURGO system and range from a value of 1 to 8 (Soil Science Division Staff 2017):

- WEG 1 or 2 - high wind erosion susceptibility
- WEG 3, 4, or 4L - moderate wind erosion susceptibility
- WEG 5, 6, or 7 - slight wind erosion susceptibility
- WEG 8 - no susceptibility to wind erosion

As shown in Table 4.11-1, above, the majority of the Project site contains soils with WEG 1 and 2, which represents a high susceptibility to wind erosion.

Soil Corrosion Potential

The risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens concrete and uncoated steel. Potential corrosion of both concrete and uncoated steel is assigned by the USDA into three categories—low corrosion potential, moderate corrosion potential, and high corrosion potential, which are assigned at the soil map unit level within the SSURGO system (see Table 4.11-3). Three soil types within the Project Application Area (108: Holtville loam; 111: Holtville-Imperial silty clay loams; and 127: Niland loamy fine sand) have a high uncoated steel corrosion potential and comprise 2.1 percent of the Project Application Area. The remaining soil types have a moderate uncoated steel corrosion potential. All soils within the analysis area have a moderate concrete corrosion potential.

Table 4.11-3 Risk of Corrosion of Uncoated Steel and Concrete

	Low	Moderate	High
Uncoated Steel			
Drainage class and texture	Excessively drained, coarse textured soils; well drained, coarse textured to medium textured soils; moderately well drained, coarse textured soils; or somewhat poorly drained, coarse textured soils	Well drained, moderately fine textured soils, moderately well drained, medium textured soils; somewhat poorly drained, moderately coarse textured soils; or very poorly drained soils with a stable high-water table	Well drained, fine textured or stratified soils; moderately well drained, fine textured and moderately fine textured or stratified soils; somewhat poorly drained, medium texture to fine textured or stratified soils; or poorly drained soils with a fluctuating water table
Total acidity (meq/100g)	<8	8–12	>12
Resistivity at saturation (ohm/cm)	>5,000	2,000–5,000	<2,000
Conductivity of saturated extract (dSm-1)	<0.3	0.3–0.8	>0.8
Concrete			
Texture and reaction	Sandy and organic soils with pH of >6.5 or medium and fine textured soils with pH of >6.0	San and organic soils with pH of 5.5–6.5 or medium textured and fine textured soils with pH of 5.0 to 6.0	Sandy and organic soils with pH of <5.5 or medium textured and fine textured soils with pH of <5.0
Na and/or Mg sulfate (ppm) in soil	Less than 1,000	1,000 to 7,000	More than 7,000
NaCl (ppm) in soil	Less than 2,000	2,000 to 10,000	More than 10,000

Source: (USDA Natural Resources Conservation Science 2004)

Soil Productivity (T factor, Soil Loss Tolerance)

An important factor in the consideration of soil productivity is thresholds for soil loss due to erosion. The *T factor* is defined as the soil loss tolerance (as measured in tons per acre), which is the maximum amount of soil erosion at which the quality of a soil as a medium for plant growth can be maintained. The erosion losses are generally defined by USLE or RUSLE2 (USDA RUSLE Development Team 2001). Erosion classes range on a scale of 1 to 5, with the 5 being the most resilient to future erosional losses of soil and 1 being the least resilient (NRCS 2017). For the purposes of this analysis, T factor classes of 1 to 2 are considered to have low soil loss tolerance (i.e., highly susceptibility to erosion impacts and loss of soil productivity). Approximately 99.4 percent of soils within the analysis area are rated as class 5, which represents a low susceptibility to erosion. The remaining 0.6 percent of on-site soils is rated as a 4 (see Table 4.11-1).

Other Significant Soil Characteristics

Other significant soil characteristics that could affect the Project Application Area include expansive soils, liquefaction risk, and the potential for shallow groundwater, organic soils, and soil contamination. A Project-specific geotechnical investigation was conducted to evaluate soil conditions and geologic hazards on the Project site (Appendix O).

Expansive Soils

Soils with relatively high clay content that contain specific clay minerals (such as smectite clays) are considered expansive, which indicates that they shrink and swell in response to changing water content. This action, characterized by a soil's "shrink-swell potential," can damage building and structural foundations via the differential movement of soil. The shrink-swell potential of a soil can be quantified as its *linear extensibility percent* (LEP), which is based on the change in length of a sample as moisture content is decreased. LEP refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. The volume change is reported as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change. A low value and a high value indicate the range of this attribute for the soil component (NRCS 2017). The LEP ranges for shrink-swell classes are provided below. The LEP classification for each soil type in the Project Application Area is provided in Table 4.11-1. As shown in Table 4.11-1, the majority of the Project Application Area is classified as low LEP (0%–3%), which means there is a low potential for expansive soils to occur. The one soil type that is classified as moderate LEP (127: Niland loamy fine sand) occurs on 0.6% of the site (37 acres) (NRCS, n.d.).

Table 4.11-4 Linear Extensibility Percent and Shrink Swell Classes

Shrink-Swell potential	LEP (percent)
Low	<3
Moderate	3–6
High	6–9
Very High	> 9

4.11.2 Impact Analysis

Methodology

Publicly available information, including maps, online databases, articles, reports, and published research papers were reviewed to assess potential impacts on soil resources. The primary information sources include the following:

- NRCS soils maps
- Imperial County General Plan

A Project-specific geotechnical investigation (Appendix O) includes recommendations related to soil resources for Project construction and operation.

Impact Evaluation Criteria

The potential for impacts related soils were evaluated using relevant criteria described in the CEQA Environmental Checklist (Appendix G of the CEQA Guidelines). Specific to geological hazards and resources, the CEQA Checklist asks, would the project:

- Result in substantial soil erosion or the loss of topsoil;
- Be located on expansive soil, as defined in Table 18-1-B of the UBC (International Code Council 1994), creating substantial direct or indirect risks to life or property;
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use;
- Have a substantial adverse effect on state or federally protected wetlands?

Impact SOI-1

Would the project result in substantial soil erosion or the loss of topsoil? (*Less than significant)*

Construction

Project Site Components

Construction of Project components would result in temporary and permanent disturbance of soils within the Project Application Area. The majority of the Project site would be mowed rather than cleared of vegetation. Vegetation within the loop-in transmission corridor would be cleared at the locations of the individual poles/structures. Mass grading of the Project site would not be needed for site preparation due to the relatively flat terrain. Spot grading would be employed for select solar array and storage facility locations, which would result in the loss of topsoil. Where Project site grading is necessary for discrete facilities or within the solar arrays, cut and fill would be balanced to the extent feasible. Some import and export of material would be necessary (refer to Section 2.0: Project Description, Table 2-4). Surface disturbances and the removal of vegetation during construction would increase the potential for soil erosion. Soils in the Project Application Area are generally highly susceptible to erosion from wind and heavy rainfall.

The BESS, operation and maintenance buildings, and roads would require vegetation clearing, grading, and compaction. Inverter-transformer station locations would require light grubbing. Where excavation is required, most construction activities would be limited to less than 6 feet in

depth within the Project site; however, some excavations, such as those undertaken for the installation of gen-tie poles and dead end structures, may reach depths of 45 feet or more.

Temporary areas of disturbance would be restored in accordance with the Restoration and Integrated Weed Management Plan (Appendix M). The Applicant would be required to apply for coverage under a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order numbers WQ 2022-0057-DWQ and CAS000002 (Construction General Permit) and any following versions applicable at the time of construction. The Construction General Permit was developed to ensure that stormwater is managed and erosion is controlled on construction sites. The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which requires implementation of best management practices (BMPs) to control stormwater run-on and runoff from construction work sites. BMPs may include, but would not be limited to, physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other measures to be identified by a qualified SWPPP developer that would substantially reduce or prevent erosion during construction.

The Applicant has also proposed to implement a Drainage, Erosion, and Sediment Control Plan (DESCP) to reduce the impact of run-off during construction, operation, and maintenance (see PDF HWQ-1). The DESCP would ensure proper protection of water quality and soil resources, address disturbed soil stabilization treatments in the Project area for both road and non-road surfaces, and identify all methods used for temporary and final stabilization of inactive areas. The Plan would cover all Project component areas subject to disturbance. The DESCP would cover activities during site mobilization, excavation, construction, and post-construction (operations). Site monitoring would involve inspections to ensure that the BMPs required by the Project-specific SWPPP and DESCP are properly maintained and reducing the risk of run-off to an adequate level. Implementation of the Project-specific SWPPP and DESCP would ensure that downstream water bodies are not affected by sediment transport. In addition, a Fugitive Dust Control Plan (Appendix I) would be implemented during all grading, vegetation removal, and construction activities. These measures would include BMPs such as restriction of vehicle speeds, watering of active areas, watering of stockpiles, watering on roadways, track-out control at site exits, and other measures.

With adherence to existing regulations and implementation of the Project-specific SWPPP, DESCP, Fugitive Dust Control Plan, BMPs, and CMAs, impacts related to water and wind erosion and to soil compaction would be less than significant.

Breaker-and-a-Half Switchyard

Construction of the BAAH switchyard would require grading and excavation or drilling for installation of structures. Similar to the Project site component construction, the BAAH switchyard would result in temporary and permanent disturbance.

The BAAH switchyard would be graded and compacted to an approximately level grade. Concrete pads would be constructed on site as foundations for BAAH switchyard equipment, and the remaining area would be graveled to a maximum depth of approximately 12 inches. Foundation designs of the BAAH switchyard would likely consist of drilled piers, concrete slabs, pedestals with footers, and/or directly embedded poles.

Temporary areas of disturbance would be restored in accordance with the Restoration and Integrated Weed Management Plan (Appendix M). The BAAH switchyard would be covered under the Project-specific SWPPP and Construction General Permit described for the Project components, which requires implementation of BMPs to control stormwater run-on and runoff from construction work sites.

The loop-in transmission would also implement PDF HWQ-1, which requires preparation of a DESCP, which would reduce the impact of runoff during construction, operation, and maintenance (see PDF HWQ-1). In addition, a Fugitive Dust Control Plan (Appendix I) would be implemented during all grading, vegetation removal, and construction activities in the same manner as for the on-site Project site components.

With adherence to existing regulations and implementation of the Project-specific SWPPP, DESCP, and Fugitive Dust Control Plan, impacts from construction of the loop-in transmission lines related to water and wind erosion and soil compaction would be less than significant.

Loop-in Transmission Line

Construction of the loop-in transmission lines would require grading and excavation or drilling for installation of structures. Similar to the Project site component construction, the loop-in transmission would result in temporary and permanent disturbance within the loop-in transmission corridor. The overhead 500-kV loop-in transmission line structure foundations would be excavated to a depth of 45 feet or more and may include concrete supports, depending on final engineering design. Disturbance within the two 200-foot loop-in transmission corridors would be limited to tower pads, access roads, and temporary pull and tensioning sites, with the exact disturbance to be determined based on the location of the two 500 kV loop-in transmission lines within the 2,000-foot survey corridor. The remainder of the survey corridor would not be disturbed.

Temporary areas of disturbance would be restored in accordance with the Restoration and Integrated Weed Management Plan (Appendix M). The loop-in transmission would be covered under the Project-specific SWPPP and Construction General Permit described for the Project components previously, which requires implementation of BMPs to control stormwater run-on and runoff from construction work sites.

The loop-in transmission would implement PDF HWQ-1, which requires preparation of a DESCP, which would reduce the impact of runoff during construction, operation, and maintenance (see PDF HWQ-1). In addition, a Fugitive Dust Control Plan (Appendix I) would be implemented during all grading, vegetation removal, and construction activities in the same manner as for the on-site Project site components.

With adherence to existing regulations and implementation of the Project-specific SWPPP, DESCP, and Fugitive Dust Control Plan, impacts from construction of the loop-in transmission lines related to water and wind erosion and soil compaction would be less than significant.

Operation and Maintenance

Project Site Components

As shown in Table 4.11-1, all the soil types besides 108: Holtville loam and 111: Holtville-Imperial silty clay loams have a low K-factor, indicating low susceptibility to erosion. The two remaining soil types comprise 1.5% of the Project site (103.2 acres). Furthermore, operation and maintenance activities are not anticipated to involve substantial amounts of grading or soil movement that would cause a substantial loss of topsoil.

The Applicant would implement BMP 94 and DRECP CMA LUPA-BIO-5, which requires implementation of all applicable construction BMPs during the operation phase. Therefore, BMPs would be defined to minimize soil erosion during operation and maintenance activities such that impacts related to soil erosion and loss of topsoil would be reduced. Additionally, a large portion of the Project site would be revegetated in accordance with the Restoration and Integrated Weed Management Plan (Appendix M). Establishment of vegetative cover across the site would reduce erosion during operation and maintenance.

Permanent Project disturbance would occur during Project operation and maintenance at the operation and maintenance buildings, inverter-transformer stations, solar array posts, BESS, access roads, collector lines, substation, gen-tie, permanent fencing, and any other permanent Project component locations. These areas would be reclaimed after the Project's 30-year lifespan, and reclamation would occur in accordance with the Decommissioning and Revegetation Plan (Appendix M). Some areas, such as access routes, may be reclaimed earlier after they are no longer actively used for construction.

With revegetation of the site and implementation of the DESCP, which would include BMPs to control erosion and prevent soil loss, impacts during operation and maintenance of these Project components would be less than significant.

Breaker-and-a-Half Switchyard

As shown in Table 4.11-2, all the soil types within the BAAH switchyard area have a low or moderate soil erosion potential. Operation and maintenance activities are not anticipated to involve substantial amounts of grading or soil movement that would cause a substantial loss of topsoil.

As described above, the Applicant would be required to implement soil and erosion BMPs consistent with BMP 98 and CMA LUPA-BIO-5. With revegetation of temporary disturbance areas and implementation of operational BMPs per BMP 98 and CMA LUPA-BIO-5 to control erosion and prevent soil loss, impacts during operation and decommissioning would be less than significant.

Loop-in Transmission Line
As shown in Table 4.11-2, all the soil types within the loop-in transmission corridor have a low or moderate soil erosion potential. Operation and maintenance activities are not anticipated to involve substantial amounts of grading or soil movement that would cause a substantial loss of topsoil.

The Applicant would be required to implement soil and erosion BMPs consistent with BMP 98 and CMA LUPA-BIO-5. Additionally, areas of temporary disturbance within the loop-in-transmission corridor would be revegetated in accordance with the Restoration and Integrated Weed Management Plan (Appendix M). Establishment of vegetative cover across the site would reduce erosion during operation and maintenance.

With revegetation of temporary disturbance areas and implementation of operational BMPs per BMP 98 and CMA LUPA-BIO-5 to control erosion and prevent soil loss, impacts during operation and decommissioning would be less than significant.

Impact SOI-2

Would the project be located on expansive soil, as defined in Table 18-1-B of the UBC (International Code Council 1994), creating substantial direct or indirect risks to life or property? (*Less than significant)*

Construction, Operations and Maintenance
Project Site Components
Buildings, roads, and other structures constructed on soils with a moderate to very high shrink-swell classification have the potential to sustain damage without mitigation.

Within the Project Application Area, 99.4 percent of soils on the Project site have low shrink-swell classification and 0.6 percent have moderate shrink-swell classification, indicating that there is not a significant risk for expansive soil to occur on site. In addition, project-specific geotechnical investigations are being conducted by the Applicant to evaluate soil conditions and geologic hazards on the Project site, including expansive soils. Compliance with CBC requirements, as well as implementation of the recommendations included in the geotechnical reports, would further ensure construction of the Project site components does not directly or indirectly create substantial risk to life or property due to expansive soils, and impacts would be less than significant.

Breaker-and-a-Half Switchyard
As described above, buildings, roads, and other structures constructed on soils falling into the moderate to very high shrink-swell class have the potential to sustain damage without mitigation. The majority of the BAAH switchyard locations comprise soils with low shrink-swell potential; however, a portion of the area contains Niland loamy fine sand, which has a moderate shrink-swell potential (NRCS, n.d.).

Due to the low and moderate shrink-swell potential, there is no significant risk for expansive soil to occur within the BAAH switchyard. Project-specific geotechnical analysis is being conducted for the BAAH switchyard. Compliance with CBC requirements, as well as

implementation of the recommendations included in the geotechnical report, would further ensure construction of the BAAH does not directly or indirectly create substantial risk to life or property due to expansive soils, and impacts would be less than significant.

Loop-in Transmission Corridor
As described above, buildings, roads, and other structures constructed on soils falling into the moderate to very high shrink-swell class have the potential to sustain damage without mitigation. The majority of the loop-in transmission corridor locations comprise soils with low shrink-swell potential; however, a portion of the area contains Niland loamy fine sand, which has a moderate shrink-swell potential (NRCS, n.d.).

Due to the low and moderate shrink-swell potential, there is no significant risk for expansive soil to occur within the loop-in transmission corridor. Project-specific geotechnical analysis is being conducted for the loop-in transmission lines. Compliance with CBC requirements, as well as implementation of the recommendations included in the geotechnical report, would further ensure construction of these Project components does not directly or indirectly create substantial risk to life or property due to expansive soils, and impacts would be less than significant.

Impact SOI-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? (*No Impact*)

Project Site Components
No farmland occurs within the Project Application Area. The Project would have no impact on conversion of Farmland to non-agricultural use.

Breaker-and-a-Half Switchyard
No farmland occurs within the Project Application Area. The Project would have no impact on conversion of Farmland to non-agricultural use.

Loop-in Transmission Corridor
No farmland occurs within the Project Application Area. The Project would have no impact on conversion of Farmland to non-agricultural use.

Impact SOI-4

Would the project have a substantial adverse effect on state or federally protected wetlands? (*No Impact*)

Project Site Components
No federally protected wetlands occur within the Project Application Area, as discussed in Section 4.2: Biological Resources.

Breaker-and-a-Half Switchyard
No federally protected wetlands occur within the Project Application Area, as discussed in Section 4.2: Biological Resources.

Loop-in Transmission Corridor
No federally protected wetlands occur within the Project Application Area, as discussed in Section 4.2: Biological Resources.

4.11.3 Cumulative Impacts

Impacts of the Project would be considered cumulatively considerable if they would have the potential to combine with other past, present, or reasonably foreseeable future projects to become significant. The Project would not convert Farmland to non-agricultural use and would not affect federally protected wetlands. The Project would therefore not contribute to any cumulative impacts on Farmlands or federally protected wetlands.

The geographic scope for cumulative soils impacts is limited to development sites in close proximity to the Project site. This geographic scope is appropriate for soils because soils impacts, such as erosion and loss of topsoil, can affect adjacent sites but do not typically impact regional areas in a cumulative manner. A list of all cumulative projects within a 6-mile radius is provided in Table 4-1, and all renewable energy projects in Imperial County are listed in Table 4-2. Cumulative projects are shown in Figure 4-1 and 4-2.

Other cumulative foreseeable projects would result in impacts to native soils and habitat. Soil risks, such as expansive soils, are generally site-specific and depend on localized soil conditions and would not result in a cumulative impact. The adjacent cumulative projects may require some grading for transmission poles (North Gila-Imperial Valley 500 kV Transmission Project) which would result in the loss of topsoil. Grading and vegetation removal would increase erosion and sedimentation from wind and water. All cumulative solar projects would impact subsurface soils where posts or other infrastructure is located below the surface but would be located several miles from the Project, so would not cumulatively affect soils. The Project would contribute to the cumulative effects on soils during construction by spot grading and removing vegetation where necessary. Similar to the Project, all cumulative construction projects that disturb more than 1 acre (0.4 hectare) of land would be required to comply with the State of California Construction Stormwater General Permit, which requires preparation and implementation of a SWPPP. Erosion control BMPs in the SWPPP would minimize erosion and runoff. The SWPPP would need to be prepared to meet the requirements in the General Permit. Because all the cumulative projects larger than 1 acre would need to comply with the Construction General Permit and implement a sediment and erosion control BMPs consistent with State requirements, cumulative impacts related to soils would be less than significant.

Breaker-and-a-Half Switchyard
Construction and operation of the BAAH switchyard is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the BAAH switchyard would have a less than considerable contribution to cumulative impacts related to soils.

Loop-in Transmission Lines

Construction and operation of the loop-in transmission lines is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the loop-in transmission lines would have a less than considerable contribution to cumulative impacts related to soils.

4.11.4 Proposed Best Management Practices, Project Design Features, and Mitigation Plans

As part of the Project, the Applicant and other entities involved in construction and operation would implement BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM.

Project Site

Best Management Practices and Project Design Features

The Project would implement the following BMPs and PDFs related to soils. See Appendix D.1 for the full language of the BMPs.

- BMP 79 through BMP 97 (Soils)
- BMP 121 (Revegetation)
- BMP 123 and BMP 124 (Reclamation)
- PDF HWQ-1 Drainage Erosion and Sedimentation Control Plan (DESCP).

Conservation Management Actions

The Project would implement the following DRECP CMAs relevant to soils. See Appendix D.2 for the full language of the CMAs.

- LUPA BIO-7
- LUPA BIO-9
- LUPA BIO-16

Mitigation Plans

The Project would implement the following mitigation plans relevant to soils:

- Fugitive Dust Control Plan (Appendix I)
- Restoration and Integrated Weed Management Plan (Appendix M)

Breaker-and-and-Half Switchyard

The same BMPs, PDFs, CMAs, and mitigation plans that apply to the Project site would apply to the BAAH switchyard.

Loop-in Transmission Line

The same BMPs, PDFs, CMAs, and mitigation plans that apply to the Project site would apply to the loop-in transmission lines.

4.11.5 Laws, Ordinances, Regulations, and Standards Compliance

The federal and State LORS that may apply to the Project soils are summarized in Table 4.11-5 and Table 4.11-6, respectively. Imperial County does not have relevant policies or ordinances related to soils.

Table 4.11-5 Federal Laws, Ordinances, Regulations, and Standard

LORS	Applicability	Compliance
1972 Amendments to Federal Water Pollution Control (Clean Water Act including 1987 amendments)	Regulates stormwater and non-storm water discharges from construction and industrial activities	The Project would obtain a Construction General Permit and implement a SWPPP to minimize soil erosion from the Project site.
Natural Resource Conservation Service (NRCS) (1983) National Engineering Handbook Sections 2 and 3	Standards for soil conservation	The Project would adhere to the soil standards stated in the NRCS handbook.
43 CFR § 4180.1 – Fundamentals of Rangeland Health	The BLM is required to follow standards and guidelines consistent with 43 CFR § 4180.1 – Fundamentals of Rangeland Health. The BLM Soil Resources Program has developed 5-year strategies for management and conservation of soil resources on BLM-administered lands to meet these requirements	The Project would adhere to the standards and guidelines of 43 CFR § 4180.1 and comply with the requirements of the BLM Soil Resource Program.

Table 4.11-6 State Laws, Ordinances, Regulations, and Standards.

LORS	Applicability	Compliance
SWRCB Construction Activities General Permit (SWRCB Order No. Order WQ 2022-0057-DWQ, NPDES No. CAS000002).	A National Pollutant Discharge Elimination System (NPDES) California General Activities Construction Permit is necessary if an area greater than one acre will be disturbed. Industrial facilities (including power plants) with potential to affect storm water discharges are required to obtain an NPDES permit during operation (Industrial Storm Water General Permit).	The Project would obtain coverage under the Construction General Permit and would prepare a SWPPP in compliance with the permit requirements.
California Public Resource Code § 25523(a)	Provisions relating to the manner in which the proposed facility is to be designed, sited, and operated to protect environmental quality and assure public health and safety.	The Project would adhere to the provisions presented in California Public Resource Code § 25523(a).

LORS	Applicability	Compliance
Uniform Building Code	Chapter 18 of the International Building Code and Table 18-1-B of the Uniform Building Code (ICC 2000 and ICC 1997) describe the allowable soil bearing capacity of different types of soils, including expansive soils. Project construction would comply with soil and foundation recommendations in accordance with Uniform Building Code requirements.	The Project would adhere to the requirements of the Uniform Building Code.
California Building Standards Code (CBC)	Title 24, Part 2 of the CBC is administered by the California Building Standards Commission. Under state law, all building standards must be centralized in Title 24 to be enforceable. The CBC sets the requirements for general building design and construction requirements relating to fire and life safety, structural safety, and access compliance. CBC provisions provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures and certain equipment.	The Project would adhere to the requirements of the CBC.

4.11.6 Agencies Contacted and Permits

A list of agencies that were contacted during preparation of this application is provided in Appendix E.1. Permits required to construct, operate, and maintain the project, including the BAAH, and loop-in transmission line, are summarized in Table E.2.

4.11.7 References

California Department of Conservation (CDOC), Division of Land Resource Protection, and Farmland Mapping and Monitoring Program. 2016. "California Important Farmland: Most Recent." Map service (Updated biannually). Vector digital data. "Perkins East Mesa Important Farmland" created by Panorama Environmental, Inc.: Using Arc GIS (01/14/2024). Last updated September 28, 2023. https://hub.arcgis.com/maps/99a6a743fb0241efab22f0b19668b4ba/about.

Soil Science Division Staff. 2017. *Soil Survey Manual*. Issued March 2017 Minor Amendments February 2018. Agriculture Handbook No. 18. USDA Department of Agriculture.

USDA Natural Resources Conservation Science. 2004. *Understanding Soil Risks and Hazards*. Edited by Gary B Muckel. Lincoln, NE: National Soil Survey Center.

USDA Natural Resources Conservation Service (NRCS). 2017. "Part 618 Subpart A – Soil Properties and Qualities." In *Title 430 — National Soil Survey Handbook*. https://www.nrcs.usda.gov/resources/guides-and-instructions/national-soil-survey-handbook.

———. n.d. "National Cooperative Soil Survey (NCSS)." Vector digital data, raster digital data, tabular digital data. "Custom Soil Resources Report for Imperial County, California, Imperial Valley Area" generated by Panorama Environmental, Inc.: Using Web Soil Survey (WSS) (12/19/2023). Accessed December 19, 2023. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

USDA RUSLE Development Team. 2001. *Revised Universal Soil Loss Equation Version 2*. https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/maryland/revised-universal-soil-loss-equation-version-2.

4.12 Traffic and Transportation

This section discusses existing transportation facilities within the vicinity of the Project Application Area and the impacts on traffic and transportation that are anticipated to result from the Project. This section addresses conditions in Imperial County relevant to roadways, transportation resources, and traffic circulation that could potentially be affected by the Project. Section 4.12.1 discusses the environmental setting. Section 4.12.2 identifies the potential traffic and transportation impacts that may result from Project construction, operation and maintenance, and decommissioning. Section 4.12.3 evaluates potential cumulative impacts. Section 4.12.4 discusses measures to address impacts. Section 4.12.5 provides an overview of applicable federal, State, and local laws, ordinances, regulations, and standards and the Project's compliance therewith.

4.12.1 Environmental Setting

Transportation Network

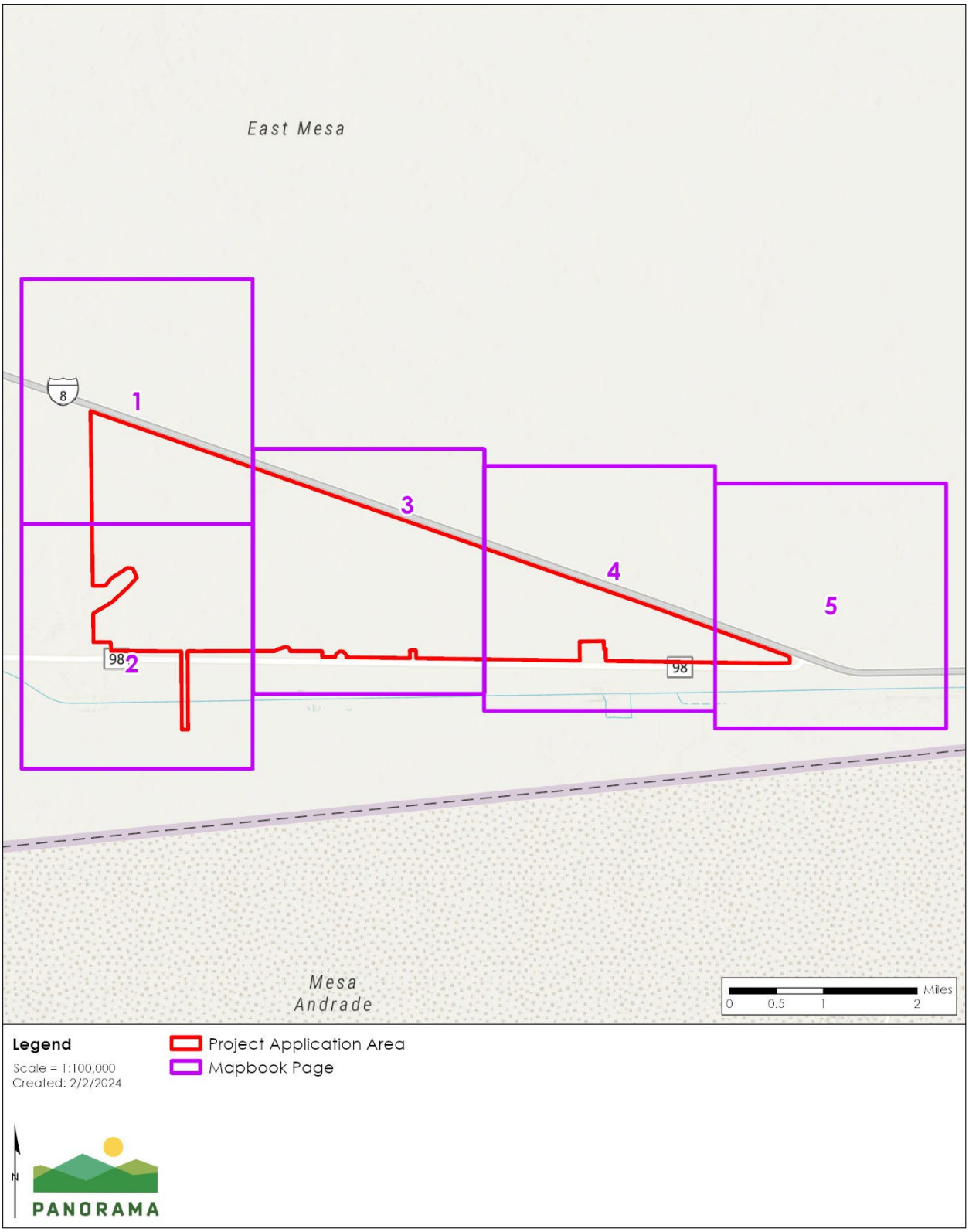
Regional Access

Regional access to the Project Application Area is via Interstate 8 (I-8), State Route 98 (SR 98), SR 115, and Evan Hewes Highway. I-8 is the primary east–west route through Imperial County and consists of two travel lanes in each direction. I-8 is a critical transportation route as it is the primary highway connecting San Diego, California, and Yuma, Arizona. I-8 is located approximately 100 feet north of the Project Application Area. SR 98 is an east–west highway in southern Imperial County and primarily consists of one travel lane in each direction. Within the City of Calexico, SR 98 becomes a four lane highway with two travel lanes in either direction. SR 98 is located approximately 285 feet south of the Project site and intersects I-8 approximately 350 feet east of the Project Application Area. Evan Hewes Highway is an east–west undivided roadway with one travel lane in each direction. Evan Hewes Highway intersects SR 115 approximately 4 miles west of the Project Application Area. SR 115 is a primarily north–south two lane highway, with four lanes of travel in some segments. Access to the Project site would be provided via SR 98. Within the vicinity of the Project Application Area, Evan Hewes Highway parallels I-8 approximately 110 feet to the north until becoming SR 115. Bike lanes and bus stops are not provided along Evan Hewes Highway.

Local Transportation Network

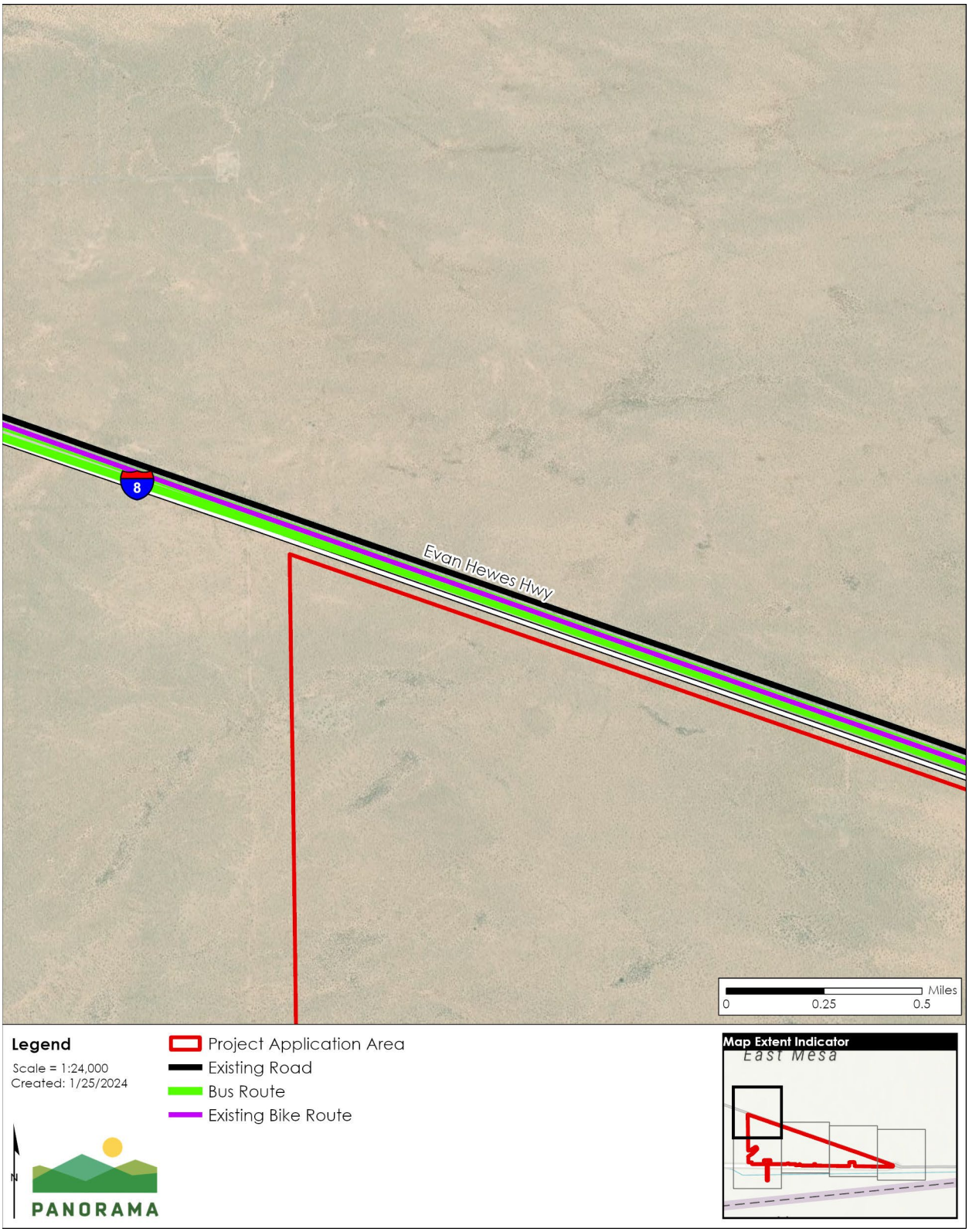
The local transportation network is provided in Figure 4.12-1. There are unpaved, unauthorized OHV routes within the Project area that have not been designated for use by the BLM. These routes are not expected to be used as transportation routes during construction and the Project would close the unauthorized OHV routes that cross through the Project Application Area.

Figure 4.12-1 Local Transportation Network Mapbook Overview



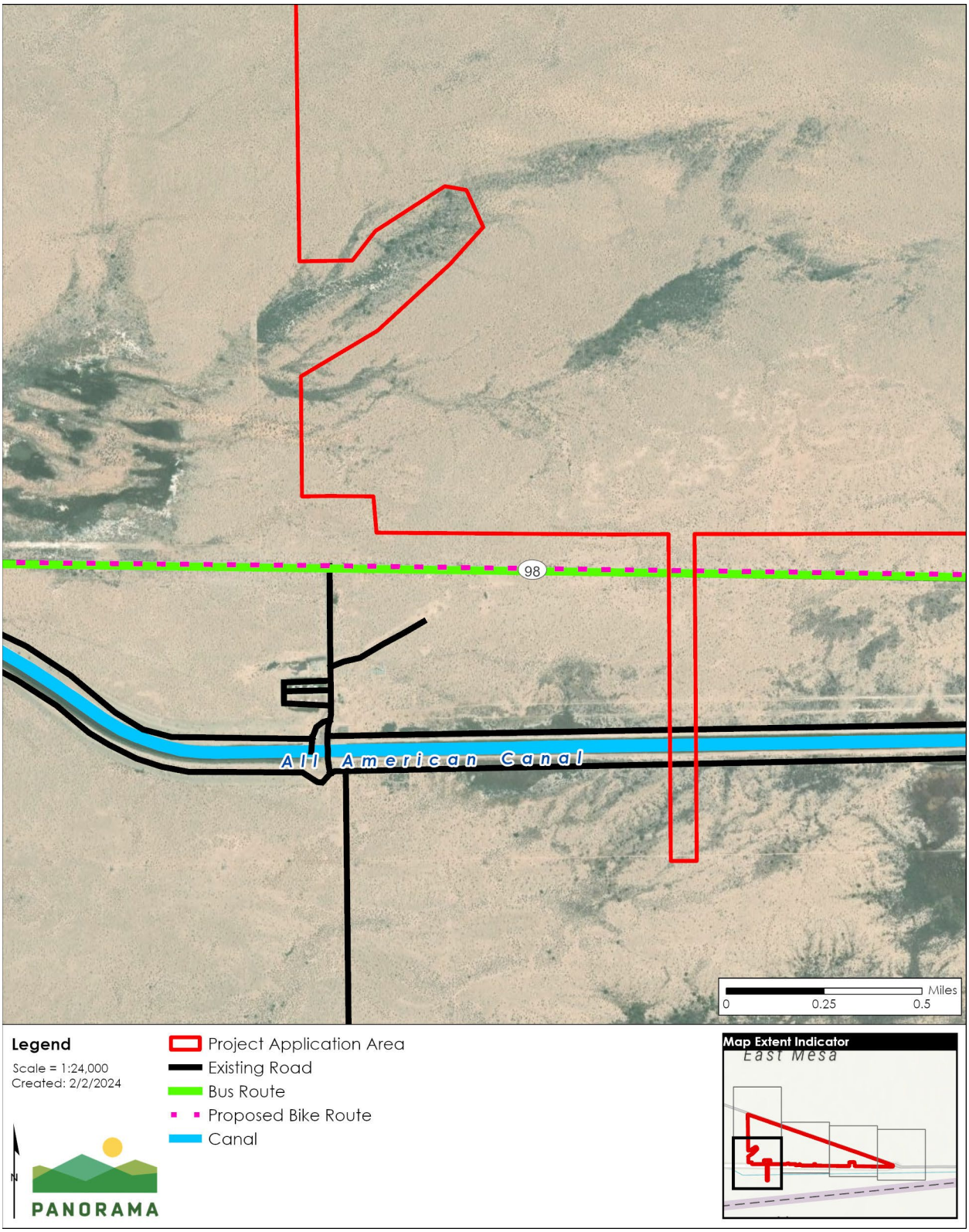
Source: (Intersect Power 2023a)

Figure 4.12-2 Local Transportation Network Mapbook Page 1



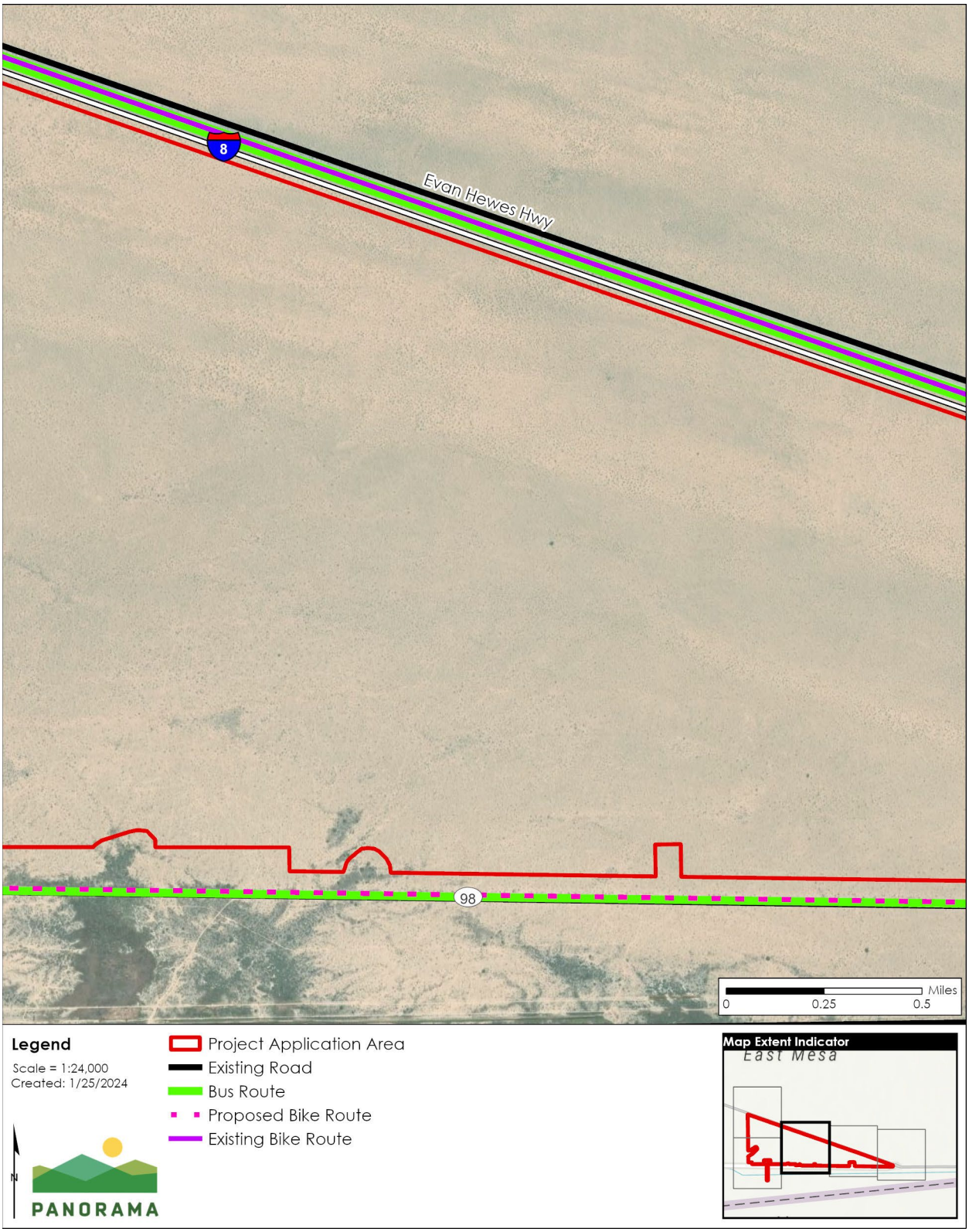
Source: (Intersect Power 2023a) (U.S. Census Bureau 2022) (Caltrans 2023b) (Caltrans 2023a) (U.S. Geological Survey (USGS) 2023)

Figure 4.12-3 Local Transportation Network Mapbook Page 2



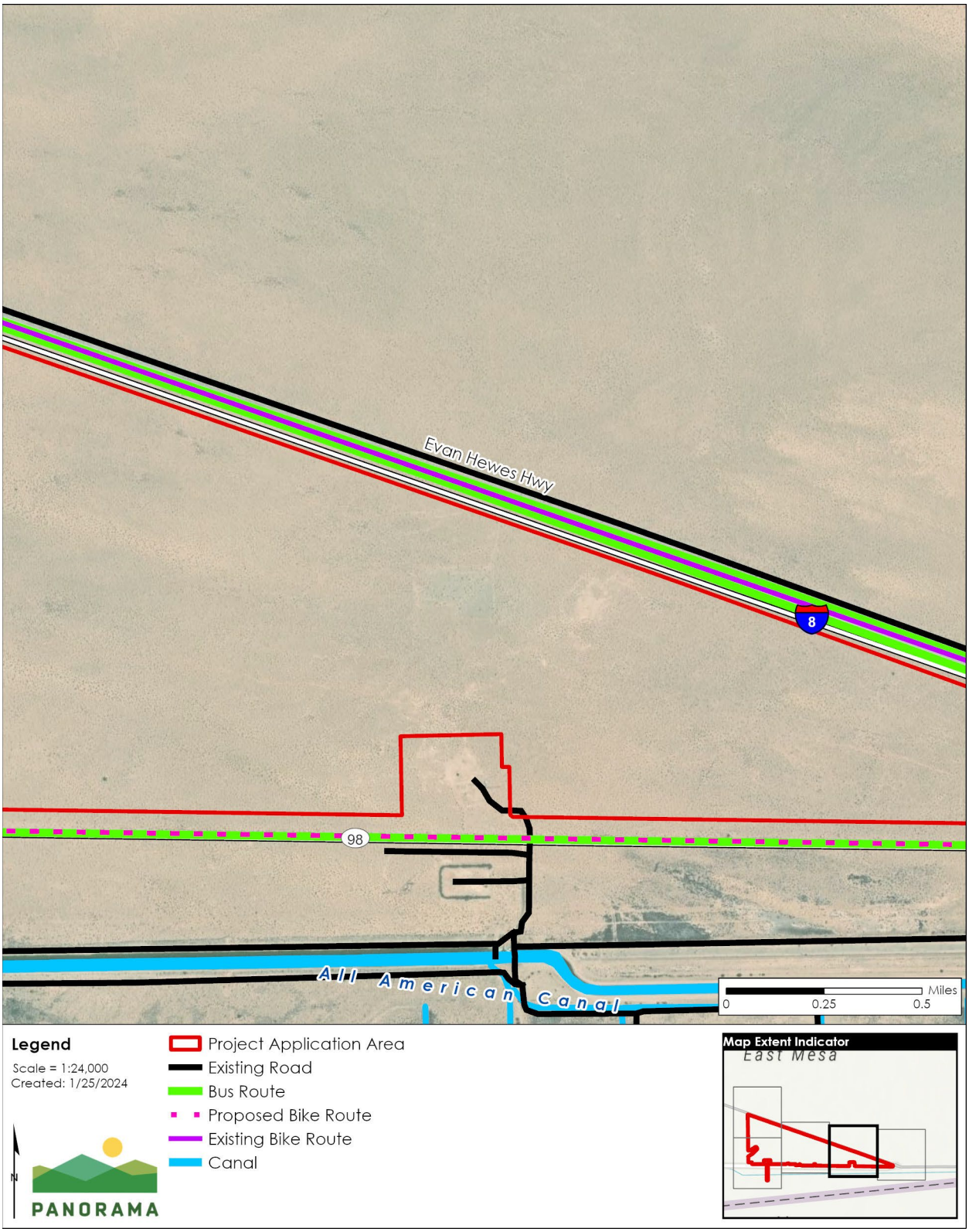
Source: (Intersect Power 2023a) (U.S. Census Bureau 2022) (Caltrans 2023b) (Caltrans 2023a) (U.S. Geological Survey (USGS) 2023)

Figure 4.12-4 Local Transportation Network Mapbook Page 3



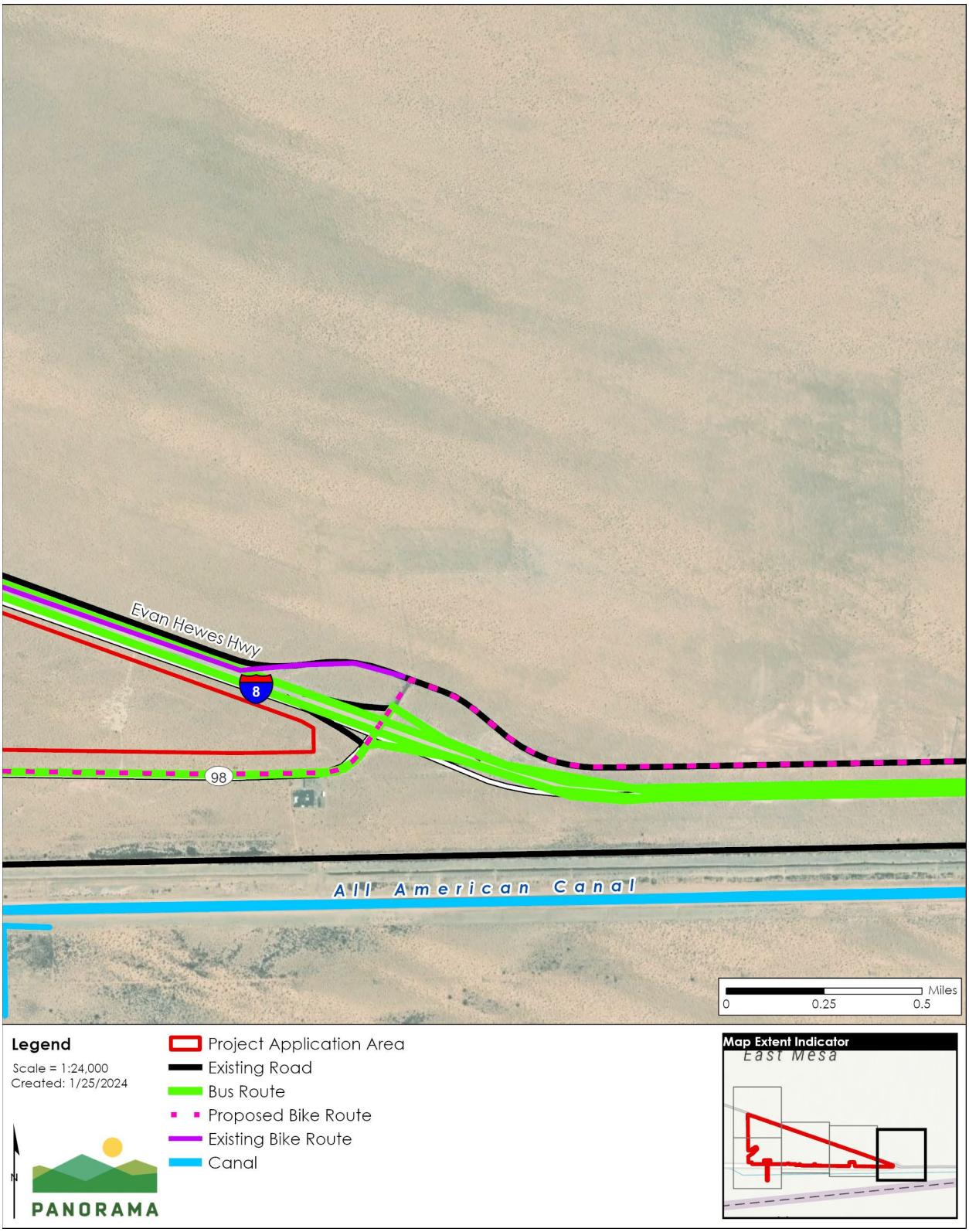
Source: (Intersect Power 2023a) (U.S. Census Bureau 2022) (Caltrans 2023b) (Caltrans 2023a) (U.S. Geological Survey (USGS) 2023)

Figure 4.12-5 Local Transportation Network Mapbook Page 4



Source: (Intersect Power 2023a) (U.S. Census Bureau 2022) (Caltrans 2023b) (Caltrans 2023a) (U.S. Geological Survey (USGS) 2023)

Figure 4.12-6 Local Transportation Network Mapbook Page 5



Source: (Intersect Power 2023a) (U.S. Census Bureau 2022) (Caltrans 2023b) (Caltrans 2023a) (U.S. Geological Survey (USGS) 2023)

Access to portions of the 500 kV loop-in transmission corridors would require use of the unpaved transmission line roads to the south of the All-American Canal. The 500 kV loop-in transmission access roads would be located on lands managed by the BLM and BOR and would cross existing rights-of-way (ROWs) held by Imperial Irrigation District (IID) and SDG&E. Construction access south of the All-American canal would be achieved either via one of the existing, private bridges within the vicinity of the 500 kV loop-in transmission corridors, in coordination with IID and BOR and dependent upon construction vehicle weight and bridge capacity, via the public, commercial bridge crossing at Gordon Wells Road, approximately 14 miles east of the 500 kV loop-in transmission corridors, or via helicopter. Use of the Gordon Wells Road crossing would require use of an existing, unimproved open route south of the All-American Canal.

Pedestrian and Bicycle Facilities

Pedestrian Facilities

The Project Application Area is within a rural area surrounded by highways and agricultural roadways. No pedestrian facilities are within the Project vicinity (Count of Imperial 2021).

Bicycle Facilities

Bicycle routes in Imperial County are identified in the Imperial County Transportation Commission Regional Active Transportation Plan (Imperial County Transportation Commission [ICTC] 2022). The Regional Active Transportation Plan utilizes the four bicycle facility classifications designated by Caltrans. The bicycle facilities classifications are as follows:

- Class I: Bicycle paths are physically separated from motor vehicle travel routes, with exclusive rights-of-way for nonmotorized users like bicyclists and pedestrians. Bicycle paths require physical buffers to ensure safety and comfort of the user.
- Class II: Bicycle lanes are one-way facilities that carry bicycle traffic in the same direction as the adjacent motor vehicle traffic. Bicycle lanes are typically located along the right side of the street 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 are suggested bicycle corridors marked by signs designating a preferred street between destinations. Bicycle routes are recommended where traffic volumes and roadway speeds are low.
- Class IV: Separated bikeways are bicycle specific facilities that combine the user experience of a multiuse path with the on street infrastructure of a conventional bicycle lane. They are physically separated from motor vehicle traffic and are designated to be distinct from any adjoining sidewalk.

An existing Class III bike route is located along Evan Hewes Highway parallel to I-8 directly north of the Project Application Area. A Class II bike lane is proposed along SR 98 to the south of the Project site. There are no Class I or Class IV bicycle facilities within the Project vicinity (Caltrans 2019).

Transit Service

Public transportation services in Imperial County are provided by Imperial Valley Transit (IVT) and Yuma County Area Transit (YCAT). IVT provides fixed-route bus services as well as on-demand services (IVT Access, IVT MedTrans, IVTRide) for individuals with specific transportation needs, including non-emergency medical needs. IVT bus services are categorized into three route types (Moore and Associates 2021):

- **Fixed routes:** Operate over a set pattern of travel and with a published schedule (Imperial Valley Transit, n.d.).
- **Deviated fixed routes:** Provide bus services for persons with disabilities and limited mobility. Passengers call and request services for the communities of Seeley, Ocotillo, and eastern Salton Sea.
- **Remote zone routes**. Operate once a week and provide connections to distance communities in Imperial County.

No IVT fixed routes or deviated fixed routes are within the vicinity of the Project Application Area. YCAT primarily provides bus services within Yuma County, Arizona. Two YCAT routes operate within Imperial County: Route 10 and Route 5 (YCIPTA, n.d.). Route 10 bus connects Winterhaven and the city of El Centro via I-8. No Route 10 bus stops are within the Project site vicinity.

Airport Facilities

Three public airports are located within 21 miles of the Project Application Area, as shown in Table 4.12-1, below. The Holtville and Calexico airports consist of a single paved runway, and the Imperial County airport consists of two paved runways.

Pipelines and Canals

The IID operates approximately 1,700 miles of canals within Imperial County (County of Imperial 2008). The All-American Canal runs east-west to the south of the Project Application Area and the Project's 500 kV loop-in transmission lines would cross the All-American Canal approximately 0.4 mile south of SR 98. The All-American Canal is approximately 80 miles long and up to 200 feet wide (Imperial Irrigation District, n.d.). The canal delivers approximately 3.1 million acre-feet of Colorado River water to nine cities and 500,000 acres of agricultural land in Imperial Valley. IID's Highline Canal runs north-south and is located approximately 3 miles west of the Project Application Area.

Table 4.12-1 Existing Airports

Airport name	Location	Distance from Project site (miles)
Holtville	City of Holtville	7
Calexico	City of Calexico	17
Imperial County	City of Imperial	21

Source: (County of Imperial 2008)

Existing Traffic Conditions and Level of Service

Definition of Level of Service

Roadways and intersections are rated at various levels of service (LOS) to describe the roadway operating condition. LOS ratings range from LOS A, which represents the best range of operating conditions, to LOS F, which represents the worst operating conditions. LOS can be estimated based on a road's traffic volume to road capacity ratio and the average delay experienced by vehicles at an intersection. LOS C is the minimum operating requirement on all roadway segments and intersections within Imperial County (County of Imperial 2008). Caltrans aims to maintain LOS on its roads at the threshold between LOS C and LOS D.

Level of Service in the Project Vicinity

The *Transportation Impact Analysis Report* evaluates two existing intersections along SR 98. Data for the existing intersections, which operate at LOS A for the worst movement from the *stop-controlled side streets* (SSSC), is presented in Table 4.12-2.

Table 4.12-2 Existing Intersection Levels of Service

Intersection	Control	AM peak period (6:00 am to 9:00 am)		PM peak (3:00 pm to 7:00 pm)	
		Delay (seconds per vehicle)	LOS	Delay (seconds per vehicle)	LOS
SR 98/ I-8 westbound ramps	Side-street stop-controlled intersection	9.0	A	9.8	A
SR 98/ I-8 eastbound ramps	Side-street stop-controlled intersection	9.7	A	9.9	A

Source: (David Evans and Associates, Inc 2023)

Traffic Volumes

Existing turn movement counts were conducted in October 2023 for the AM peak period (6:00 am to 9:00 am) and the PM peak period (3:00 pm to 7:00 pm). The average daily traffic count for SR 98 was approximately 2,720 vehicles per day at the I-8 westbound and eastbound ramps. See the *Transportation Impact Analysis Report* in Appendix T for more information.

Truck Routes – Weight and Load Limitations

Per section 10.12.020 of the Imperial County Code of Ordinances it is unlawful to operate and move vehicles and loads upon county highways that are not in compliance with the requirements in the California Vehicle Code (CVC). CVC section 35550 stipulates the following weight and load limitations:

1. The gross weight imposed upon the highway by the wheels on any one axle of a vehicle shall not exceed 20,000 pounds and the gross weight upon any one wheel,

or wheels, supporting one end of an axle and resting upon the roadway, shall not exceed 10,500 pounds.

2. The gross weight limit provided for weight bearing upon any one wheel, or wheels, supporting one end of the axle shall not apply to vehicles the loads of which consist of livestock.
3. The maximum wheel load is the lesser of the following:
    a. The load limit established by the tire manufacturer, as molded on at least one sidewall of the tire.
    b. A load of 620 pounds per lateral inch of tire width, as determined by the manufacturer's rated tire width as molded on at least one sidewall of the tire for all axles except the steering axle, in which case paragraph (i) applies.

The Project would include the transportation of oversize loads and would meet the requirements for permitting as required for any CPUC permitting of the loop-in transmission line.

4.12.2 Impact Analysis

Methodology

The Project would add traffic to SR 98 and I-8. Roadway facilities were evaluated according to methodology outlined in the Highway Capacity Manual, 6th Edition. The capacity analysis used existing intersection geometrics and traffic volumes to analyze AM peak period and PM peak period conditions. To conduct the transportation and traffic analysis, Project-related traffic was compared with existing traffic LOS in the analysis area to determine whether a change in the capacity of the existing transportation system would occur as a result of construction and operation and maintenance of the Project.

Impact Evaluation Criteria

The potential for impacts to traffic and transportation and their uses was evaluated using the criteria described in the CEQA Environmental Checklist (Appendix G of the CEQA Guidelines). For the purposes of this traffic and transportation analysis, a significant impact would occur if the Project:

- Conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflicts or is inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
- Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); and/or
- Results in inadequate emergency access.

The CEC application requirements include a discussion of Project-related hazardous materials to be transported to or from the Project Application Area during construction and operation.

Impact TR-1

Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? (*Less than significant)*

Construction

Project Site

Vehicle Trips and Access Routes. CEQA no longer considers LOS as part of the CEQA criteria. However, the Caltrans Guide for the Preparation of Traffic Impact Studies (December 2002) states "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities." To review the Project's compliance with the Caltrans policy, the following section reviews the Project construction traffic related LOS on nearby roads.

Project construction would generate additional vehicle travel on roadways from construction worker vehicles and truck trips associated with material and equipment delivery. Construction activities would include the movement of light, medium, and heavy-duty vehicles along I-8, SR 98, and County- and city-maintained roadways. Construction is expected to begin in early 2026 and last approximately 24 months. Construction would generate a maximum of 1,024 AM peak period and 1,024 PM peak period vehicle trips from workers, delivery trucks, and water trucks. However, the Construction Traffic Control Plan detailed in the *Transportation Impact Analysis Report* in Appendix T would implement a rideshare program that would reduce worker vehicle trips by a minimum of 50 percent based on the definition of "ridesharing" in the CVC.[1] Therefore, construction would generate a maximum 514 AM peak period and 514 PM peak period vehicle trips with the implemented rideshare program.

The Transportation Impact Analysis Report evaluates two existing intersections along SR 98 and the primary Project driveway (i.e., Project Driveway A), as shown in Figure 2 of the report. The study intersections include the following:

- SR 98/I-8 westbound ramps
- SR 98/I-8 eastbound ramps
- SR 98/Project driveway A

The Project site would be accessed via five driveways along SR 98. The analysis assumes that Project Driveway A would be used as the primary site access driveway during construction and serve as permanent access to the O&M building following construction. Analysis of the Project's site access during construction conservatively assumes that all Project vehicle trips would enter and exit through Project Driveway A. The other four driveways to the Project site would provide additional access during construction. The LOS is based on the conservative assumption that all construction workers would depart the Project site during a single peak

[1] The CVC defines *ridesharing* as, "two or more persons traveling by any mode, including, but not limited to, carpooling, vanpooling, shuttles, jitney, and public transit."

period. Results of the analysis for the study intersections are summarized in Table 4.12-3, below, and in Table 5-2 of the *Traffic Impact Analysis Report*.

Table 4.12-3 Temporary Construction Conditions with Project Intersection LOS without Mitigation

Intersection	Control type	AM peak period (6:00 am to 9:00 am)		PM peak period (3:00 pm to 7:00 pm)	
		Delay (seconds per vehicle)	LOS	Delay (seconds per vehicle)	LOS
SR 98/I-8 westbound ramps	SSSC	10.8	B	49.1	E
SR 98/I-8 eastbound ramps	SSSC	15.8	C	13.5	B
SR 98/Project driveway A	SSSC	13.8	B	27.0	D

Source: (David Evans and Associates, Inc 2023)

As shown in Table 4.12-3, with implementation of the Project, all intersections would operate at a LOS C or better during the AM peak period.

In the PM peak period, the stop-controlled left turns from the I-8 westbound off-ramp operates at LOS E and Project driveway A operates at LOS D. LOS E would be below the target LOS. The I-8 westbound off-ramp would experience delays of 50 seconds per vehicle, which is the threshold for acceptable delays at side-street stop-controlled intersections. Departing workers using the I-8 westbound ramp and Project driveway A during the PM peak period has the potential to cause substantial delays to the stop-controlled off-ramp traffic.

While the Project PM peak traffic LOS would potentially exceed the Caltrans endeavored goal of LOS D on State highway facilities, the Project would implement a Construction Traffic Control Plan, which would include traffic control measures to reduce traffic hazards. The measures would include the implementation of a trip reduction (i.e., rideshare/carpool) program for the construction workforce that would reduce construction commute traffic by approximately 50 percent. Other measures would include flagging operations during periods of concentrated inbound or outbound worker traffic and the preparation of a traffic monitoring plan to include monitoring of the I-8 off-ramp queues during commute periods to see if delay is occurring, its duration, and frequency and potentially adaptive management. BMP 103 requires signs to be placed along construction roads to identify speed limits and travel restrictions that would reduce traffic hazards.

New Project access roads and driveways would require an encroachment permit from Caltrans for connection to SR 98. In accordance with BMP 55, the applicants would consult with local planning authorities regarding increased traffic due to Project construction. Additionally, the applicant would coordinate with Caltrans prior to construction to identify measures that would improve safety along SR 98 and I-8. The impact would be less than significant.

Roads, Bicycle Routes, and Pedestrians. Temporary lane, road, and bicycle route closures would not occur during Project construction. There are no pedestrian facilities within the Project vicinity. With implementation of the Construction Traffic Control Plan, Project construction would meet acceptable LOS standards during the PM peak period, which would reduce traffic impacts to bicycle routes. No impacts to roads, bicycle routes, or pedestrians from route closures would occur.

Transit Network. The YCAT Route 10 bus operates along I-8 within the Project vicinity. Construction of the Project could result in temporary transit delays and reduced transit access during the PM peak period. The temporary transit delays and reduced transit access would be considered a significant impact on transit. As detailed above, a Construction Traffic Control Plan would be required to reduce traffic delays, and Project construction would meet acceptable LOS standards. The impact would be less than significant.

Ordinance or Policy. Table 4.12-4, Table 4.12-5, and Table 4.12-6 list federal, State, and local ordinances and policies applicable to the Project. As noted in the tables, the Project would not conflict with any ordinances or policies, and the impact would be less than significant.

Breaker-and-a-Half Switchyard

While the BAAH switchyard would require substantially less traffic during its construction, the BAAH switchyard construction traffic is included in the traffic study described above to ensure the full traffic scenario was considered. The roads, bicycle routes, pedestrians, transit networks and ordinances or policies are the same as described for the Project Site. Impacts would be less than significant.

Loop-in Transmission Lines

The loop-in transmission lines would require minimal traffic during its construction due to the limited work required for the lines and the short duration of the work (approximately 2 months). However, the loop-in transmission lines construction traffic is included in the traffic study described above for the Project Site to ensure the full traffic scenario was considered. The roads, bicycle routes, pedestrians, transit networks and ordinances or policies are the same as described for the Project Site. Impacts would be less than significant.

The 500 kV loop-in transmission lines would require the temporary closure of SR 98 for the stringing of the loop-in transmission over SR 98. Temporary road closures could affect motor vehicle and bicycle circulation during stringing activities. There are no pedestrian facilities within the vicinity of the proposed 500 kV loop-in transmission lines and BAAH switchyard. Stringing transmission wire over SR 98 would occur for a very short period of time, less than 30 minutes. Any full road closures would be coordinated with Caltrans and the appropriate permits would be acquired. Access to SR 98 would be restored following the stringing of the loop-in transmission lines over SR 98. Development and implementation of the Construction Traffic Control Plan would reduce impacts from lane, road, and bicycle route closures during construction. Additionally, BMP 55 requires the applicant to consult with local planning authorities regarding increased traffic as a result of Project construction. In accordance with

BMP 103, signs would be placed along construction roadways to identify speed limits and travel restrictions and minimize traffic hazards. Therefore, the impact would be less than significant.

Operation and Maintenance

Project Site

The Project would be staffed by up to 24 permanent staff for ongoing facility maintenance and repairs and would be supported by up to 5 additional office staff. This workforce would include administrative and management personnel, security, and operation and maintenance personnel. Operation and maintenance personnel would access the site via SR 98. The vehicle trips associated with the up-to 29 operation and maintenance personnel would be negligible and would not impact transportation or traffic within the Project vicinity. BMP 102 requires all Project traffic to be restricted to roads developed for the Project. The Project would not create any new conflicts with operation of roadways, bicycle routes, pedestrian facilities, or transit routes. Lane or road closures would not be required during operation and maintenance activities. The use of regional roadways by workers and heavy trucks during operation and maintenance would not conflict with any program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle routes, and pedestrian facilities. Therefore, the impact would be less than significant.

Breaker-and-a-Half Switchyard

Operation and maintenance activities for the BAAH switchyard would be similar to current operations conducted by SDG&E for the existing SWPL transmission line. Following construction of the BAAH switchyard, traffic impacts would be greatly reduced. SDG&E would conduct regular ground and aerial inspections using helicopters and drones. The Project Application Area is not within 1,000 feet of any airport. Helicopters and drones would be operated in accordance with the Flight Operations Plan. Vehicle trips generated by inspection and maintenance activities would have minimal effects on LOS, transportation, or traffic within the vicinity of the BAAH switchyard. Impacts would be less than significant.

Loop-in Transmission Lines

Operation and maintenance activities for the 500 kV loop-in transmission corridors would be similar to current operations conducted by SDG&E for the existing SWPL transmission line. Following construction of the 500 kV loop-in transmission corridors, traffic impacts would be greatly reduced. SDG&E would conduct regular ground and aerial inspections using helicopters and drones. The Project Application Area is not within 1,000 feet of any airport. Helicopters and drones would be operated in accordance with the Flight Operations Plan. Vehicle trips generated by inspection and maintenance activities would have minimal effects on LOS, transportation, or traffic within the vicinity of the 500 kV loop-in transmission corridors. Impacts would be less than significant.

Impact TR-2

Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)? (*Less than significant*)

Construction

Project Site

CEQA Guidelines section 15064.3(b) identifies vehicle miles traveled (VMT) as the most appropriate measurement of transportation impacts. VMT measures the amount and distance a vehicle travels to and from a project. Higher VMT indicates increases in greenhouse gas emissions, poorer air quality, and potential collisions with other vehicles and wildlife. Increases in VMT also negatively impact other road users (e.g., pedestrians, transit users, bicyclists) (OPR 2018). In accordance with the Technical Advisory on Evaluating Transportation Impacts in CEQA, section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote 1) reduction of GHG emissions; 2) development of multimodal transportation networks; and 3) a diversity of land uses. Per CEQA Guidelines Section 15043.3(b.3):

> If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

In accordance with CEQA Guidelines section 15043.3(b.3), a qualitative analysis of construction traffic would be appropriate for the Project. The Project would generate temporary vehicle trips during construction. Temporary workers needed for construction are expected to reside in Imperial County, CA or Yuma County, AZ communities adjacent to the Project. Workers are not expected to commute for long distances to reach the Project Application Area because they would be residing in areas within the Project vicinity. Construction of the Project would generate approximately 1,024 AM peak period and 1,024 PM peak period vehicle trips. VMT created by construction of the Project would be temporary. All construction-related truck trips would be temporary and only in volumes necessary to deliver equipment and materials to the Project Application Area. Upon completion of construction, all truck trips and worker commute trips related to construction would cease. Construction of the Project would not generate permanent VMT, and there would be no net increase in VMT once construction is complete. To ensure VMT is reduced to the extent feasible, the Applicant would be required to prepare a Construction Traffic Control Plan which includes a rideshare program that would reduce VMT. Therefore, the Project would result in a less than significant impact.

Breaker-and-a-Half Switchyard

Construction of the BAAH switchyard would be similar to construction of the Project site. Vehicle travel on roadways would occur from construction worker vehicles and truck trips associated with material and equipment delivery. Construction would be temporary and last approximately 10 months. All truck trips and worker commute trips related to construction

would cease upon completion of construction. Construction of the BAAH switchyard would be required to implement the Construction Traffic Control Plan which would reduce Project-related VMT. Therefore, impacts would be less than significant.

Loop-in Transmission Lines

Construction of the 500 kV loop-in transmission lines would be similar to construction of the Project site. Vehicle travel on roadways would occur from construction worker vehicles and truck trips associated with material and equipment delivery. Construction of the 500 kV loop-in transmission would be temporary and last approximately 2 months. All truck trips and worker commute trips related to construction would cease upon completion of construction. Construction of the 500 kV loop-in transmission lines would be required to implement the Construction Traffic Control Plan which would reduce Project-related VMT. Therefore, impacts would be less than significant.

Operation and Maintenance

Operation and maintenance would generate approximately 58 one-way worker vehicle trips. Guidance from OPR suggests that "new development projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact" (Governor's Office of Planning and Research (OPR) 2018b). The average number of trips that would be generated during operation and maintenance is less than 110 trips per day. Because the number of vehicle trips generated during operation and maintenance is below the numeric threshold at which a vehicle miles traveled (VMT) is considered potentially significant, the VMT impact during construction would be less than significant.

Breaker-and-a-Half Switchyard

SDG&E would operate and maintain the BAAH switchyard using the same methods it currently uses to maintain the existing SWPL transmission line. The BAAH switchyard would be unattended and would not generate VMT. The frequency of maintenance of the BAAH would be similar to existing activities conducted by SDG&E for the SWPL transmission line. The Project would not conflict with CEQA Guidelines section 15064.3 subdivision (b), and the impact would be less than significant.

Loop-in Transmission Lines

SDG&E would operate and maintain the 500 kV loop-in transmission lines using the same methods it currently uses to maintain the existing SWPL transmission line. The loop-in transmission lines would be unattended and would not generate VMT. The frequency of maintenance of the transmission line would be similar to existing activities conducted by SDG&E for the SWPL transmission line. The Project would not conflict with CEQA Guidelines section 15064.3 subdivision (b), and the impact would be less than significant.

Impact TR-3

Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (*Less than significant*)

Construction

Project Site

Construction equipment and vehicles would access the Project site from SR 98 at five new access points. All new internal site roads would be private. During construction, all truck drivers would adhere to CVC regulations pertaining to licensing, size, weight, and load of vehicles operated on highways and local roads; safe operation of vehicles; and the transport of any hazardous materials. Use of SR 98 by heavy equipment and vehicles, and entrance and exit from the Project site by vehicle and heavy equipment would pose a hazard to bicyclists resulting in a significant impact. Prior to the initiation of construction activities, the applicant would meet with Caltrans to identify measures to improve safety on SR 98 and I-8. A Construction Traffic Control Plan would be implemented that contains measures such as flagging operations and traffic monitoring to minimize hazards as a result of Project construction. BMP 103 requires the placement of signs along construction roads to identify speed limits, travel restrictions, and other traffic information. With safety coordination with Caltrans and implementation of the Construction Traffic Control Plan and BMP 103, impacts would be reduced to less than significant.

Five driveways would be constructed along SR 98 for access to the Project site. The driveways would be linear with no obstructions. The driveways and access roads would not include any sharp curves or dangerous intersections. Construction of the Project access roads and driveways would not substantially increase hazards on SR 98 due to geometric design features or incompatible uses and therefore, impacts would be less than significant.

The use of heavy equipment could damage the surface of SR 98, where there would be a higher volume of heavy construction vehicle entry and exit. Damage to roadways would create a road hazard should the damaged area not be repaired, which would result in a significant impact. The Construction Traffic Control Plan, detailed in the *Transportation Impact Analysis Report* in Appendix T, includes a requirement for coordination with Caltrans including any pavement damage monitoring and rehabilitation once construction has been completed. Impacts from roadway damage would be less than significant.

Breaker-and-a-Half Switchyard

Construction traffic would access the BAAH switchyard from SR 98. Similar to construction of the Project site, all truck drivers would adhere to the CVC regarding licensing, size, weight, and load of vehicles operate on highways and local roads, safe operation of vehicles, and the transport of hazardous materials. The applicant would coordinate with Caltrans prior to construction to identify measures that would improve safety along SR 98 and I-8 and impacts would be less than significant.

The movement of heavy trucks and equipment along unpaved access roads and SR 98 for construction of the BAAH switchyard access could potentially result in damage to road

surfaces, which would be repaired as required through coordination with Caltrans. Hazards from roadway damage would be less than significant.

Loop-in Transmission Lines

Construction traffic would access the 500 kV loop-in transmission lines from SR 98 and unpaved, unnamed roadways. Similar to construction of the Project site, all truck drivers would adhere to the CVC regarding licensing, size, weight, and load of vehicles operate on highways and local roads, safe operation of vehicles, and the transport of hazardous materials. Any use of SDG&E and IID infrastructure to cross the All-American Canal would require approval by and coordination with SDG&E and IID to ensure safe travel conditions. The applicant would coordinate with Caltrans prior to construction to identify measures that would improve safety along SR 98 and I-8. Impacts would be less than significant.

Helicopters and drones may be utilized during construction of the 500 kV loop-in transmission lines for the purpose of stringing and hanging bird diverters during the second half of construction and for no more than a few days. Activities that pose a risk of falling objects would occur overhead of public and private roadways and the All-American Canal. Stringing across roadways during construction could cause a hazard to vehicles, pedestrians, and bicyclists in the area. The Project would temporarily increase hazards in these areas during construction as helicopters carrying loads and stringing conductor could drop materials on the roads and All-American Canal during work and could impact air traffic patterns. Helicopters would be carrying loads over congested areas, which could increase safety risks, causing a significant impact. Helicopters and drones would be operated in accordance with the Flight Operations Plan. The applicant would consult with local planning authorities (i.e., BOR and IID) regarding construction traffic, in accordance with BMP 55. Additionally, the Construction Traffic Control Plan would include traffic control measures such as positioning flaggers to minimize hazards during stringing activities. Impacts would be less than significant.

The movement of heavy trucks and equipment along unpaved access roads and SR 98 for construction of the 500 kV loop-in transmission lines could potentially result in damage to road surfaces, which would be repaired as required through coordination with Caltrans. Hazards from roadway damage would be less than significant.

Operation and Maintenance

Operation and maintenance activities would result in approximately 58 daily one-way vehicle trips. The vehicle trips associated with operation and maintenance would be negligible and would not increase hazards to bicyclists or pedestrians. The amount of operational daily vehicle trips would not damage roadway surfaces. Therefore, the Project would not create any hazards to vehicles, pedestrians, or bicyclists. The impact would be less than significant.

Breaker-and-a-Half Switchyard

SDG&E would conduct similar operation and maintenance activities for the BAAH switchyard as for the existing SWPL transmission line. SDG&E would conduct regular inspections of the BAAH switchyard. The minimal vehicle trips associated with operation and maintenance

activities would not increase hazards to bicyclists or pedestrians. Operational inspections and maintenance would not damage any roadway or bridge surfaces. Therefore, the Project would not create any hazards to vehicles, pedestrians, or bicyclists. The impact would be less than significant.

Loop-in Transmission Lines

SDG&E would conduct similar operation and maintenance activities for the 500 kV loop-in transmission corridors as for the existing SWPL transmission line. SDG&E would conduct regular inspections of the 500 kV loop-in transmission corridors. The minimal vehicle trips associated with operation and maintenance activities would not increase hazards to bicyclists or pedestrians. Operational inspections and maintenance would not damage any roadway or bridge surfaces. Therefore, the Project would not create any hazards to vehicles, pedestrians, or bicyclists. The impact would be less than significant.

Impact TR-4

Would the Project result in inadequate emergency access? (*Less than significant*)

Construction

Project Site

Construction of the Project site would not require any temporary lane or road closures that could restrict emergency access. All Project components would be assembled on the Project site. Traffic as a result of construction activities could occur due to worker commutes and material and equipment deliveries. The additional traffic could increase emergency response times and result in inadequate emergency access. As discussed above, an average of 700 workers would commute daily to the Project site, with a maximum of 1,000 workers during peak construction. Additionally, approximately 220 one-way vehicle trips would be required daily for material and equipment deliveries. As shown in Table 4.12-3, the additional vehicles on nearby roadways as a result of construction of the Project would decrease LOS during the PM peak period. BMP 102 requires Project-related traffic to be restricted to roads developed for the Project with the exception of emergency situations. As discussed above, the Construction Traffic Control Plan would include measures to reduce traffic impacts, including the implementation of a trip reduction program, flagging activities, and traffic monitoring. Implementation of the Construction Traffic Control Plan would ensure that emergency services would not be interrupted due to construction of the Project. Therefore, emergency services would not be hindered by traffic congestion. Impacts would be less than significant.

Breaker-and-a-Half Switchyard

Construction of the BAAH switchyard would be similar to the Project site, as described above. The preparation of a Construction Traffic Control Plan would be required and would include traffic control measures for emergency vehicle access, such as emergency-vehicle traffic control signals and traffic detours as well as notification and coordination with local emergency service providers before construction. The impact would be less than significant.

Loop-in Transmission Lines

Temporary lane and road closures of SR 98 would be required during stringing of the loop-in transmission lines to reduce potential hazards to vehicle traffic. The temporary closure of roadways could restrict emergency access, which may result in significant impacts. All closures of SR 98 would be coordinated with Caltrans, require permits, and would be coordinated with any local emergency providers. The preparation of a Construction Traffic Control Plan would be required and would include traffic control measures for emergency vehicle access, such as emergency-vehicle traffic control signals and traffic detours. The Applicant would notify local emergency service providers before construction and provide them with key information identifying where lane closures and detour routes could occur, including the approximate timing of construction activities that may impact traffic and emergency access, see BMP 101. The impact would be less than significant.

Operation and Maintenance

Project Site

Operation of the Project would not require any temporary lane or road closures that could restrict emergency access. As discussed above, up to 29 permanent staff would be on site during Project operations for facility maintenance and repairs. The 58 daily one-way vehicle trips associated with Project operations would be negligible. The addition of 20 one-way vehicle trips would not decrease LOS. Therefore, Project operation and maintenance would not increase traffic such that emergency access would be inadequate. Impacts would be less than significant.

Breaker-and-a-Half Switchyard

SDG&E would conduct operation and maintenance activities in accordance with their typical maintenance activities. Operation and maintenance of the BAAH switchyard would not result in road or lane closures nor impair access to local roads. Operation and maintenance activities would not result in any adverse effects on emergency access. Impacts would be less than significant.

Loop-in Transmission Lines

SDG&E would conduct operation and maintenance activities in accordance with their typical maintenance activities. Operation and maintenance of the 500 kV loop-in transmission lines would not result in road or lane closures nor impair access to local roads. Operation and maintenance activities would not result in any adverse effects on emergency access. Impacts would be less than significant.

Impact TR-5

Would the project result in significantly increased hazards associated with Project-related hazardous materials to be transported to or from the Project site? (*Less than significant*)

The CEC application requirements include a discussion of Project-related hazardous materials to be transported to or from the Project during construction and operation of the Project. The Project would involve the transport of hazardous materials to and from the Project site during construction and operation.

Construction

Project Site

As discussed in detail in Section 3.5 Hazardous Material Handling, construction of the Project would involve the use, storage, transport, and disposal of hazardous materials. These hazardous materials would include fuels, oil and lubricants, solvents and cleaners, cements, adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures. No acutely hazardous materials would be transported during construction.

The transport of hazardous materials would be carried out in accordance with federal, State, and county regulations, including CFR title 49 sections 171-177 and 35-399 and CVC sections 25160 and 25550 through 35559. In accordance with section 31303 of the CVC, the Project would use state or interstate highways (i.e., SR 98 and I-8) to transport hazardous materials. Transporters of hazardous materials would also be required to comply with title 22 of the CCR, which includes detailed compliance requirements for hazardous waste transporters. Hazardous waste transporters would be required to obtain a hazardous waste registration certificate from the Department of Toxic Substances Control. Hazardous materials would be transported by a licensed hazardous waste hauler and disposed at facilities that are permitted to accept such materials, as required by Department of Transportation, Resource Conservation and Recovery Act, and State regulations. In the event of a discharge or spill of hazardous materials during transport, the transporter would adhere to the emergency response and spill procedures outlined in the Hazardous Materials Management and Oil Spill Response Plan. Adherence to regulations described above and implementation of the Hazardous Materials Management and Oil Spill Response Plan would minimize the accidental release of hazardous materials. Construction of the Project would result in a less than significant impact on the transport of hazardous materials.

Breaker-and-a-Half Switchyard

Construction of the BAAH switchyard would involve the transport of hazardous materials. No extremely hazardous substances (i.e., those governed pursuant to title 40, part 355 CFR) are anticipated to be transported. All transport of hazardous materials would be conducted in accordance with the regulations discussed above. Construction activities would be accounted for in the Hazardous Materials Management and Oil Spill Response Plan, including measures for personnel training, spill prevention procedures, and emergency contact information. Compliance with regulations would minimize the risk of hazards associated with accidents and spills during transport. Because compliance with existing regulations and programs for transport would be mandatory, construction of the BAAH switchyard is not expected to result in a significant hazard to the public. Impacts would be less than significant.

Loop-in Transmission Lines

Construction of the 500 kV loop-in transmission lines would involve the transport of hazardous materials. No extremely hazardous substances (i.e., those governed pursuant to title 40, part 355 CFR) are anticipated to be transported. All transport of hazardous materials would be conducted in accordance with the regulations discussed above. Construction activities would be accounted for in the Hazardous Materials Management and Oil Spill Response Plan, including

measures for personnel training, spill prevention procedures, and emergency contact information. Compliance with regulations would minimize the risk of hazards associated with accidents and spills during transport. Because compliance with existing regulations and programs for transport would be mandatory, construction of the 500 kV loop-in transmission lines is not expected to result in a significant hazard to the public. Impacts would be less than significant.

Operation and Maintenance

Project Site

Operation and maintenance would require the transport of hazardous materials and wastes, including solvents, cleaners, or other chemicals and damaged equipment, such as solar panels. All transport of hazardous materials and waste would be in accordance with the federal, State, and county regulations, including CFR title 49 sections 171-177 and 35-399, CVC sections 25160 and 25550-35559 and title 22 of the CCR. Project operation would use SR 98 and I-8 to transport hazardous materials in accordance with section 31303 of the CVC. Spill and emergency response procedures would be outlined in the Hazardous Materials Management and Oil Spill Response Plan. Adherence to regulations described above and implementation of the Hazardous Materials Management and Oil Spill Response Plan would minimize the accidental release of hazardous materials. Operation of the Project would result in a less-than-significant impact on the transport of hazardous materials.

Breaker-and-a-Half Switchyard

Operation and maintenance of the BAAH switchyard would involve the use and transport of hazardous materials as similar to described for the solar facility. As discussed above, spill and emergency response procedures would be identified in the Hazardous Materials Management and Oil Spill Response Plan. Therefore, transport of hazardous materials during operation and maintenance activities would not significantly increase the risk of releasing hazardous materials. Operation and maintenance would result in a less than significant impact on the transport of hazardous materials.

Loop-in Transmission Lines

Operation and maintenance of the 500 kV loop-in transmission lines would involve the use and transport of hazardous materials similar to existing conditions on the SWPL. All transport of hazardous materials would be in strict accordance with all regulations and guidelines. Hazardous materials would be utilized in limited quantities for operation and maintenance of the 500 kV loop-in transmission lines. Therefore, transport of hazardous materials during operation and maintenance activities would not significantly increase the risk of releasing hazardous materials. Operation and maintenance would result in a less than significant impact on the transport of hazardous materials.

4.12.3 Cumulative Impacts

The geographic scope for cumulative transportation impacts includes the regional and local roadways that may be used to access the Project site or that could otherwise be impacted by construction of the Project.

Although a substantial number of vehicles would be added to the I-8 and SR 98 roads during construction, this would not result in a significant impact. Cumulative projects listed in Section 4.0 are not expected to produce substantial traffic that overlaps the construction phase of the Project. As noted in Table 4-1, few projects would have any potential to overlap construction phases within a 6-mile radius. Of the projects that could potentially have an overlapping construction schedule, VEGA SES 4 Solar Energy Project and Viking Solar Energy Generation and Battery Storage Project are located west of the Project and would use other exits off of the I-8 and SR 98 for access and thus would not result in a cumulative impact to the Project-specific roadway exits. Traffic associated with the construction of the North Gila–Imperial Valley 500 kV Transmission Project could potentially overlap with traffic associated with the Project, which would result in a cumulative impact. However, this overlap would be temporary and of limited duration because the North Gila–Imperial Valley 500 kV Transmission Project is a linear project that would use any one roadway exit for a brief period. The North Gila–Imperial Valley 500 kV Transmission Project would be constructed on BOR- and BLM-managed lands, and both developers would be required to coordinate construction traffic if there were any overlap. The Project would not create any inconsistency or conflict with an applicable plan, ordinance, or policy that establishes measures of effectiveness and, therefore, would not contribute to a cumulatively considerable impact in this regard.

The Project would not conflict or be inconsistent with CEQA Guidelines section 15065.3, subdivision (b) and therefore would not contribute to any cumulatively considerable VMT-related impact.

The Project would not introduce incompatible uses or design features such as changes to public roads or intersections. Transportation of hazardous substances would occur with USDOT-approved personnel and trucking/transport equipment, and the Project would implement hazardous waste transportation requirements that would minimize the potential for an accidental release of hazardous materials to occur. Therefore, the Project would not contribute to any cumulatively considerable impact involving hazards due to a design feature or incompatible uses or transport of hazardous materials.

Project construction activities would occur in remote and uninhabited areas, and the Project would not result in inadequate emergency access. Therefore, the Project would have no contribution to cumulatively considerable impacts related to people walking, biking, driving, or taking public transit, walking or biking accessibility, or public transit delay.

Breaker-and-a-Half Switchyard

Construction and operation of the BAAH switchyard is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the

BAAH switchyard would have a less than considerable contribution to cumulative impacts related to traffic and transportation.

Loop-in Transmission Lines

Construction and operation of the loop-in transmission lines is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the loop-in transmission lines would have a less than considerable contribution to cumulative impacts related to traffic and transportation.

4.12.4 Proposed Best Management Practices, Project Design Features, Conservation Management Actions, and Mitigation Plans

As part of the Project, the Applicant and other entities involved in construction and operation would implement BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM.

Project Site Components

Best Management Practices and Project Design Features

The Project would implement the following BMPs and PDFs related to traffic and transportation. See Appendix D.1 for the full language of the BMPs.

- BMP 55 (Traffic)
- BMP 98 (Transportation Plan)
- BMP 101 (Permits and Coordination)
- BMP 102 and BMP 103 (Traffic)

Mitigation Plans

The Project would implement the following mitigation plans:

- Construction Traffic Control Plan
- Flight Operations Plan
- Hazardous Materials Management & Oil Spill Response Plan

Breaker-and-a-Half Switchyard

The same BMPs, PDFs, CMAs, and mitigation plans would apply to the BAAH switchyard.

Loop-in Transmission Corridors

The same BMPs, PDFs, CMAs, and mitigation plans would apply to the 500 kV loop-in transmission corridors.

4.12.5 Laws, Ordinances, Regulations, and Standards Compliance

Table 4.12-4 Federal Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Title 49 CFR, sections 171–177 and 35-399	Requires proper handling and storage of hazardous materials during transportation	The Project would implement the proper handling and storage of hazardous materials during transportation.
Title 14 CFR, sections 77.13(2)(i), 77.17, 77.21, 77.23, and 77.25	Requires an applicant to notify the FAA of the construction or alterations of structures within a certain distance from an airport in order to avoid air navigation conflicts	There are no airports within 20,000 feet of the Project site

Table 4.12-5 State Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
CVC sections 25160 et seq.	Addresses the safe transport of hazardous materials	The Project would adhere to hazardous materials transportation regulations in CVC code sections 25160
CVC sections 25550–35559	Regulates weight and load limitations.	The Project would adhere to the weight and load limitations presented in this CVC code sections 25550–35559
California Streets and Highways Code, sections 660-711 and 670-695	Permit requirements for roadways encroachments; regulations for the care and protection of state highways; and permit requirements for load exceedances	The Project applicant would obtain all necessary permits from Caltrans prior to construction. See the Construction Traffic Control Plan detailed in *Transportation Impact Analysis Report* in Appendix T.

Table 4.12-6 Local Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Imperial County Transportation Commission Regional Active Transportation Plan	Establishes a comprehensive framework for bicycle, pedestrian, transit, and other transportation in Imperial County	The Project would not have a significant impact on transportation facilities.

Imperial County Circulation and Scenic Highways Element	Contains goals and policies for maintaining circulation for new development and establishes requirements for operating at a LOS of "C" or better	The Project would maintain safe circulation for vehicles, pedestrians, bicyclists, and transit. The Project would maintain acceptable LOS for roadways. While the Project is new development, it would increase traffic during construction but would not result in substantial permanent operational increases in vehicles, as detailed in Impacts TR-1 and TR-2.
Imperial County Pedestrian Master Plan	Establishes a framework for the safety, security, accessibility, and connectivity of pedestrian infrastructure	The Project area does not contain any pedestrian facilities.
Imperial County Ordinance section 10.12.030 – Permits	Lists special permits required for use of County highways	The Project does not anticipate using County highways for access to the site. If use of any County highways were needed for the loop-in transmission line, the Applicant would get all required permits for any vehicles and loads upon County highways not in compliance with requirements contained in the CVC and as needed under the CPUC permitting for the loop-in transmission line.

4.12.6 Agencies Contacted and Permits

A list of agencies that were contacted during preparation of this application is provided in Appendix E.1. Permits required to construct, operate, and maintain the project, including the BAAH, and loop-in transmission line, are summarized in Table E.2. Pursuant to Assembly Bill 205 subsection 25545.1(b)(1), the CEC retains exclusive authority over permitting and supersedes any applicable statute, ordinance, or regulation of a local district. The Applicant and CEC would collaborate with the local district on review of this Opt-in Application to ensure compliance with rules and regulations.

4.12.7 References

California Department of Transportation (Caltrans). 2019. "District 11 Bike Facilities." Map Viewing Application. Using Arc GIS (01/15/2024). Last updated July 20, 2020. https://www.arcgis.com/home/item.html?id=d90e593ae9ad4abf96d1416a86b406e4.

Count of Imperial. 2021. Imperial County Pedestrian Master Plan. Available: https://publicworks.imperialcounty.org/reports/.

County of Imperial. 2008. "Circulation and Scenic Highways Element." In Imperial County General Plan. Prepared by: Planning & Development Services Department. Available: https://www.icpds.com/planning/land-use-documents/general-plan.

David Evans and Associates, Inc. 2023. Transportation Impact Analysis Report.

Governor's Office of Planning and Research (OPR). 2018a. "Technical Advisory on Evaluting Transportation Impacts in CEQA."

———. 2018b. Technical Advisory on Evaluating Transportation Impacts in CEQA. State of California. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

Imperial County Transportation Commission (ICTC). 2022. Regional Active Transportation Plan. Final. Available: https://www.imperialctc.org/projects/regional-active-transportation-plan.

Imperial Irrigation District. n.d. "All-American Canal | Imperial Irrigation District." Accessed November 30, 2023. https://www.iid.com/water/water-transportation-system/colorado-river-facilities/all-american-canal.

Imperial Valley Transit. n.d. "About Us." Accessed December 18, 2023. https://www.ivtransit.com/about-us.

Moore and Associates. 2021. *Coordinated Public Transit-Human Services Transportation Plan Update*. Draft Final Report. Imperial County Transportation Commission. Available: https://www.imperialctc.org/publications-and-reports/transit-and-non-motorized.

Yuma County Intergovernmental Public Transportation Authority (YCIPTA). n.d. "Routes & Services." Accessed December 18, 2023. https://www.ycipta.org.

4.13 Visual Resources

This section describes the visual resources in proximity of the Project site as well as the potential impacts to visual resources that may result from construction, operation, and maintenance of the Project. Section 4.13.1 describes the existing environment that could be affected, including regional and local visual resources. Section 4.13.2 identifies potential environmental impacts that may result from Project construction, operation, and maintenance. Section 4.13.3 evaluates potential cumulative impacts. Section 4.13.4 discusses mitigation measures that should be considered during Project construction, operation, and maintenance. Lastly, Section 4.13.5 provides an overview of applicable federal, State, and local LORS and the Project's compliance therewith.

The California Energy Commission (CEC) does not have its own guidance on assessing visual effects. Previously, the CEC has reviewed available visual impact assessment guidance from the Federal Highway Administration (FHWA), the BLM, the US Forest Service (USFS), the National Research Council (NRC), and the California Department of Transportation (Caltrans). The FHWA guidance was found to be most applicable because it assesses buildings and presents an analysis framework that is transferrable to other types of actions, has been in practice since the 1980s, and has become a widely accepted standard for analysis of visual impacts. Therefore, this analysis applies concepts from FHWA as well as relevant CEQA guidance.

4.13.1 Environmental Setting

Concepts and Terminology

Terms used in the characterization of aesthetic conditions are defined as follows:

- ***Visual character:*** the natural and human-made features of a site and general visual attributes. Visual character provides context for the public's perception of visual quality.
- ***Visual quality:*** the overall visual impression or attractiveness of a site or locale as determined by specific elements (e.g., color, variety, vividness, coherence, uniqueness, harmony, pattern). For the aesthetic analysis, the visual quality of a site or locale is categorized in one of the following three levels:
  - **Low:** The location is lacking in natural or cultural visual resource amenities typical of the region. A site with low visual quality will have aesthetic elements that are perceptibly uncharacteristic of the surrounding area.
  - **Moderate:** The location is typical or characteristic of the region's natural or cultural visual amenities. A site with moderate visual quality maintains the visual character of the surrounding area, with aesthetic elements that do not stand out as either contributing to or detracting from the visual character of an area.
  - **High:** The location has visual resources that are unique or exemplary of the region's natural or cultural scenic amenities. A site with high visual quality is

likely to stand out as particularly appealing and makes a notable positive contribution to the visual character of an area.

- ***Viewers*:** includes potentially affected individuals who live or use the area near the Project.
- ***Viewer exposure*:** how visible a site is situated from public viewpoints. Viewer exposure considers some or all of the following factors: landscape visibility (i.e., the ability to see the landscape); viewing distance (i.e., the proximity of viewers to the Project); viewing angle (whether the Project would be viewed from a superior, inferior, or level line of sight); extent of visibility (whether the line of sight is open and panoramic to the Project area or restricted by terrain, vegetation, and/or structures); and duration of view.
- ***Visual sensitivity*:** how susceptible a site is to visual change. Visual sensitivity is rated as high, moderate, or low, and is determined based on the combined factors of visual quality, viewer types, number of viewers, and viewer exposure to the Project. Higher visual sensitivity is associated with sites with a higher visual quality and with a greater potential for changes to degrade or detract from the visual character of a public view.
- ***Scenic highways and routes***: any stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency.
- ***Scenic vistas*:** designated viewing areas or areas known for high scenic quality. Scenic vistas may be designated by a federal, state, or local agency. Scenic vistas also can include an area that is designated, signed, and accessible to the public solely for viewing and sightseeing.

Regional Setting

Figure 2.1-1 in the Project Description displays the Project location within the regional landscape. The Project is located in the southeastern portion of Imperial County. The Project is approximately 37 miles southeast of the Salton Sea and is approximately 1.2 miles north of the U.S.–Mexico border. The Project is 2.5 miles east of the nearest agricultural land. The All-American Canal is directly south of the Project and runs east to west along the southern border of the Project site. The area is surrounded by undeveloped desert and is characterized as barren landscape with visible agricultural land west of the Project site. The surrounding area consists of a network of desert vegetation, with the majority of the vegetation consisting of creosote bush scrub and alkali weed. Geographically, the Project area is located within the lower Colorado River Sonoran Desert Region in the eastern portion of Imperial County.

The topography of the Project site is relatively flat, with elevations ranging between 50 feet and 132 feet *above mean sea level* (AMSL).

Existing Visual Character

The overall character of the immediate landscape is undeveloped desert with agricultural land to the west and mixed semi-desert landscape to the north, east, and south. The Project vicinity is surrounded by open and vast views with generally flat topography. Man-made infrastructure, including vertical, continuous, galvanized steel transmission lines, is proximate to the Project

Application Area to the Project along with multiple tall brown wooden support powerline and transmission line structures south and west of the Project Application Area. The Interstate 8 (I-8) and State Route 98 (SR 98) run adjacent the Project boundary and are visible from the Project Application Area. The All-American Canal runs east–west approximately 1,000 feet south of the Project.

One of the most notable natural features near the Project Application Area are the Algodones Dunes and the Imperial Sand Dunes. The dunes consist of gradually sloping sand dune formations that reach approximately 331 feet AMSL (Any Place, n.d.). The soft sand dunes located approximately 8 to 9 miles east of the Project Application Area give an impression of distant low mountain as a backdrop to the Project Application Area.

Flat, agricultural cropland dominates the landscape to the west. The agriculture land is broken into generally square shapes with man-made infrastructure such as roads, transmission lines, agricultural facilities, and rural residences scattered along the subdivided land. The nearby partitioned crops consist of geometric groupings that vary between grey, brown, dark green, and light green colored fields.

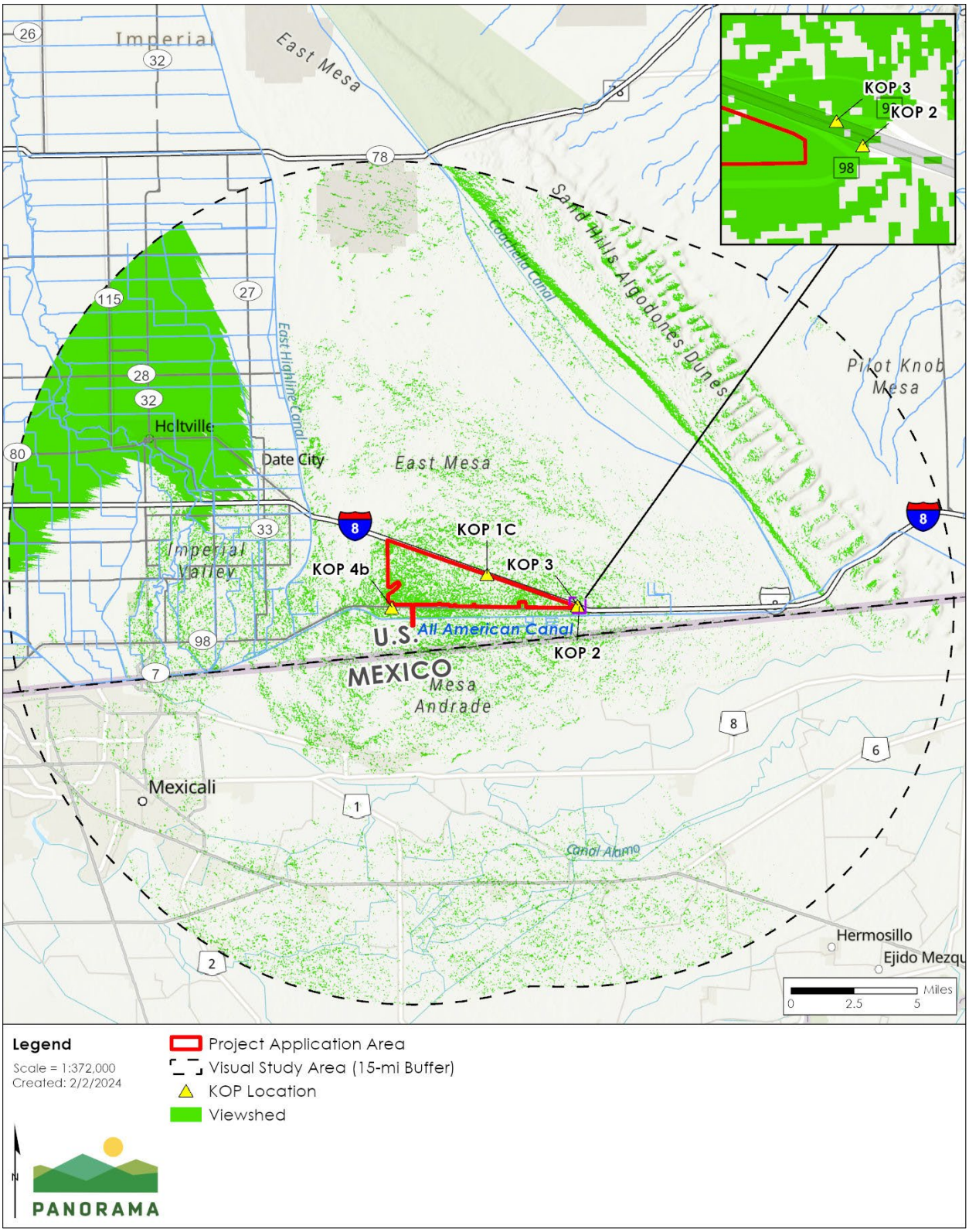
The Chocolate Mountains are a more distant notable feature, approximately 30 miles north of the Project Application Area. The distant dark grey mountains reach approximately 2,877 feet AMSL (Mapcarta, n.d.). Portions of the mountain range can be seen along the horizon from the Project Application Area.

The Holtville Airport is approximately 6.25 miles northwest of the Project Application Area and is visible from the site; however, this County-owned airport has been closed. Multiple solar PV facilities and geothermal plants are visible to the northwest and west of the Project Application Area. The Imperial Irrigation District's (IID's) Brock Reservoir is approximately 2.65 miles east of the Project boundary and is visible from the Project Application Area.

Project Visibility and Viewshed

The Project viewshed is the general area from which a Project would be visible (see Figure 4.13-1). The viewshed was modeled using a height of 14 feet for the panels as this would be the tallest potential height of the panels. For describing the Project's visual setting and addressing potential visual impacts, the viewshed is divided into distances zones of foreground, middle ground, and background views. The term *foreground* describes what is visible within 0.25 to 0.5 mile of the viewer and defines the most noticeable details in the landscape and prominent objects and features. The term *middleground* describes what is visible within 0.5 mile to 3 miles of the viewer, and the term *background* describes what is visible beyond 3 to 5 miles of the viewer.

Figure 4.13-1 Project Viewshed and Key Viewpoints Considered Location Map



Source: (Intersect Power 2023a) (Intersect Power 2023b) (Panorama Environmental, Inc. 2023b)

As shown in Figure 4.13-1, above, given the flat topography of the area, the Project Application Area would be visible from some foreground areas, but this would not be contiguous. The Project would also be visible from middleground and background areas but again this visibility is not continuous. A large portion of the Holtville area would have views of the Project Application Area, but they would be viewed at a distance of over 5 miles, with much intervening infrastructure and cropland. Portions of the Algodones Dunes would also have views of the Project Application Area at a distance of 8 miles, with some intervening infrastructure, such as the I-8.

Given the remote location of the Project Area, the impact analysis section (Section 4.13.2) will focus on the potential effects on the foreground viewshed conditions, which include I-8 and SR 98; however, there is consideration for potential effects at more distant viewpoints.

Existing Utilities

There are existing aboveground electric transmission lines that are directly outside of the Project site. San Diego Gas and Electric (SDG&E) owns the 500 kV Southwest Powerlink (SWPL). The 500 kV SWPL runs east to west and is approximately 0.84 mile south of the Project Application Area and 0.27 mile south of the All-American Canal. Additionally, several IID low-voltage transmission lines (161 kV and 92 kV transmission lines and distribution lines) run in and out of the IID Drop 4 substation adjacent the All-American Canal near the southwest corner of the Project site boundary. The IID transmission lines that run east to west are approximately 0.44 miles south of the Project Application Area and approximately 250 feet north of the All-American Canal. The IID transmission lines that run north to south are adjacent the western boundary of the Project Application Area between SR 98 and I-8.

Scenic Highways, Vistas, and Resources

Scenic Highways

Per the List of Officially Designated State Scenic Highways from Caltrans, SR 98 and I-8 are not designated scenic routes. The nearest State-designated Scenic Highways is State Route 78 (SR 78) near Kane Spring, which is approximately 46 miles northwest of the Project Application Area.

Scenic Vistas

There are no Caltrans-designated vista points in the vicinity of the Project Application Area.

Lighting and Glare

Minimal street lighting exists along the I-8 and SR 98 in the vicinity of the Project Application Area. Headlights from vehicles on the roadway are the main source of intermittent light. Additional sources of light emanate from scattered agricultural and renewable energy facilities in the distance.

Visual Setting and Representative Views

The following subsections use a set of 4 photographs that document representative viewpoints within the Project site vicinity and describe the visual character found therein. The viewpoint locations are shown in Figure 4.13-1. Figure 4.13-2 through Figure 4.13-5 show the existing

setting at the key viewpoints. The accompanying simulated photographs will be included. At this time, the simulations have not been finalized.

Selection of Key Viewpoints

Initial site reconnaissance was completed in 2023, and several potential viewpoints were evaluated for their visual sensitivity based on visual quality, affected viewers and exposure conditions, and viewer sensitivity to changes in the viewshed. As shown in Figure 4.13-1, there are limited nearby public areas with contiguous views of the Project Application Area. IP coordinated with the BLM to select four viewpoints with the highest visual quality, and affected viewers and exposure, and viewer sensitivity to changes from the Project Application Area were selected for visual rendering and detailed analysis (see Table 4.13-2, below). The Tamarisk LTVA would be shielded from the Project by existing trees surrounding the LTVA, which has limited use. The selected viewpoints are discussed in detail in the Project setting discussion that follows. The simulations will be provided when they have been finalized.

Table 4.13-1 Visual Sensitivity

Viewpoint	Approximate distance from Project site	Visual quality	Affected viewers and exposure conditions	Visual sensitivity
Viewpoint 1C	Adjacent along the I-8 looking south	Moderate. Dominant views include undeveloped desert land containing desert shrub and a short metal fence, with the SWPL visible in the distance.	Low. Limited viewer exposure. Viewers would primarily be motorists passing at a high speed with a mostly level line of sight.	Low. Moderate visual quality, few affected viewers, and low exposure conditions. Direct views of the Project site
Viewpoint 2	Adjacent looking west	Low. Dominant views include undeveloped desert land containing desert shrub, public roads and signage, aboveground transmission line and several power lines, a communication tower, and infrastructure associated with the All-American Canal present within the view.	Moderate. Viewers include motorists, passing along SR 98 at high speed looking down on the site	Low. Low visual quality and viewer duration. Direct views of the Project site.

Viewpoint	Approximate distance from Project site	Visual quality	Affected viewers and exposure conditions	Visual sensitivity
Viewpoint 3	Adjacent looking west	Low. Dominant views include public roads and signage, traffic delineator posts, aboveground transmission lines, street light poles, a communication tower, and undeveloped desert land containing desert shrub.	Moderate. Viewers include motorists, along I-8 passing at high speed looking down on the site.	Low. Low visual quality and viewer duration. Direct views of the Project site.
Viewpoint 4B	Adjacent looking north	Moderate. Dominant views include undeveloped desert land containing desert shrub and public roads. Minimal viewing at a distance due to topography.	Moderate. Viewers include motorists, along SR 98.	Moderate. Moderate visual quality and viewer duration. Direct views of the Project site.

Figure 4.13-2 Viewpoint 1C

Source: (Intersect Power 2023a)

Figure 4.13-3 Viewpoint 2

Source: (Intersect Power 2023a)

Figure 4.13-4 Viewpoint 3

Source: (Intersect Power 2023a)

Figure 4.13-5 Viewpoint 4B

Source: (Intersect Power 2023a)

Viewpoint Analysis

Viewpoint 1C

Viewpoint 1C is located on the northern boundary of the Project along I-8 looking southwest.

Visual Character

The existing view from Viewpoint 1C of the Project Application Area is shown in Figure 4.13-3. The foreground includes undeveloped desert land with scattered native desert shrubs. The Project would be visible in the middleground and background and would not be screened by topography or vegetation. Viewpoint 1C is on a slightly higher elevation than the Project; however, because the surrounding area is generally flat, views of the Project area from Viewpoint 1C would be generally level.

Visual Quality

Viewpoint 1C has low visual quality, with undeveloped area being the main foreground, middle ground, and background view. Existing views of the Project site are not screened by topography, vegetation, or elevation. Viewpoint 1C contains anthropogenic elements such as the existing medium-sized metal fence and existing SWPL transmission line; however, the infrastructure does not obstruct views of the Project area.

Affected Viewers and Exposure Conditions

Views from Viewpoint 1C would be experienced by the public when driving along I-8, which runs northwest to southeast along the northern boundary of the Project site. Public exposure would be of short duration for motorists. Motorists would generally be focused on the road conditions in front of them and less likely to be focused on side-angle views of the Project.

Visual Sensitivity Conclusion

The visual quality of Viewpoint 1C is low, and the exposure conditions are low. The visual sensitivity to changes in the foreground, middleground, or background view would be low because of the limited number of viewers traveling along I-8 and the generally short duration for viewing while traveling along I-8.

Viewpoint 2

Viewpoint 2 is located on the eastern edge of the Project boundary along I-8 looking west.

Visual Character

A view from Viewpoint 2 of the Project site is shown in Figure 4.13-4. The foreground includes undeveloped desert land with scattered native desert shrubs, roadways, road signage, traffic delineator posts, aboveground transmission lines, and a communication tower. The Project boundary would be visible in the middleground and background and would not be screened by topography or vegetation. Viewpoint 2 is on a slightly higher elevation than the Project so that the viewers would be looking down onto the Project.

Visual Quality

Viewpoint 2 has low visual quality, with scattered desert shrubs, roadways, road signage, and aboveground transmission lines being the main view in the foreground. The middleground and

background continue to include views of desert land, with a communication tower in the short distance. Viewpoint 2 contains anthropogenic elements such as the roadways, road signage, traffic delineator posts, aboveground transmission lines, and a communication tower; however, these elements do not obstruct views of the Project area.

Affected Viewers and Exposure Conditions
Views from Viewpoint 2 would be experienced by the public when driving along I-8, which runs northwest to southeast along the northern boundary of the Project site. Public exposure would be of short duration and low for motorists. Motorists would generally be focused on the road conditions in front of them and less likely to be focused on side-angle views of the Project.

Visual Sensitivity Conclusion
The visual quality of Viewpoint 2 is low, and the exposure conditions are moderate. The visual sensitivity to changes in the foreground, middle ground or background view would be moderate because of the limited number of viewers traveling along I-8 and the generally short duration for viewing while traveling along I-8.

Viewpoint 3
Viewpoint 3 is near to Viewpoint 2 and is also located near the eastern edge of the Project site boundary along I-8 looking southwest.

Visual Character
A view from Viewpoint 3 of the Project site is shown in Figure 4.13-5. The foreground includes the roadways, road signage, aboveground transmission lines, street light poles, a communication tower, and undeveloped desert land with scattered native desert shrubs. The Project site boundary is visible in the middleground and background and would not be screened by topography or vegetation. Viewpoint 3 is on a slightly higher elevation than the Project site so that viewers would be looking down onto the Project.

Visual Quality
Viewpoint 3 has moderate visual quality, with scattered desert shrubs, roadways, road signage, aboveground transmission lines, street light poles, and a communication tower comprising the main view in the foreground. The middleground and background continue to include views of undeveloped desert land and distant aboveground transmission lines. Existing views of the Project site are not screened by topography, vegetation, or elevation. Viewpoint 3 contains anthropogenic elements such as roadways, road signage, street light poles, and a communication tower; however, these elements do not obstruct views of the Project site.

Affected Viewers and Exposure Conditions
Views from Viewpoint 3 would be experienced by the public when driving along I-8, which runs northwest to southeast along the northern boundary of the Project site. Public exposure would be of short duration and low for motorists. Motorists would generally be focused on the road conditions in front of them and less likely to be focused on side-angle views of the Project.

Visual Sensitivity Conclusion
The visual quality of Viewpoint 3 is low, and the exposure conditions are moderate. The visual sensitivity to changes in the foreground, middleground, or background view would be moderate because of the limited number of viewers traveling along I-8 and the generally short duration for viewing while traveling along I-8.

Viewpoint 4B
Viewpoint 4B is located on the southwestern border of the Project boundary along SR 98 looking northeast.

Visual Character
A view from Viewpoint 4B of the Project site is shown in Figure 4.13-6. The foreground includes undeveloped desert land with scattered native desert shrubs, roadways, and road signage. Views of the existing structures at the Project site boundary are visible in the middleground and background and are not screened by topography or vegetation. Viewpoint 4B is at a slightly lower elevation than the Project; however, because the surrounding area is generally flat, views of the Project area from Viewpoint 4B are not obstructed by elevation. Given the elevation, KOP 4B has minimal long-distance views.

Visual Quality
Viewpoint 4B has moderate visual quality, with scattered desert shrubs, roadways, and road signage comprising the main view in the foreground. The middleground and background continue to have views of undeveloped desert land. Existing views of the Project site are not screened by topography, vegetation, or elevation. Viewpoint 4B contains anthropogenic elements such as roadways and road signage; however, these elements do not obstruct views of the Project site.

Affected Viewers and Exposure Conditions
Views from Viewpoint 4B would be experienced by the public when driving along SR 98, which runs east–west along the northern boundary of the Project site. Public exposure would be of short duration and low for motorists. Motorists would generally be focused on the road conditions in front of them and less likely to be focused on side-angle views of the Project.

Visual Sensitivity Conclusion
The visual quality of Viewpoint 4B is moderate, and the exposure conditions are moderate. The visual sensitivity to changes in the foreground, middleground, or background view would be moderate because of the limited number of viewers traveling along I-8 and the generally short duration for viewing while traveling along SR 98.

4.13.2 Impact Analysis

Methodology

Federal Highway Administration Methodology

Visual resources are generally defined as the natural and built landscape that is visible from public views. As described above, visual character is a combination of the natural landscape (e.g., topography, vegetation, landforms) and anthropogenic features (e.g., roads, buildings, structures). The visual quality impact analysis is based on field observations along with photographs from the Project site, Project maps, visual simulations of Project elements, and other relevant data in the record. The impact analysis identifies potential temporary (short-term) and permanent (long-term) impacts on scenic vistas or the visual character and quality of the Project site as seen from various public viewpoints in the Project vicinity.

Visual simulations and renderings are being prepared and will be provided depicting the Project facilities from the four selected viewpoints.

Once all effects are examined, determinations will be made as to whether any potential impacts will reach a level that would be significant under the four California Environmental Quality Act (CEQA) Guidelines checklist questions, as discussed in Impact Analysis Criteria, in Section 4.13.2.

Viewers and Exposure

The primary potentially affected viewer groups within the Project area are motorists on SR 98 and I-8, the local roadways within proximity to the Project site. Motorist viewers experience the Project area within the context of a setting that includes SR 98, I-8, and related transportation infrastructure, existing transmission and distribution facilities, solar and geothermal developments, and other nearby developments and facilities.

Simulation Modeling

The simulation modeling details will be provided with the simulations upon completion.

Project Appearance

Chapter 2: Project Description provides detailed descriptions of the Project components and the various site arrangements, layouts, and elevation views of the Project components are included in Appendix F. Table 4.13-3, below, identifies the main aboveground Project components and their approximate dimensions, materials, and finishes.

Table 4.13-2 Project Site Components

Project component	Approximate acreages and/or dimensions	Materials	Finishes
Solar arrays	Up to 14 feet tall covering 5,985 acres	Steel pile supports, prefabricated solar panels (glass and metal)	Minimally reflective, dark in color, highly absorptive

Inverter-transformer stations and electrical collection system	40 feet by 10 feet by 10 feet tall	Concrete, steel, wood	Light colored or neutral
Inverter-transformer station security camera	20 feet tall	Wood or metal pole	Grey or brown
Inverter shade structure	10 feet tall	Wood or metal supports; Metal, vinyl, or similar shade cover	Grey or brown, neutral
Temporary parking and laydown areas	<25 acres	Dirt or aggregate	Grey or brown/tan
BESS	40 feet or 52 feet by 8 feet by 8.5 feet high	Concrete pad, prefabricated metal	RAL 9016 Traffic White
Project Substation	45 feet tall by 40 feet wide on the longest side; Dead-end structures up to 199 feet tall; Up to 8-foot-tall fence	Steel and metal chain link for fence	Either galvanized steel (non-painted) or painted ANSI 61 gray
O&M yard and facility	Maximum 15 feet tall, 3,000 square feet	Metal siding	Light color or neutral
BAAH switchyard	Transformers 45 feet tall by 40 feet wide Circuit breakers 25 feet tall by 20 feet wide Dead-end structures up to 199 feet tall Up to 8-foot-tall fence	Steel and metal chain link for fence	Either galvanized steel (non-painted) or painted ANSI 61 gray
Two 500 kV loop-in transmission lines	Average 150 feet tall with a maximum height of 199 feet	Steel	Weathered gray

Construction Laydown Area

As described in Chapter 2: Project Description, several construction laydown areas totaling 25 acres in size would be established within the Project site boundaries for storing materials, construction equipment, and vehicles.

Project Lighting

Motion sensitive, directional security lights would be installed to provide adequate illumination around the Project substation(s) and BAAH switchyard areas, each inverter-transformer station, at gates, and along perimeter fencing. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties. Security lights would use motion sensor technology that would be triggered by movement at a human's height. Once activity has ceased, the motion sensors would be set to turn off lighting within 10 minutes.

All structures would be below the 200-foot height standard that triggers Federal Aviation Administration Part 77 Obstruction Evaluation Consultation, so no aviation lighting on power poles or other facilities is required.

Water Vapor Plumes
There are no Project components that would produce visible water vapor plumes.

Glare Analysis

An analysis of the Project glare potential was completed using the ForgeSolar Solar Glare Hazard Analysis Tool (SGHAT). The SGHAT is designed to approximate the level of glare and duration (annual minutes) of exposure that may be experienced at observation points, travel routes, and flight paths and the potential for a solar project to result ocular impacts. The ocular impact of solar glare is quantified into three categories:

- "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.
- "Red" glare is representative of glare conditions with potential for permanent eye damage (retinal burn). Glare at this level may be associated with concentrated solar projects and does not result from PV solar projects.

Glare conditions were modeled for the following features:

- **Solar development areas.** The Project was divided into five conceptual solar development areas (PV areas) to meet the model requirements and focus where glare may be found within the Project site. The PV panel parameters used in the model were single-axis rotating racks with a maximum height of 14 feet above ground, a maximum tracking angle of 60 degrees, and an anti-reflective coating.
- **Discrete Observations Points.** A total of 13 discrete ground observation points were defined, each with a height of 6 feet above ground. Observer points include KOPs 1C, 2, 3, and 4b and representative receptor locations in the Project vicinity including 6th Sreet/Holtville Unified School, SR 98 and Bornt Road, Holdridge Road, Verde School Rd and Bornt Road, I-8 and Holdridge Road/Old Foggy Hot Springs, Imperial Sand Dunes – Gecko Campground, Imperial Sand Dunes – Roadrunner Campground, Gordon's Well RV Park, and Harris Road and Highline Road.
- **2-mile flight path receptors.** Four airport runway approaches (2 miles in each runway direction with elevations ranging from 50 feet to approximately 500 feet) were evaluated for Holtville Airport, located at the eastern terminus of Nourish Road. This public airport appears to be permanently closed; however, it remains in national airport GIS databases.
- **Heliport route.** One private heliport (API Gateway located east of the U.S.–Mexico Calexico border crossing) was analyzed, including the 500-foot vertical landing approach.

- **Vehicle travel route.** Two vehicle travel routes were analyzed within 3 miles of the project, including I-8 and SR-98. The observer height used for the vehicle travel routes was 9 feet to represent the approximately eye height of a truck driver and capture a worse-case scenario (most glare potential).

Impact Evaluation Criteria

Following the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations [CCR], title 14, Appendix G, section I), the Project would cause a significant impact if it would:

- 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 nonurbanized areas, substantially degrade the existing visual character or quality public views of the of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

Impact VIS-1:

Would the project have a substantial adverse effect on a scenic vista? (*No impact*)

Project Site Components

There are no designated scenic vistas in the Project vicinity. Therefore, no impacts to scenic vistas would occur. No mitigation is required.

Breaker-and-a-Half Switchyard

There are no designated scenic vistas in the Project vicinity. Therefore, no impacts to scenic vistas would occur. No mitigation is required.

Loop-in Transmission Line

There are no designated scenic vistas in the Project vicinity. Therefore, no impacts to scenic vistas would occur. No mitigation is required.

Impact VIS -2:

Would the project substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway? (*No impact*)

Project Site Components

The Project Application Area is not located near any designated or eligible scenic highways. The nearest State-designated Scenic Highways is SR 78 near Kane Spring, which is approximately 46 miles northwest of the Project Application Area. Additionally, there are no trees or rock outcroppings within the vicinity of the Project Application Area. A cluster of abandoned residential dwelling units for the All-American Canal Hydroelectric Plant is located

approximately 0.5 mile south of the Project site and may be considered historic buildings. These dwelling units are surrounded by trees, effectively blocking views of the Project. Therefore, no impacts to trees, rock outcroppings, and historic buildings within a State-designated scenic highway would occur. No mitigation would be required.

Breaker-and-a-Half Switchyard
Impacts of the BAAH would be the same as the Project Site.

Loop-in Transmission Line
The loop-in transmission line is not located near any designated or eligible scenic highways. The nearest State-designated Scenic Highways is SR 78 near Kane Spring, which is approximately 46 miles northwest of the Project Application Area. Additionally, there are no trees or rock outcroppings within the vicinity of the Project Application Area. Views of the loop-in transmission line would be visible from a cluster of abandoned residential dwelling units for the All-American Canal Hydroelectric Plant but would be blocked by an existing IID substation and existing IID transmission lines. Therefore, no impacts to trees, rock outcroppings, and historic buildings within a State-designated scenic highway would occur. No mitigation would be required.

Impact VIS -3:

In nonurbanized 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 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)*

Construction
Project Site Components
Project construction activities would include temporary road access via SR 98 for Project construction trucks to transport material and equipment to and from the Project site. Additionally, the Project would construct a new perimeter road, access roads, and driveways that would extend from SR 98 into the Project area. Project construction would require temporary parking, staging, and laydown areas that would be no larger than 25 acres in size for vehicle and equipment parking as well as material storage. The staging areas would be established within the Project site boundaries, and construction activities occurring within the laydown areas would be temporarily noticeable to motorists traveling along surrounding roads (SR 98 and I-8). Although Project construction activities would be visible to traveling motorists, visual exposure to construction activities would be temporary as the Project construction activities would occur for a period of 24 months. Additionally, the Project site is located in an undeveloped area with no residences within proximity to the Project. The sensitive viewers would be motorists traveling along surrounding roads (SR 98 and I-8), who would be temporarily impacted. Traveling motorists would have views of the construction activities occurring throughout the duration of the solar facility construction; however, construction activities would be temporary, and construction-related visual impacts resulting from the temporary presence of equipment, materials, and work crews would not permanently or substantially degrade the existing visual character of the existing landscape. Because

construction impacts would be temporary and there is a lack of existing sensitive viewers, impacts to visual character and quality would be less than significant.

Breaker-and-a-Half Switchyard
Construction of the BAAH switchyard would be immediately visible to motorists traveling along local roads and SR 98 as the BAAH switchyard is located adjacent to SR 98. Project construction activities would not permanently or substantially degrade the existing visual character of the existing landscape because Project construction impacts would be temporary. Therefore, impacts of the BAAH switchyard construction would be less than significant.

Loop-in Transmission Corridors
Construction of the 500 kV loop-in transmission corridors would be immediately visible to motorists traveling along local roads and SR 98 as the 500 kV loop-in transmission corridors would traverse SR 98 and connect to the BAAH switchyard. Project construction activities would not permanently or substantially degrade the existing visual character of the existing landscape because Project construction impacts would be temporary as construction occurs for the transmission corridors. Therefore, impacts of the 500 kV transmission corridors construction would be less than significant.

Operation
[Coming with visual simulations.]

Impact VIS-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*)

Construction
Project Site Components
Glare would not be anticipated during construction. Night lighting required during construction would be minimal and would require shielding to direct the light downward and away from the horizon. Any temporary night lighting would meet the CMA DFA-VPL-VRM-3 which requires BMPs to minimize impacts to night sky including light shielding. Impact would be less than significant.

Breaker-and-a-Half Switchyard
Glare would not be anticipated during construction. Night lighting required during construction for testing or other nighttime construction would be minimal and would require shielding to direct the light downward and away from the horizon. Any temporary night lighting would meet the CMA DFA-VPL-VRM-3 which requires BMPs to minimize impacts to night sky including light shielding. Impact would be less than significant.

Loop-in Transmission Corridors
Neither glare nor night lighting would be anticipated for construction of the 500 kV transmission lines. If night lighting were required for some reason, lighting would be minimal and would require shielding to direct the light downward and away from the horizon. Any

temporary night lighting would meet the CMA DFA-VPL-VRM-3 which requires BMPs to minimize impacts to night sky including light shielding. Impact would be less than significant.

Operation

Project Site Components

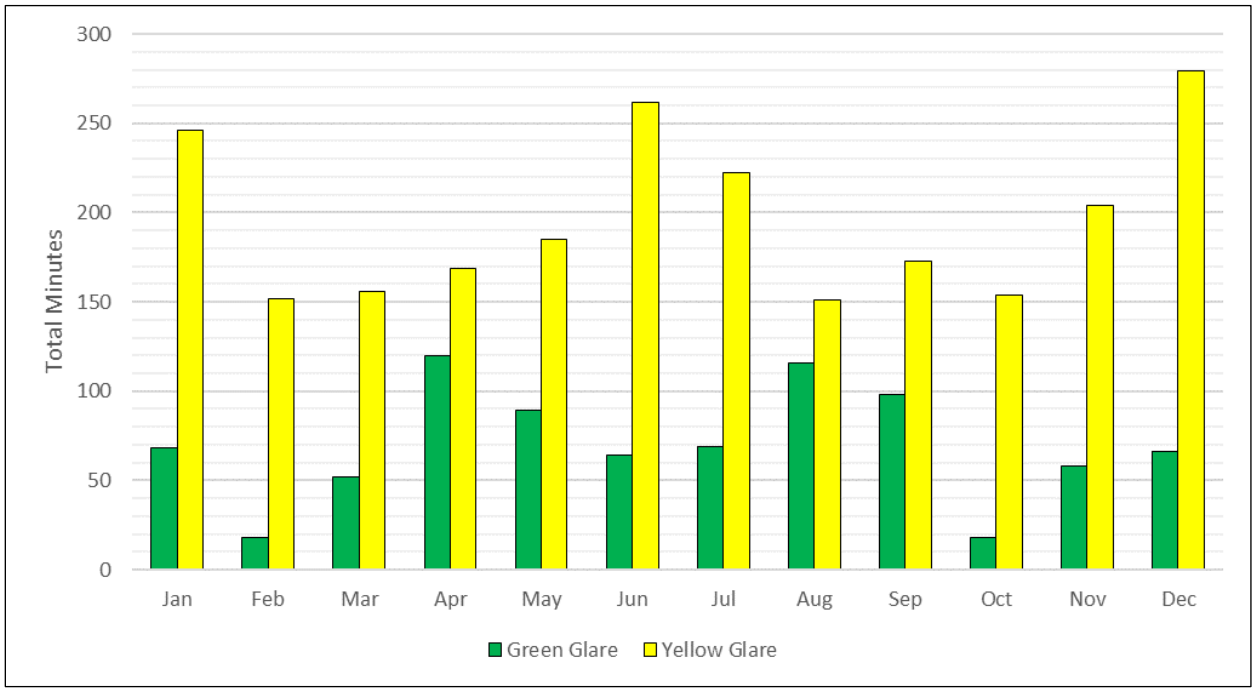
The annual predicted glare for the Project based on the model observers are shown in Table 4.13-1 and Figure 4.13-2.

Table 4.13-3 Annual Minutes of Glare Predicted for Model Observers by PV Array Area

Model observers and solar array areas	PV 1		PV 2		PV 3		PV 4		PV 5	
Glare type	Green (min.)	Yellow (min.)	Green (min.)	Yellow (min.)	Green (min.)	Yellow (min.)	Green (min.)	Yellow (min.)	Green (min.)	Yellow (min.)
FP 1: Holtville Airport - East	none	none	none	none	none	none	none	none	none	none
FP 2: Holtville Airport - NW	none	none	none	none	none	none	none	none	none	none
FP 3: Holtville Airport - SE	none	none	none	none	none	none	none	none	none	none
FP 4: Holtville Airport - W	none	none	none	none	none	none	none	none	none	none
OP 1 (KOP 1C)	none	none	none	none	none	none	none	none	157	none
OP 2 (KOP 2)	none	none	none	none	none	none	none	none	none	none
OP 3 (KOP 3)	none	none	none	none	none	none	none	none	68	none
OP 4 (KOP 4b)	none	none	none	none	none	none	none	none	none	none
OP 5 (6th St/Holtville Unified School)	none	none	none	none	none	none	none	none	none	none
OP 6 (SR 98 & Bornt Rd)	none	none	24	none	31	none	none	none	none	none
OP 7 (Holdridge Rd)	none	none	49	none	none	none	none	none	none	none
OP 8 (Verde School Rd & Bornt Rd)	none	none	none	none	none	none	none	none	none	none
OP 9 (I-8 & Holdridge Rd/Old Foggy Hot Springs)	none	none	none	none	none	none	none	none	none	none
OP 10 (Imperial Sand Dunes - Gecko Campground)	none	none	none	none	none	none	none	none	none	none
OP 11 (Imperial Sand Dunes - Roadrunner Campground)	none	none	none	none	none	none	none	none	none	none
OP 12 (Gordon's Well RV Park)	none	none	none	none	none	none	none	none	none	none

Model observers and solar array areas	PV 1		PV 2		PV 3		PV 4		PV 5	
Glare type	Green (min.)	Yellow (min.)	Green (min.)	Yellow (min.)	Green (min.)	Yellow (min.)	Green (min.)	Yellow (min.)	Green (min.)	Yellow (min.)
OP 13 (Harris Rd & Highline Rd)	none	none	none	none	none	none	none	none	none	none
Route 1: Api Heliport Approach	76	none	153	none	220	none	none	none	none	none
Route 2: Interstate 8	none	none	none	none	273	1,366	365	1,004	195	661
Route 3: State Route 98	none	none	464	42	418	1,015	--	--	484	538
Total	**76**	none	**690**	**42**	**942**	**2,381**	**365**	**1,004**	**904**	**1,199**

Figure 4.13-6 Maximum Monthly Distinct Glare Predicted for a Single PV Array Area



The Project would not include any substantial source of nighttime light in the vicinity of the Project site. Any lighting required for safety and security within the Project site would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties. The results of the ForgeSolar glare analysis indicate that the Project would create green level glare (low potential to cause an after-image) and yellow level glare (potential to cause an after-image), which is typical of solar arrays. No red level glare (potential to cause retinal burn) is predicted. Specifically, green level glare is predicted for 7 of the 20 model observers, including 4 discrete observation points (OP 1, OP 2, OP 6, and OP 7), the Api Heliport approach (Route 1), and both the I-8 and SR 98 highway routes (Route 2 and Route 3). The maximum green level glare durations would range by month from 18 minutes to

120 minutes. Green level glare may draw more attention to the Project site for limited periods when visible glare would occur but is not expected to result in significantly greater visual impacts or hazards to motorists.

Yellow level glare is also predicted for both the I-8 and SR 98 highway routes (Route 2 and Route 3). No other yellow level glare is predicted for the model observers. The maximum yellow level glare durations would range by month from 151 minutes to 279 minutes. Yellow level glare has the potential to cause after image (flash blindness), which could both draw greater attention to the Project site and create brief (a few seconds at a time), periodic, and intermittent visual hazards to motorists traveling along I-8 and SR 98 in the vicinity of the Project. Such glare conditions are expected to last a few seconds due to the high travel speeds (approximately 50 to 70 miles per hour) and variable screening from topography, vegetation, vehicles, sunshades, and other structures. Due to the very short durations of potential exposure, significant impacts associated with yellow level glare are not anticipated. Because the Project would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area, the impact would be less than significant.

Breaker-and-a-Half Switchyard

The BAAH switchyard would be constructed from galvanized steel which would fade during operations and reduce any passing glare to nearby motorists. Night lighting may be required during operations for occasional maintenance but would be rare and would require shielding to direct the light downward and away from the horizon. Any night lighting would meet the CMA DFA-VPL-VRM-3 which requires BMPs to minimize impacts to night sky including light shielding. Impact would be less than significant.

Loop-in Transmission Corridors

The loop-in transmission lines could introduce glare due to the conductors. Night lighting would not be anticipated as the poles would be below 200 feet so would not require FAA lighting. SDG&E would meet DFA-VPL-VRM-3 which requires conductors and towers have non-specular qualities reducing glare and reflectivity. Impact would be less than significant.

4.13.3 Cumulative Impacts

Impacts of the Project would be considered cumulatively significant if they would have the potential to combine with other past, present, or reasonably foreseeable projects to become significant. A list of closely related past, present, and reasonably foreseeable projects is provided in Table 4-1 and shown on in Figure 4-1 in Chapter 4: Environmental Analysis. Given how flat and uniform the landscape is, cumulative visual impacts would be relatively proximate and would be considered minimal beyond a 5-mile range.

The majority of the cumulative projects within a 5-mile range are existing projects so are taken into consideration in the Project existing setting. One new transmission line, the North Gila–Imperial Valley 500 kV Transmission Project, would potentially be built within proximity to the Project Application Area and could combine with the Project to result in a cumulative impact. However, the 500 North Gila–Imperial Valley 500 kV Transmission Project would be similar in

nature to the existing 500 kV SWPL line and existing IID transmission lines and is not anticipated to create a cumulatively a significant impact when combined with the Project. Therefore, cumulative projects are anticipated to have less than significant impacts.

As discussed in Impact VIS-4, the Project would not be a source of considerable light or glare and would not contribute to a cumulatively considerable impact.

BAAH Switchyard

Construction and operation of the BAAH switchyard is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the BAAH switchyard would have a less than considerable contribution to cumulative impacts related to visual resources.

Loop-in Transmission Lines

Construction and operation of the loop-in transmission lines is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the loop-in transmission lines would have a less than considerable contribution to cumulative impacts related to visual resources.

4.13.4 Proposed Best Management Practices, Project Design Features, and Conservation Management Actions

As part of the Project, the Applicant, and other entities involved in construction and operation, would implement BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM.

Project Site Components

Best Management Practices and Project Design Features

The Project would implement the following BMPs related to visual resources. See Appendix D.1 for the full language of the BMPs.

- BMP 105 through 116 (Visual Resources)

Conservation Management Actions

The Project would implement the following DRECP CMAs relevant to visual resources. See Appendix D.2 for the full language of the CMAs.

- LUPA-VRM-1
- LUPA-VRM-2
- LUPA-VRM-3
- DFA-VPL-VRM-2
- DFA-VPL-VRM-3

Breaker-and-a-Half Switchyard

The same BMPs and CMAs would apply to the BAAH switchyard.

Loop-in Transmission Corridors

The same BMPs and CMAs would apply to the 500 kV loop-in transmission lines.

4.13.5 Laws, Ordinances, Regulations, and Standards Compliance

Table 4.13-4 Federal Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
BLM Visual Resource Management (VRM) System	The result of the BLM's VRM is applicable to BLM land in the Project vicinity	The Project is located in a Class IV VRM Area and would adhere to the regulations associated with Class IV. Refer to Section 4.13.1.
Federal Land Policy and Management Act Section	Section 102(a) of the Federal Land Policy and Management Act of 1976 (BLM, 1976) states that "...the public lands are to be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values." Section 103(c) identifies "scenic values" as one of the resources for which public land should be managed. Section 201(a) states that "the Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values (including scenic values)." Section 505(a) requires each ROW to "contain terms and conditions which will …minimize damage to the scenic and esthetic values."	The Project is located on federally administered land and would adhere to the visual resource requirements in the Federal Land Policy Management Act. Refer to Section 4.13.1.

Table 4.13-5 State Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
California Scenic Highway Program	Plan to preserve and protect California State scenic highway corridors from change	The closest scenic highway to the Project is SR 78. The Project would adhere to the resource polices aimed at protecting state scenic highway corridors Refer to Section 4.13.1, VIS-1.

Table 4.13-6 Local Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Imperial County Conservation and Open Space Element Goal 5	The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.	Changes to the visual character would occur from the construction of the Project. The Project site does not contain high levels of visual character or quality; therefore, the Project would not result in a significant deterioration in the visual character of the Project site or Project vicinity. See Section 4.13.2, VIS-3.
Imperial County Conservation and Open Space Element Objective 5.1	Encourages the preservation and enhancement of the natural beauty of the desert and mountain landscape.	The Project site is located within an area of desert land that has been previously disturbed. The Project would adhere to local policies and apply CMAs to preserve the natural beauty of the surrounding desert region. See Section 4.13.4.
Imperial County Conservation and Open Space Element Goal 7	Preserve, protect, and enhance the aesthetic character of the region to provide a pleasing environment for residential, commercial, recreational, and tourist activity	The Project site does not contain high levels of visual character or quality; therefore, the Project would not alter the aesthetic character of the region. See Section 4.13.2, VIS-3.
Imperial County Land Use Element Goal 3	Achieve balanced economic and residential growth while preserving the unique natural, scenic, and agricultural resources of Imperial County	The Project is not sited in the vicinity of a designated scenic highway. See Section 4.13.2, VIS-1.
Imperial County Land Use Element Objective 3.4	Protect/improve the aesthetics of Imperial County and its communities	The Project would result in changes to the visual character of the Project site, which is currently characterized as undeveloped desert land. The Project site does not contain high levels of visual character or quality; therefore, the Project would not result in a significant deterioration in the visual character of the Project site or Project vicinity. See Section 4.13.2, VIS-3.
Imperial County Circulation and Scenic Highways Element Objective 4.3	Protect areas of outstanding scenic beauty along any scenic highways and protect the aesthetics of those areas.	The Project is not sited in the vicinity of a designated scenic highway. See Section 4.13.2, VIS-1.

Imperial County Circulation and Scenic Highways Element Objective 4.5	Develop standards for aesthetically valuable sites. Design review may be required so that structures, facilities.	The Project has been designed to avoid impacts to scenic resources. See Section 4.13.2, VIS-2.
Imperial County Circulation and Scenic Highways Element Policy 9 (b)	The County shall emphasize protection of scenic highway resources in all County actions affecting land use.	There are no scenic highways in the Project vicinity. The nearest State-designated scenic highway is SR 78 near Kane Spring, which is approximately 46 miles northwest of the Project Application Area. See Section 4.13.2, VIS-1.

Source: (Imperial County Planning & Development Services 2008; 2015; 2016)

4.13.6 Agencies Contacted and Permits

A list of agencies that were contacted during preparation of this application is provided in Appendix E.1. Permits required to construct, operate, and maintain the project, including the BAAH, and loop-in transmission line, are summarized in Table E.2.

4.13.7 References

Any Place. n.d. "Algodones Dunes Topo Map in Imperial County, California." Any Place. Accessed January 17, 2024. https://www.anyplaceamerica.com/directory/ca/imperial-county-06025/summits/algodones-dunes-251978/.

Imperial County Planning & Development Services. 2008. *Imperial County Circulation Scenic Highway Element*. https://www.icpds.com/assets/planning/circulation-scenic-highway-element-2008.pdf.

———. 2015. *Imperial County Land Use Element*. https://www.icpds.com/assets/planning/land-use-element/land-use-element-2015.pdf.

———. 2016. *Imperial County Conservation and Open Space Element*. https://www.icpds.com/assets/planning/conservation-open-space-element-2016.pdf.

Mapcarta. n.d. "Chocolate Mountains." Mapcarta. Accessed January 17, 2024. https://mapcarta.com/23018916.

4.14 Waste Management

This section discusses the Project's potential effects on human health and the environment from existing Project Application Area conditions as well as nonhazardous and hazardous waste generated during construction, operation and maintenance, and decommissioning of the Project.

Section 4.14.1 discusses the environmental setting. Section 4.14.2 identifies the potential waste management impacts that may result from the Project construction, operation and maintenance, and decommissioning. Section 4.14.3 evaluates potential cumulative impacts. Section 4.14.4 discusses measures to address impacts. Section 4.14.5 provides an overview of applicable federal, State, and local laws, ordinances, regulations, and standards and the Project's compliance therewith.

4.14.1 Environmental Setting

This section summarizes the existing environmental conditions of the Project Application Area and the potential need to remove or otherwise treat contaminated soil or groundwater in the Project Application Area. In addition, this section describes nonhazardous and hazardous waste streams associated with construction and operation and maintenance of the Project. The existing conditions are described as follows:

- Results of a Phase I Environmental Site Assessment (ESA), which was completed for the Project January 29, 2023 using methods prescribed by the American Society for Testing and Materials (ASTM) and All Appropriate Inquiry (AAI), as defined by the United States Environmental Protection Agency (EPA), in Title 40 of the Code of Federal Regulations, Part 312 (40 CFR 312). The Phase I ESA is incorporated as part of this Application as Appendix P.
- A description of each waste stream estimated to be generated during Project construction and operation and maintenance, including origin, anticipated hazardous or nonhazardous classification pursuant to California Code of Regulations title 22, sections 66261.20 et seq., chemical composition, estimated annual weight or volume generated, and estimated frequency of generation (refer to Table 4.14-4 for construction and Table 4.14-5 for operations and maintenance).
- A description of management methods for each waste stream, including methods used to minimize waste generation, length of on- and off-site waste storage, re-use and recycling opportunities, waste treatment methods used, and use of contractors for treatment (refer to Section 4.14.2, Impact Analysis).

Site Investigations

Stantec conducted a Phase I ESA, comprising 24 parcels totaling approximately 7,936 acres, and Limited Phase II Soil Sampling, performed at six locations on three private parcels, for the Project north of SR 98 in Imperial County, California. The Phase I ESA was completed for the Project January 29, 2024 using methods prescribed by ASTM in International Designation

E1527-21 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", and in ASTM International Designation E2247-23 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property" (ASTM 2021a; 2021b). The Phase I ESA was also conducted in conformance with AAI, as defined by the EPA, 40 CFR 312. The Phase I ESA is incorporated as part of this Application as Appendix P. Any exceptions to, or deletions from, the ASTM or AAI practice are described in Appendix P.

Phase I ESA

The investigation for the 2024 Phase I ESA consists of 24 parcels comprising approximately 7,936 acres covering the areas proposed for the Project Site components and vicinity (refer to the Phase I ESA for a list of parcels included). Portions of the Project site and vicinity are accessible by open-access, unpaved roads designated by the BLM. Due to the potential presence of sensitive plant and animal species, certain areas with no vehicular access had to be traversed by foot. As a result, the field visit was made in a concerted effort to traverse specific areas (i.e., areas with debris, signs of surface disturbance, or illustrations marked on topographic maps) by foot to obtain a general understanding of the Project site and vicinity conditions. Not all areas were traversed due to the Project size, time, and Project constraints.

The Phase I ESA identifies potential or existing environmental conditions through a review of current and historical uses of the Project site, as well as the extent of site contamination (Stantec 2024). The Project site and vicinity have historically been undeveloped desert land with power line easements developed in the western portion prior to 1954. A shallow clay mine/pit was reportedly located in the eastern portion of the Project site as discussed below. Portions of the Project site vicinity along I-8 appear to have been cleared of vegetation in the 1978 aerial photograph, but no visible evidence of any specific land use was observable.

Records Review

The objective of consulting historical sources of information is to develop the history of the Project site and vicinity and evaluate if past uses may have resulted in Recognized Environmental Conditions (RECs)[1]. Physical setting records are evaluated to determine if the physical setting may have contributed to adverse environmental conditions in connection with the Project site and vicinity.

No RECs were identified during the records review. Table 4.14-1 provides the potential RECs reviewed per a Federal, State, and Tribal regulatory database search and the findings for no

[1] RECs are defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property (ASTM 2021a). The Phase I ESA distinguishes that a release of hazardous substances or petroleum products, is however, not an REC if that presence is in a de minimis conditions, or otherwise would not present a material risk to human health.

further assessment. Table 4.14-2 provides the regional and local records review and finding for no further assessment.

Table 4.14-1 Federal, State, and Tribal Regulatory Database Records Review

Record	Database listing	Finding
I-8 Segment 4: Construction/reconstruction of the I-8 transportation corridor in 2017 and 2020.	California Integrated Water Quality System Project, National Pollutant Discharge Elimination System	Since there is no indication of storage or releases of hazardous materials, this listing is considered unlikely to represent an environmental concern for the Project.
Imperial Irrigation District (IID) Hydroelectric Plant: located south of Highway 98 along the All-American Canal.	Facility Index System, CalEPA Regulated Site Portal Data, California Environmental Reporting System (CERS) Hazardous Waste, CERS Tanks, Certified Unified Program Agency Resources List Aboveground Storage Tanks, CERS Hazardous Waste Tracking System, Environmental Data Resources Inc. HAZNET list	Although the facility is classified in the CERS database as a "chemical storage facility" that handles and stores petroleum hydrocarbons and hydrocarbon solvents, there are no releases reported for the facility. As a result, this listing is considered unlikely to represent an environmental concern to the Project and no further assessment is recommended.
Drop 3 Clay Pit: located in the eastern portion of the Project site near a cell phone tower at the coordinates 32.712222, -115.127778. Operator is listed as IID. Lead agency is listed as the County of Imperial. Mine I.D. is 91-13-0063	MINES database	The primary product produced by the mine is listed as "clay" and an annual report was submitted to the county in 2011. The Status of Mining Operation is noted as "reclaimed" but the Status of Mine Reclamation is listed as "reclamation not started". The pit was observed during the field reconnaissance and on aerial photographs and appears to be shallow, similar to a surface mine/borrow pit but it has not been filled in. Since the mining operation was for clay, the presence of the mine is not considered a REC. However, the mine is considered a BER and it is recommended that the County of Imperial be contacted to evaluate whether there are any special requirements related to development at the location of the former mine.

Source: (Stantec 2024)

Table 4.14-2 Regional and Local Records Review

Agency	Finding
Imperial County Public Health Department (ICPHD)	A records request was submitted to the ICPHD for the Project on December 4, 2023. ICPHD personnel responded on December 18, 2023, indicating that no records were found for the Project site. The response letter from ICPHD is included in Appendix F of the Phase I ESA.

Regional Water Quality Control Board (RWQCB), Colorado River Region	A record search was conducted through the State Water Resources Control Board's Geotracker website for the Project site and area immediately adjacent to the Project site. There were no release sites found.
Department of Toxic Substances Control (DTSC)	A record search was conducted on the DTSC Envirostor website for the Project site and the surrounding area within one mile. There were no release sites or military sites found.
California Geologic Energy Management Division (CalGEM)	A record search was conducted on the Well Finder provided on the CalGEM website to evaluate if any known oil, gas, or geothermal wells are located within the vicinity of the Project site. The nearest well is approximately 0.3 mile to the northwest of the Project site and is listed as "plugged dry hole". The boundary of the East Mesa geothermal well field is located adjacent to the Project site to the northwest. The nearest geothermal well is 0.75 mile from the Project site. Due to distance, the Phase I ESA considers it unlikely that oil, gas, or geothermal wells represent an environmental concern for the Project site and recommends no further investigation.
Imperial County Planning and Development Services (ICPDS)	A records request was submitted to the ICPDS for the Project site on December 4, 2023, and on January 9, 2024. As of the date the Phase I ESA was prepared, no response has been received; however, this data gap is considered unlikely to change the conclusions of the report due to the undeveloped condition of the Project site other than the utility corridors observed as discussed above. In the event that records become available at a later date, an addendum to the Phase I ESA will be issued.

Source: (Stantec 2024)

The records review also included a search for environmental liens and activity use limitations related to the former Drop 3 Clay Pit. The environmental lien and activity use limitations records review indicated that no environmental liens or activity use limitations were found. City directories were also reviewed which included listings of individual property owners and farms to the west in the community of Holtville and no RECs were identified. Historical topographic maps were also reviewed to help identify past usage on the Project site that could be of potential environmental concern. While no RECs were noted during the review of topographic maps, several irrigation wells were noted on the Project site. If not required to be left in place, the wells would be abandoned in accordance with state standards. Copies of the historical maps are provided in Appendix E of the Phase I ESA, Appendix P.

Site Reconnaissance

A field visit to the Project site and its vicinity was conducted on December 19, 2023. Access to the Project site and vicinity was unrestricted due to it being public land managed by the BLM and BOR and access agreements with the private landowners. The field visit involved traversing the outer Project site boundary and transects across the Project site. Specific locations observable in aerial photographs that indicated potential anthropogenic use were also visited. For a general description of the observations during the field visit, refer to the Phase I ESA in Appendix P (Stantec 2024).

Table 4.14-3 summarizes the potential hazardous substances and petroleum products observed during the field visit. It should be noted that none of the observations included within Table 4.14-3 were located within the Project site for the exception of the 55-gallon drums. No further assessment is recommended for any of the observations during the field visit.

Table 4.14-3 Potential Hazardous Substances and Petroleum Products

Observations	Description/location
Hazardous substances and petroleum products as defined by CERCLA 42 U.S.C. § 9601(14) with identified uses; Aboveground storage tanks (ASTs)	One fuel containing generator and three propane ASTs was within the operations and maintenance compound associated with the telecommunications tower on Assessor Parcel Number (APN) 056-190-018-000. No surface staining or evidence of a release were noted, and the equipment appears to be well maintained. No visible evidence, reports, or other evidence of the former presence of ASTs was discovered during the Phase I ESA. No further assessment is recommended.
Drums/totes/intermediate bulk containers (less than or equal to 5 gallons)	Three 55-gallon drums were observed on APN 056-190-023-000 where active beekeeping boxes were located. One of the drums was rusty but fully sealed and only partially filled with a non-liquid substance. The second drum contained a small amount (less than one gallon) of unidentifiable solid waste that had the consistency of a paper mixed with a small amount of clay. The third drum contained a small amount of sand and rope. No staining or odors of the surrounding surface was observed and given the small volume of material inside the drum no further assessment is recommended.
Strong, pungent, or noxious odors	None observed.
Pools of liquid	None observed.
Unidentified substance containers	None observed.
Polychlorinated biphenyl-containing equipment	None observed.
Other observed evidence of hazardous substances or petroleum products	None observed.
Pits, ponds, or lagoons	Three shallow surface depressions ranging from 10 to 15 feet below the existing grade were observed in the southeast portion of APN 056-019-018-000 in association with the former clay mining pit permitted by IID. The mine has not been filled in. Since the mining observation was for clay, the presence of the mine is not considered a REC.
Stained soil or pavement	None observed.
Stressed vegetation	None observed.
Waste streams and waste collection areas	None observed.

Solid waste disposal	Various discarded items such as tires, a barbeque, rope, and gravel were observed near dirt roads adjacent to the Project site. The disposal of such items is not considered a REC.
Wastewater	No exterior wastewater discharge was observed.
Stormwater	None observed.
Wells	A water well located adjacent tot eh telecommunications to operations and maintenance compound. The well did not appear to be in use but the lid was removable and does not appear to have been abandoned.
Septic systems	None observed.
Other exterior observations	Based on observed signage, a fiber optic line runs along the power line road west of the Project site. Several inactive power poles were observed south and west of the Project site.
Underground storage tanks (USTs)	No visible evidence which would indicate the presence of existing USTs was discovered within the Project site. No visible evidence, reports, or other evidence of former USTs was discovered during the Phase I ESA.
Other underground structures	None observed.

Source: (Stantec 2024)

Limited Phase II Soil Sampling

On January 10, 2024, soil samples were collected on the Project site at six locations to screen shallow soil at a depth of 6-inches for Title 22 metals by EPA Method 6010B/7471A. Soil sampling activities were consistent with ASTM E1903-11. The six sample locations were performed on the private parcels, APN 056-190-035-000, 056-180-013-000, and 056-180-005-000. One of the samples was collected at the south end of one of the remaining surface depressions in the former clay pit.

The analytical results reported various metals that are regulated by the Resource Conservation and Recovery Act (RCRA), including lead and arsenic. All of the detected concentrations of metals were below their respective commercial use screening levels, except for arsenic. Arsenic was reported in all six of the samples at concentrations ranging from 1.8 to 4.1 mg/kg and above commercial use screening level 0.36 mg/kg (DTSC 2022). However, the detected arsenic concentrations are within naturally occurring background levels such that additional assessment or remedial action would not be required by regulatory agencies. No further assessment of metals is recommended at the Project site and vicinity.

Waste Generation

This section identifies nonhazardous waste, hazardous waste, and wastewater that would be generated at the Project site during construction and operation and maintenance activities.

Most of the waste that is anticipated to be generated during construction activities associated with the Project would be classified as nonhazardous waste; however, it is anticipated that some

hazardous waste would be generated. The types of construction waste and their estimated quantities are presented in Table 4.14-4.

Table 4.14-4 Potential Waste Streams Generated During Construction

Waste stream	Origin	Classification	Composition	Disposal	Estimated total quantity
Excess concrete	Construction of concrete pads, foundations, and supports	Nonhazardous	Solids, concrete	Recycle or Class II/III landfill	15 tons
Excavated soil	Grading, excavation or trenching activities	Nonhazardous	Soils	Project site reuse or Class II/III landfill	0 [a]
Wood pallets	Transporting construction materials (i.e., racking, and other electrical components)	Nonhazardous	Wood	Sell, recycle, or chip and disposed of at Class II/III landfill	17,000 pallets [b]
Scrap metal	Construction of supports, racks, and other structural components	Nonhazardous	Metal	Recycle or Class II/III landfill	20 tons
Incidental office waste	General administrative activities	Nonhazardous	Paper, plastic, solid waste	Recycle or Class II/III landfill	10 to 15 tons
Solar array modules	Construction of solar arrays	Nonhazardous	Glass, plastic, and metal	Contracted recycling	30,000 units
Sanitary waste	Sanitary waste generated during construction activities	Nonhazardous	Liquid	Septic system	364,000 gallons (for 50 port-a-potty units)
Potable water	General construction and dust suppression activities	Nonhazardous	Water	Recycle or treat and discharge	1000 acre-feet
Equipment washing water	General construction activities	Nonhazardous	Water	Recycle or treat and discharge	2 acre-feet

Waste oil (lubricating, insulating)	Heavy machinery or other heavy equipment maintenance	Hazardous	Hydrocarbons	Recycling or dispose by certified oil recycler	2,750 gallons
Solvents, detergents, glycols, refrigerants, paint, adhesives	Equipment maintenance	Hazardous	Solvents	Recycle or Class I landfill	50 gallons
Empty hazardous material containers	Transport of hazardous materials to the Project site	Hazardous	Drums, totes, containers	Recycle	20 units
Fuels	Generators or other heavy equipment	Hazardous	Hydrocarbons	Recycle	550 gallons
Welding materials	Construction of supports, racks, and other structural components	Hazardous	Solids	Recycle or dispose at Class I landfill	More than 100 pounds
Oil filters	Vehicles, generators, heavy equipment	Hazardous	Solids	Recycling or dispose by certified oil recycler	200 units
Oily rags/sorbents	Cleanup of small spills	Hazardous	Hydrocarbon	Recycling or dispose by certified oil recycler	500 units
Spent lead acid batteries	Battery operated equipment	Hazardous	Heavy metals	Returned to manufacturer for recycling	50 units
Spent alkaline batteries	Battery operated equipment	Hazardous	Metals	Recycle, dispose offsite at Universal Waste Destination Facility	200 units
Controlled substances	Inerts/explosives packing	Hazardous	Controlled substance	Dispose by certified handler	0

Note: TBD = to be determined.

[a] Earthwork would be balanced during construction.

[b] The pallets expected to be utilized to transport the PV panels to the Project site would be metal reusable pallets provided by the manufacturer.

A majority of the waste that is anticipated to be generated during operation and maintenance activities associated with the Project would be classified as nonhazardous waste; however, it is anticipated that some hazardous waste would be generated. The types of operation and maintenance waste and their estimated quantities are present in Table 4.14-5.

Table 4.14-5 Potential Waste Streams Generated During Operation and Maintenance

Waste stream	Origin	Classification	Composition	Disposal	Estimated total quantity
Paper, wood, glass, insulation, plastics and incidental office waste	General operation and maintenance activities	Nonhazardous	Solids (paper, wood, glass, insulation, plastics)	Recycle or Class II/III landfill	7,800 cubic yards
Concrete	Maintenance of structural elements	Nonhazardous	Concrete	Recycle or Class II/III landfill	0
Scrap metal	Maintenance of structural elements	Nonhazardous	Metal	Recycle or Class II/III landfill	7.14 tons
Spent PV panels and components (silicon and/or thin-film options)	Operations and Maintenance of the solar arrays	Nonhazardous	Glass, plastic, and metal	Recycle or Class II/III landfill and/or recycle with solar manufacturer	77,500 spent panels
Spent transformer components	Operations and Maintenance of the Project substation	Nonhazardous	Metals, mineral oils, solids	Recycle or Class II/III landfill	7.14 tons
Spent switchyard equipment	Operations and Maintenance of the BAAH switchyard	Nonhazardous	Metals, solids	Recycle or Class II/III landfill	7.14 tons
Water treatment soil/sludge	Water treatment system associated with electrolysis	Nonhazardous	Sediment and sludge	Dispose at Class II/III landfill	146,000 cubic feet
Water treatment	Feedstock for electrolysis	Nonhazardous	Water	Recycle or treat and discharge	22,500 acre-feet
Sanitary waste	Project site personnel use	Nonhazardous	Liquid	Contracted sanitary service/septic	13 tons
Potable water	Project site personnel use	Nonhazardous	Water	Recycle or treat and discharge	0

Waste oil (lubricating, insulating) - GSU	Equipment, transformers	Hazardous	Hydrocarbons and FR3 vegetable oil	Cleaned with rags/sorbents/ disposed by certified oil recycler	480,000 gallons
Waste oil (lubricating, insulating) – MVT	Equipment, transformers	Hazardous	Hydrocarbons and FR3 vegetable oil	Cleaned with rags/sorbents/ disposed by certified oil recycler	575,000 gallons
Solvents, detergents, glycols, refrigerants, paint, adhesives	Maintenance of heavy equipment	Hazardous	Solvents	Dispose at Class I landfill	2,500 gallons
Empty hazardous material containers	Transport of hazardous materials to the Project site	Hazardous	Drums, totes, containers	Recycle or dispose at Class I landfill	2,600 containers
Fuels (generators, other equipment)	Equipment, potential spills	Hazardous	Hydrocarbons	Recycle or dispose at Class I landfill	0
Welding materials	Maintenance of structural elements	Hazardous	Metals	Recycle or dispose at Class I landfill	0
Oil filters	Equipment, vehicles, generators	Hazardous	Hydrocarbon or solvent impacted solids	Recycle or dispose by certified oil recycler	2.5 tons
Oily rags/sorbents	Cleanup of spills	Hazardous	Hydrocarbons or solvent impacted soilds	Recycle or dispose by certified oil recycler	2.5 tons
Spent lead acid batteries	Battery operated equipment	Hazardous	Heavy metals	Returned to manufacturer for recycling	240 cells
Spent alkaline batteries	Battery operated equipment	Hazardous	Metals	Recycle, dispose off-site at Universal Waste Destination Facility	0.13 tons

Controlled substances	Inerts/explosives packaging, smoke detectors, fire extinguishers	Hazardous	Controlled substance	Dispose by certified hauler	1,000 lbs

Note: TBD = to be determined.

Waste Disposal

This section describes the waste disposal facilities that may feasibly be used for disposal and recycling of waste generated by the Project.

Solid Waste Disposal

Nonhazardous solid waste would generally be recycled or disposed of at a Class II/III landfill. The Project would employ third parties to manage appropriate handling and disposal of nonhazardous solid waste. There are 11 active, permitted solid waste disposal and recycling facilities within a 50-mile radius of the Project site, as summarized in Table 4.14-6.

Table 4.14-6 Solid Waste Disposal Facilities in the Project Vicinity

Landfill	Location	Class	Permitted capacity (cubic yards)	Remaining capacity (cubic yards)	Permitted throughout (tons/day)	Estimated closure date	Violation of minimum State standards noted?
Imperial Landfill	104 E Robinson Road, Imperial, CA 92251	III	19,514,700	12,384,000	1,700	12/31/2040	No
Colexico Solid Waste Site	New River & SR 98, Calexico	III	3,437,800	1,561,234	150	2/1/2179	No
Niland Solid Waste Site	8450 Cuff Road, 3 miles NE of Niland, Niland	III	318,673	211,439	55	8/1/2046	Yes
North Gila Valley Garbage Dump	7870 East County, 5th Street, Yuma, AZ 85365	BMP	Not available	Not available	180	Not available	Not available
Monofill Facility	3301 West Highway 86, Brawley	II	1,729,800	789,644	750	1/31/2025	No

Valley Environmental Recycling Center	702 East Heil Avenue, El Centro, CA 92243	Transfer/ Processing	36,135	Not available	99	Not available	No
Holtville Transfer Station	2678 Whitlock Road, Holtville	Transfer/ Processing	1,560	Not available	15	Not available	No
Imperial Landfill CDI Facility	104 East Robinson Road, Imperial	Transfer/ Processing	15,600	Not available	100	Not available	No
CR&R Material Recovery & Transfer Op.	599 East Main Street, El Centro	Transfer/ Processing	35,739	Not available	99	Not available	No
El Centro Direct Transfer Station	853 South Dogwood Avenue, El Centro	Transfer/ Processing	54,000	Not available	150	Not available	No
Imperial Solid Waste Site Low Volume TS	1705 W. Worthington Road, Imperial	Transfer/ Processing	1,560	Not available	15	Not available	No

Source: (DTSC, n.d.-b)

Hazardous Waste Disposal

Hazardous waste generated at the Project site would be stored in accordance with the accumulation limits detailed in CCR, title 22, section 66262.34 and would be transported to a *treatment, storage, and disposal* (TSD) facility by a licensed hazardous waste transporter. According to the DTSC, 94 facilities in California accept wastes such as batteries, used oil, solvents, and other hazardous wastes, for treatment, recycling, or disposal (DTSC, n.d.-b). California has two active hazardous waste (Class I) landfills for permanent disposal: Chemical Waste Management, Inc., Kettleman Hills Facility and Clean Harbors Buttonwillow Landfills.

Chemical Waste Management, Inc., Kettleman Hills Facility

Chemical Waste management, Inc., Kettleman Hills Facility is an approximately 1,600-acre hazardous waste TSD facility that accepts Class I and II waste, with the exception of radioactive materials, medical waste, compressed gas cylinders, and explosives. Currently, 695 acres of land are available and permitted for waste management activities (DTSC, n.d.-a; CalRecycle 2023). The B-18 hazardous waste landfill is planned for expansion. A new hazardous waste landfill (B-20) is planned to open after B-18 reaches capacity and will operate for approximately 24 years ("Facility Expansion," n.d.). As of December 21, 2023, B-18 (Class I/II) has permitted capacity of 10.7 million cubic yards and a total remaining capacity of 15.6 million cubic yards. It is

anticipated that hazardous waste generated at the Project site would be accepted at the Kettleman facility.

Clean Harbors Buttonwillow

The Clean Harbors Buttonwillow is a 320-acre facility with an operating area of 160 acres and is permitted to accept waste until 2040 (CalRecycle, n.d.). The Buttonwillow facility has a permitted capacity of 13.25 million cubic yards and can accept up to 10,500 tons per day. The remaining capacity at the Buttonwillow facility is not publicly available. Buttonwillow is permitted to manage RCRA hazardous waste, California hazardous waste, and nonhazardous waste for stabilization treatment, solidification, and landfill. The landfill accepts waste in bulk (solids and liquids) and in containers. Typical waste streams include nonhazardous soil, California hazardous soil, hazardous soil for direct landfill, hazardous waste for treatment of metals, plating waste, hazardous and nonhazardous liquid, and debris for microencapsulation (CalRecycle, n.d.; DTSC, n.d.-b). It is anticipated that hazardous waste generated at the Project site would be accepted at the Buttonwillow facility.

4.14.2 Impact Analysis

The following subsections discuss the potential direct and indirect impacts related to waste management from construction, operation and maintenance, and decommissioning activities of the Project.

Methodology

To identify and assess potential impacts related to waste management, the following Phase I ESA and publicly available information were reviewed:

- Regulatory agency database search prepared by Environmental Data Resources Inc., including the State Water Resources Control Board GeoTracker, DTSC EnviroStor, Facility Index System, CERS, HAZNET, MINES and others as described in the Phase I ESA (Appendix P)
- List of solid waste disposal sites identified by the SWRCB with waste constituents above hazardous waste levels outside the waste management unit
- List of "active" Cease and Desist Orders and Cleanup Abatement Orders
- List of hazardous waste facilities subject to corrective action pursuant to section 25187.5 of the Health and Safety Code, identified by DTSC

Impact Evaluation Criteria

The potential impacts to waste management were evaluated using the criteria described in Appendix G of the CEQA Guidelines (California Code of Regulations, title 14, chapter 3, §§ 15000–15387). The Project would have a significant environmental impact in terms of waste management if the Project would:

- Be located on a site which is included on a list of hazardous materials sites compiles pursuant to Government Code section 65962.5 and, as a result, would create a significant hazard to the public or the environment; and/or

- 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.

Impact WM-1

Be located on a site which is included on a list of hazardous materials sites compiles pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment? (*No Impact*)

Refer to Impact HAZ-3 in Section 4.5: Hazardous Materials Handling for additional details and a discussion of potential impacts related to this impact evaluation criteria.

Impact WM-2

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? (*Less than significant*)

Construction Impacts

Project Site

Construction of the Project would generate hazardous and nonhazardous construction waste, as indicated in Table 4.14-1. Hazardous construction waste would be stored on the Project site for less than 90 days and would be transported to a TSD facility by a licensed hazardous waste transporter. Hazardous construction waste is anticipated to be accepted by Chemical Waste Management, Inc., Kettleman Hills Facility and/or Clean Harbors Buttonwillow Landfill. Nonhazardous construction waste would be recycled or disposed of at a Class II/III landfill, 11 of which exist within a 50-mile radius of the Project site.

The Project would employ third parties to manage appropriate handling and disposal of nonhazardous solid waste during construction. Considering there are multiple locations that would accept anticipated construction waste streams, and that the solid waste landfills listed in Table 4.14-3 have a collective remaining capacity of over 15 million cubic yards, waste generated from construction of Project would not exceed the capacity of surrounding accepting facilities. Therefore, the construction of the Project site would have a less than significant impact on solid waste recycling, disposal capacity, and impaired attainment of solid waste reduction goals.

Breaker and a Half Switchyard

Hazardous waste generated from the construction of the BAAH switchyard would be stored on the Project site for less than 90 days and would be transported to a TSD facility by a licensed hazardous waste transporter. Hazardous construction waste for the BAAH switchyard is also anticipated to be accepted by the same landfill facilities as waste generated from the Project site. Third parties would be employed to manage appropriate handling and disposal of nonhazardous solid waste from the BAAH switchyard during construction. Considering the multiple locations and remaining capacity of landfills within 50 miles of the Project Application Area, the construction of the BAAH switchyard would have a less than significant impact on solid waste recycling, disposal capacity, and impaired attainment of solid waste reduction goals.

Loop-in Transmission Lines

Hazardous waste generated from the 500 kV loop-in transmission lines would be collected by SDG&E during construction and stored either on the Project site or at another approved location or transported immediately to a TDS facility. Hazardous construction waste for the 500 kV loop-in transmission lines is also anticipated to be accepted by the same landfill facilities as waste generated from the Project site. Third parties would be employed to manage appropriate handling and disposal of nonhazardous solid waste from the 500 kV loop-in transmission lines during construction. Considering the multiple locations and remaining capacity of landfills within 50 miles of the Project Application Area, the construction of the BAAH switchyard and 500 kV loop-in transmission lines would have a less than significant impact on solid waste recycling, disposal capacity, and impaired attainment of solid waste reduction goals.

Operation and Maintenance Impacts

Project Site

Operation and maintenance of the Project would generate both hazardous and nonhazardous waste, as indicated in Table 4.14-2. Hazardous operation and maintenance waste would be stored on site for less than 90 days and would be transported to a TSD facility by a licensed hazardous waste transporter. Hazardous operation and maintenance waste is anticipated to be accepted by Chemical Waste Management, Inc., Kettleman Hills Facility and/or Clean Harbors Buttonwillow Landfill. Nonhazardous operation and maintenance waste would be recycled or disposed of at a Class II/III landfill, 11 of which exist within a 50-mile radius of the Project site.

The Project would employ third parties to manage appropriate handling and disposal of nonhazardous solid waste during operations and maintenance. Considering there are multiple locations that would accept anticipated operation and maintenance waste streams, and that the solid waste landfills listed in Table 4.14-2 have a collective remaining capacity of over 15 million cubic yards, waste generated from operation and maintenance of the Project would not exceed the capacity of surrounding accepting facilities. Therefore, operation and maintenance of the Project would have a less than significant impact on solid waste recycling, disposal capacity, and impaired attainment of solid waste reduction goals.

Breaker and a Half Switchyard

Hazardous waste generated from the operation and maintenance of the BAAH switchyard would be stored on the BAAH switchyard site for less than 90 days and would be transported to a TSD facility by a licensed hazardous waste transporter. Hazardous waste generated during operation and maintenance of the BAAH switchyard is also anticipated to be accepted by the same landfill facilities as waste generated from the Project site. Third parties would be employed to manage appropriate handling and disposal of nonhazardous solid waste from the BAAH switchyard during operation and maintenance. Considering the multiple locations and remaining capacity of landfills within 50 miles of the Project Application Area, the operation and maintenance of the BAAH switchyard would have a less than significant impact on solid waste recycling, disposal capacity, and impaired attainment of solid waste reduction goals.

Loop-in Transmission Lines
Hazardous waste generated from the operation and maintenance of the 500 kV loop-in transmission corridors would be stored on the BAAH switchyard site or other approved SDG&E facility for less than 90 days and would be transported to a TSD facility by a licensed hazardous waste transporter. Hazardous waste generated during operation and maintenance of the 500 kV loop-in transmission lines is also anticipated to be accepted by the same landfill facilities as waste generated from the Project site. Third parties would be employed to manage appropriate handling and disposal of nonhazardous solid waste from the500 kV loop-in transmission corridors during operation and maintenance. Considering the multiple locations and remaining capacity of landfills within 50 miles of the Project Application Area, the operation and maintenance of the 500 kV loop-in transmission corridors would have a less than significant impact on solid waste recycling, disposal capacity, and impaired attainment of solid waste reduction goals.

4.14.3 Cumulative Impacts

Impacts of the Project would be considered cumulatively considerable if the impacts have the potential to combine with other past, present, or reasonably foreseeable future projects to become significant.

Project Site Components
As described above, solid waste disposal facilities report substantial remaining capacity to serve the Project and cumulative projects. Similar to the Project, cumulative projects would be subject to applicable construction and operation and maintenance solid waste diversion regulations. Therefore, the Project would not result in a cumulatively considerable impact related to generation of solid waste in excess of State or local standards or the capacity of local infrastructure.

Breaker-and-a-half Switchyard
Construction and operation of the BAAH switchyard is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the BAAH switchyard would not contribute to cumulative waste management impacts.

Loop-In Transmission Line
Construction and operation of the loop-in transmission lines is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the loop-in transmission lines would not contribute to cumulative waste management impacts.

4.14.1 Proposed Best Management Practices, Project Design Features, Conservation Management Actions, and Mitigation Plans

As part of the Project, the Applicant and other entities involved in construction and operation would implement BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM. Project Site Components.

Best Management Practices and Project Design Features
The Project would implement the following BMPs and PDFs related to waste management. See Appendix D.1 for the full language of the BMPs and PDFs.

- BMP 40 to BMP 54 (Hazardous Materials)
- BMP 117 and BMP 118 (Reclamation and Restoration)
- BMP 131 (Wildfire – Safety)
- PDF BIO-5
- PDF BIO-8
- PDF HAZ-1
- PDF HAZ-2

Conservation Management Actions
The Project would implement the following DRECP CMAs. See Appendix D.2 for the full language of the CMAs.

- LUPA-BIO-6

Mitigation Plans
The Project would implement the following mitigation plans:

- Hazardous Materials Management and Oil Spill Response Plan

Breaker-and-a-Half Switchyard
The same BMPs, PDFs, CMAs, and mitigation plans would apply to the BAAH switchyard.

Loop-in Transmission Corridors
The same BMPs, PDFs, CMAs, and mitigation plans would apply to the 500 kV loop-in transmission corridors.

4.14.4 Laws, Ordinances, Regulations, and Standards Compliance
Nonhazardous and hazardous waste handling for the Project would be governed applicable by federal, State, and local LORS to address proper waste handling, storage, and disposal practices to protect the environment from contamination and to protect facility workers and the surrounding community from exposure to nonhazardous and hazardous waste. Table 4.14-7, Table 4.14-8, and Table 4.14-9 present a summary of the federal, State, and local LORS applicable to waste handling at the Project.

Table 4.14-7 Federal Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Resource Conservation and Recovery Act Subtitle D	Regulates design and operation and maintenance of nonhazardous solid waste landfills.	Project solid waste would be collected and disposed of by a collection service in conformance with Subtitle D.
Resource Conservation and Recovery Act Subtitle C	Controls storage, treatment, and disposal of hazardous waste.	Hazardous waste would be handled by contractors in conformance with Subtitle C.

Clean Water Act	Controls discharge of wastewater to the surface waters of the United States.	The Project would adhere to the requirements of the Clean Water Act.

Table 4.14-8 State Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
California Integrated Waste Management Act	Controls solid waste collectors, recyclers, and depositors.	Project solid waste would be collected and disposed by a collection service in conformance with the California Integrated Management Act.
Hazardous Waste Control Law	Controls storage, treatment, and disposal of hazardous waste.	Hazardous waste would be handles buy contractors in conformance with the HWCL.
Porter-Cologne Water Quality Control Act	Controls the discharge of wastewater to surface waters and ground waters of California.	Wastewater would be treated and disposed in conformance with the Porter-Cologne Water Quality Control Act.
California Fire Code	Controls storage of hazardous materials and wastes and the use and storage of flammable/combustible fluids.	Wastes would be accumulated and stored in accordance with Fire Code requirements. Permits for storage containers will be obtained as needed.
Assembly Bill 341/State Bill 1018 – Mandatory Commercial Recycling	Requires commercial businesses generating four cubic yards per week or more of solid waste to adopt recycling practices.	The Project would adopt the necessary recycling practices for the site.

Table 4.14-9 Local Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Imperial County General Plan: • Seismic and Public Safety Element, Goal 3 – Protect the Public from exposure to hazardous materials and wastes: – Objective 3.1 – Objective 3.2 – Objective 3.3 • Land Use Element, Goal 8 – Coordinate local land use planning activities among all local jurisdictions and state and federal agencies – Objective 8.5	Outlines objectives and policies for: handling and transporting hazardous waste materials, minimizing spills, coordination efforts with outside agencies, and maintaining landfill consistency with the County Solid Waste and Hazardous Waste Management Plans.	Project would conform with the Imperial County General Plan by implementing laws, BMPs, and CMAs.

• Water Element, Policy 4 – 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		
Imperial County Code of Ordinances: Chapters 8.48, 8.72 through 8.74	Stipulates requirements for: hazardous waste facility user fees; solid waste management including disposal programs, permits, and fees; and unlawful and unauthorized dumping of solid waste.	Project would conform with the Imperial County General Plan by implementing laws, BMPs, and CMAs. Any required fees would be paid by the Applicant.
Imperial County Multi-Jurisdictional Hazard Mitigation Plan: Section 5.8	Outlines mitigation and goal strategies for control of hazardous materials and protection of water resources from hazardous materials.	Project would conform with the Imperial County General Plan by implementing laws, BMPs, and CMAs.
Imperial County Public Health Department, Solid Waste Local Enforcement Agency (LEA)	Ensures proper storage and disposal of solid waste, minimizes the presence of vectors related to solid waste handling and disposal methods, responds to public complaints relating to illegal disposal of solid waste, and conducts waste hauler inspections in Imperial County.	Project will conform with the Imperial County General Plan by implementing laws, BMPs, and CMAs.

Source: (County of Imperial 2021; 1993; Imperial County Public Health Department, n.d.; County of Imperial, n.d.)

4.14.2 Agencies Contacted and Permits

A list of agencies that were contacted during preparation of this application is provided in Appendix E.1. Permits required to construct, operate, and maintain the project, including the BAAH, and loop-in transmission line, are summarized in Table E.2.

4.14.3 References

American Society for Testing and Materials (ASTM). 2021a. "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." In *Annual Book of ASTM Standards*, 11.05. ASTM E1527-21. ASTM International. https://doi.org/10.1520/E1527-21.

———. 2021b. "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property." In *Annual Book of ASTM Standards*, 11.05. ASTM E2247-23. ASTM International. https://www.astm.org/e2247-23.html.

California Department of Toxic Substances Control. 2022. "Human Health Risk Assessment (HHRA) Note Number 3, DTSC-Modified Screening Levels (DTSC-SLs)." chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/HHRA-Note-3-June2020-Revised-May2022A.pdf.

CalRecycle. 2023. "2023 Landfill Summary Tonnage Report." XLSX. Tabular data. Retrieved from CalRecycle Landfill Tonnage Reports (December 12, 2023). https://www2.calrecycle.ca.gov/LandfillTipFees.

———. n.d. "SWIS Facility/Site Activity Details: Clean Harbors Buttonwillow LLC (15-AA-0257)." Database. SWIS Facility/Site Search. Accessed December 21, 2023. https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/3922?siteID=733.

County of Imperial. 1993. *Imperial County General Plan*. Prepared by: Planning & Development Services Department. Available: https://www.icpds.com/planning/land-use-documents/general-plan.

———. 2021. *Imperial County Multi-Jurisdictional Hazard Mitigation Plan Update*. https://www.icpds.com/assets/Imperial-County-MHMP-2021-Plan-Update-2021_01_11.pdf.

———. n.d. "Imperial County Code of Ordinances, Title 8 - Health and Safety." Municode. Accessed December 21, 2023. https://library.municode.com/ca/imperial_county/codes/code_of_ordinances?nodeId=TIT8HESA.

Department of Toxic Substances Control (DTSC). n.d.-a. "Chemical Waste Management Inc Kettleman (CAT000646117)." Database. EnviroStor. Accessed December 21, 2023. https://www.envirostor.dtsc.ca.gov/public/hwmp_profile_report?global_id=CAT000646117.

———. n.d.-b. "Clean Harbors Buttonwillow LLC (CAD980675276)." Database. EnviroStor. Accessed December 21, 2023. https://www2.calrecycle.ca.gov/SolidWaste/Site/Search.

———. n.d.-c. "Commercial Offsite Hazardous Waste Permitted Facilities." Database. EnviroStor. Accessed December 21, 2023. https://www.envirostor.dtsc.ca.gov/public/commercial_offsite.asp.

"Facility Expansion." n.d. Kettleman Hills. Accessed December 21, 2023. https://kettlemanhillslandfill.wm.com/facility-expansion/index.jsp.

Imperial County Public Health Department. n.d. "Solid Waste." Imperial County Public Health Department. Accessed December 21, 2023. https://www.icphd.org/environmental-health/solid-waste.

Stantec. 2024. "Phase I Environmental Site Assessment."

4.15 Water Resources

This section discusses the existing water resources in and near the Project Application Area and the potential effects that the Project may have on water resources. This section was informed in part by the hydrologic and hydraulic 2-D analysis prepared by WRMA Engineering, Inc., for the Project (Appendix G).

Section 4.15.1 describes the existing environmental conditions for water resources. Section 4.15.2 discusses potential environmental effects of Project construction, operation and maintenance, and decommissioning on water resources. Section 4.15.3 analyzes potential cumulative impacts on water resources. Section 4.15.4 discusses measures designed to minimize or avoid impacts on water resources. Section 4.15.5 presents applicable laws, ordinances, regulations, and standards (LORS) related to water resources. Appendix E.2 describes permits that relate to water resources, lists contacts with relevant regulatory agencies, and presents a schedule for obtaining permits.

4.15.1 Environmental Setting

The environmental setting for water resources addresses the following topics as required in 20 CCR, division 2, chapter 5, Appendix B:

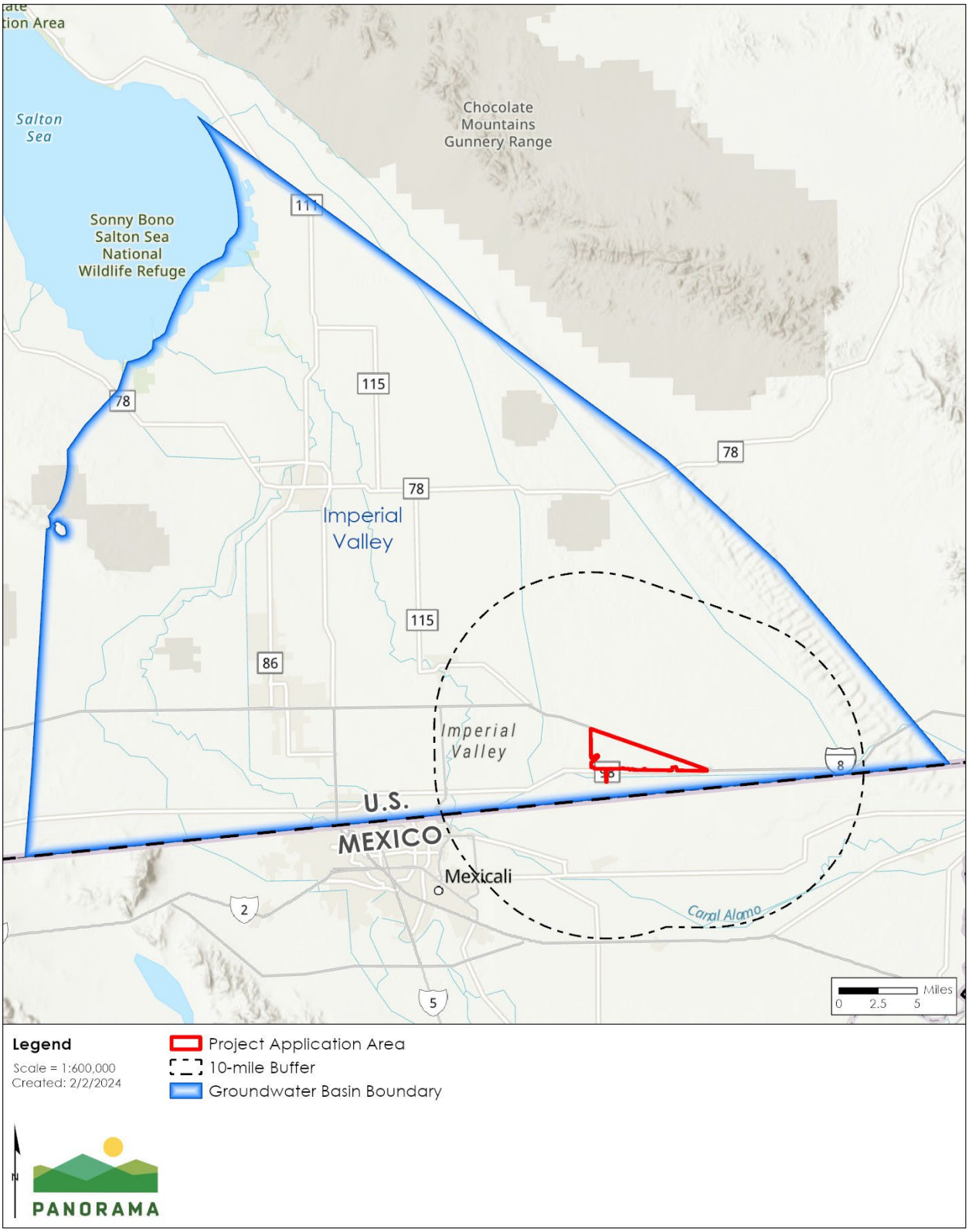
- Groundwater resources and geologic structures (Appendix B Requirement (B)(i)); see Groundwater section, including identification of groundwater wells within 0.5 mile of the Project site under "Nearby Wells" (Appendix B Requirement (B)(v))
- Surface water bodies (Appendix B Requirement (B)(ii)); see Surface Water section
- Flood control facilities, existing and proposed (Appendix B Requirement (B)(iii)); see Stormwater section
- Water inundation zones, such as the 100-year flood plain and tsunami run-up zones (Appendix B Requirement (B)(iv)); see Flooding and Inundation section.

Maps for all water resources topics can be found in this document, the Jurisdictional Delineation Report (Appendix J.2), and the Detailed Biological Figures (non-confidential; Appendix J.3).

Groundwater

The Project Application Area overlies the Imperial Valley Groundwater Basin (IVGB). Figure 4.15-1, below, provides an overview of the Project Application Area within the IVGB. The IVGB is bounded to the west by the Coyote Wells Valley Groundwater Basin and the Ocotillo-Clark Valley Groundwater Basins, to the east by the Ogilby Valley, Amos Valley, and East Salton Sea groundwater basins, and to the north by the Salton Sea. While politically, the southern boundary of the IVGB is defined by the U.S.–Mexico border, the physical groundwater basin extends south across the border into Baja California (DWR 2021).

Figure 4.15-1 Groundwater Basin Map of Project Application Area



Source: (Intersect Power 2023a) (California Department of Water Resources 2021)

Imperial Valley Groundwater Basin

The IVGB covers an area of approximately 1,496 square miles. The basin's southern boundary aligns with the Imperial County line, which is also the California state line and the border between the U.S. and Mexico. The basin is south of the Salton Sea and lies within the southern part of the Colorado Desert Hydrologic Region (DWR 2004).

The IVGB has two major hydrologic features, the New River and the Alamo River, both of which discharge into the Salton Sea. The Coachella Canal and all three branches of the All-American Canal cross over the basin (DWR 2004).

Surface runoff from the East Mesa and West Mesa is the main source of recharge, while flow from the Mexicali Valley to the south is the main source of underflow into the basin (DWR 2004). Recharge also occurs from the lower reaches of the New River as well as seepage from the All-American Canal and the Coachella Canal.

Groundwater levels throughout the basin vary as a result of differing hydraulic heads and localized confining clay beds but have tended to remain stable due to an extensive network of subsurface drains and relatively constant recharge (DWR 2004).

Aquifer System Overview

The IVGB has two major aquifers separated at depth by a semi-permeable barrier that averages 60 feet thick and reaches a maximum thickness of 280 feet. The IVGB aquifers consist primarily of alluvial deposits of the late Tertiary and Quaternary ages. The upper aquifer has an average thickness of 200 feet and a maximum thickness of 450 feet. The lower aquifer has an average thickness of 380 feet and a maximum thickness of 1,500 feet. As much as 80 feet of fine-grained, low-permeability prehistoric lake deposits have accumulated on the nearly flat valley floor and create locally confined aquifer conditions (DWR 2004).

Groundwater in Storage

The amount of groundwater in storage does not represent the amount of groundwater available for use; rather, groundwater in storage can be used to measure basin balance over time. If a basin is in balanced conditions, the amount of inflow is equivalent to the amount of outflow, and the amount of water in storage thereby remains relatively constant over time. Quantification of the amount of inflow and outflow required to support sustainable (balanced) conditions in a basin can be used to create a water budget and identify the *sustainable yield*, or the maximum amount of water that can be withdrawn annually without causing undesirable effects such as overdraft.

The basin may have saturated sedimentary deposits as thick as 20,000 feet. A large portion of this groundwater is undesirable because of high TDS concentrations. The total storage capacity for this basin is estimated to be 14,000,000 acre-feet (DWR 2004).

Based on a groundwater model published by Montgomery Watson in 1995 utilizing data from 1970 to 1990, recharge comes mostly from imported sources and canal seepage and totals approximately 250,000 acre-feet per year (AFY). Losses to streams average 169,342 AFY. Groundwater discharge from the basin averages 270,000 AFY while subsurface inflow averages 173, 000 AFY. This gives an average change in groundwater storage of approximately 17,000 AFY (DWR 2004), meaning the basin is in overdraft of 17,000 AFY.

Groundwater Quality

The quality of surface and groundwater resources is managed by the State Water Resources Control Board (SWRCB) through its nine Regional Water Quality Control Boards (RWQCBs) with implementation of Water Quality Control Plans (aka, "Basin Plans") across all hydrologic regions. The Project is located within the jurisdiction of the Colorado River Region, which implements the *Colorado River Basin Plan* (Colorado River RWQCB 2023).

The *Colorado River Basin Plan* identifies water quality objectives for various constituents and has identified the need for more information on the groundwater basins before establishing objectives for groundwater quality. The Colorado River RWQCB has identified an increase in mineral concentrations such as total dissolved solids (TDS) and nitrates that contribute to the current degraded quality of groundwater in the region (Colorado River RWQCB 2023). Until investigations are completed on groundwater quality, the Colorado River RWQCB's objective is to maintain existing water quality wherever possible.

Sustainable Groundwater Management Act

In 2014, SGMA established a framework for local groundwater management under which the DWR assigns priority levels to groundwater basins based on existing water balance conditions. The purpose of SGMA is to bring overdrafted basins into sustainable conditions by 2040 and to maintain sustainable conditions in the future. To accomplish this, groundwater basins are required to be managed by DWR-approved Groundwater Sustainability Agencies (GSAs).

The IVGB is not designated by DWR as a medium or high priority basin or as critically overdrafted (DWR 2020). The Imperial Valley Basin is within the County of Imperial GSA, which is co-managed by Imperial County and Imperial Irrigation District (IID).

Groundwater Sustainability Plan

Because the Imperial Valley Groundwater Basin is not a high or medium priority basin, a groundwater sustainability plan is not required for the Imperial Valley Basin (DWR, n.d.).

Subsidence

Subsidence is a gradual lowering of the ground surface elevation. Comprehensive land subsidence investigations have not been conducted for the Colorado River hydrologic region. As of the 2013 *Colorado River Hydrologic Region Groundwater Update*, subsidence studies had only been completed for the Lucerne and Coachella Valleys. The 2013 Groundwater Update identifies the need for further studies to understand subsidence patterns and vulnerabilities throughout the region (DWR 2015).

Nearby Wells

The Department of Water Resources records include three existing water supply wells within 1 mile of the Project Application Area. The existing groundwater supply wells include one domestic well approximately 0.5 mile from the Project Application Area and adjacent to the All American Canal with a depth of 98 feet, an industrial well with a depth of 179 feet located adjacent to the All American Canal, and a domestic well approximately 1 mile from the Project Application Area with a depth of 200 feet (DWR 2022). In addition, a groundwater monitoring well is located on the Project site and several groundwater monitoring wells are located adjacent to the All American Canal and south of the Project site.

Surface Water

The study area for surface water resources is defined by the watersheds within which the Project Application Area is located. This section provides definition of the affected watershed areas and characterizes topography (elevation) and slope as these factors influence the presence of surface water as well as the rate and extent of stormwater runoff.

Hydrologic Setting

The Project Application Area is located within the Deer Peak drainage area within the Salton Sea Transboundary Watershed, which covers approximately 8,360 square miles, predominantly within Imperial County (California Water Boards, n.d.). The subbasin is bordered to the east by the Chocolate Mountains, to the west by the Santa Rosa Mountains, and to the south by the Sierra Cucapa in Mexico. Major waterbodies in the watershed include the Salton Sea, the New River, the Alamo River, the Imperial Valley Agricultural Drains, and the Coachella Valley Stormwater Channel (California Water Boards, n.d.).

Waterbodies

Based upon review of data from the USGS National Hydrography Dataset (NHD) on surface water flowlines across the U.S., there are no well-defined hydrologic features in the Project Application Area (WRMA 2021). There is some evidence of ephemeral flowlines where some amount of flow would be present throughout the year in the southwestern portion of the Project site and in the southernmost portion of the loop-in transmission corridor (USGS 2023). Surface water in the Project Application Area occurs as runoff in direct response to precipitation events and moves as sheet flow across the relatively level Project Application Area (WRMA 2021).

Watersheds

Watersheds relevant to the Project Application Area were identified based upon review of data from the NHD, which uses national data to delineate stream networks within a defined hierarchy of watersheds. Table 4.15-1 provides an overview of the watersheds containing parcels in the Project Application Area and the size of each watershed.

Table 4.15-1 Watershed NHD Identification Data

Watershed	HUC ID number	Acres
Gordons Well Subwatershed	181002040402	63,892

Midway Well Subwatershed	181002040401	19,777

Source: (WRMA 2021)

In the Project Application Area, there is a gradual change in elevation that decreases from east to west, with an average slope of 0.1 percent. The slope of the terrain is relatively gentle, with a 0- to 2.5-percent slope across most of the Project Application Area (WRMA 2021). Based on this topography and the closed bowl nature of the subwatersheds, most rainfall infiltrates into the soil strata, with excess runoff concentrating into shallow pools distributed throughout the watershed and at the lowest points on the terrain. Due to the lack of defined surface water features on the Project Application Area, in addition to the relatively level slope of the site, surface water runoff that does not infiltrate the surface moves across the surface as sheet flow that eventually concentrates into low points in the terrain.

Drainage Areas

Drainage patterns are largely influenced by land cover and soil characteristics as well as slope and topography. The Project Application Area lacks defined hydrologic features and all subwatersheds are closed (bowl shaped) basins, so drainage is largely confined to the subwatershed (WRMA 2021).

Water Quality Control Plan

The Project Application Area is within the jurisdictional boundaries of the Colorado River RWQCB and is subject to the management direction of the Colorado River Basin Plan (Basin Plan). The Basin Plan establishes water quality objectives to ensure the reasonable protection of beneficial uses and a program of implementation for achieving water quality objectives. For those waters not attaining water quality standards, the RWQCB establishes *total maximum daily loads* (TMDLs) for water quality constituents, and a program of implementation to meet each TMDL.

Under the Porter-Cologne Water Quality Control Act and Section 303(d) of the Clean Water Act, each state maintains a "303(d) List of Water Quality Limited Segments" identifying waters that are not attaining water quality standards. TMDLs are required for all waters on the 303(d) list. The All-American Canal, located within the southern portion of the Project Application Area, is on the 303(d) list and has an established total maximum daily load (TMDL) for the pesticides chlordane and dichlorodiphenyltrichloroethane (DDT) as well as the pollutant polychlorinated biphenyls (PCBs) (Colorado River RWQCB, n.d.). The Alamo River, downstream of the Project Application Area, is on the 303(d) list for ammonia, chloride, *E. coli*, *Enterococcus*, PCBs, sediment, selenium, total toxics, and 11 different pesticides (California State Water Resources Control Board (SWRCB) 2022).

Stormwater

Stormwater refers to water that occurs on the ground surface in direct response to precipitation events. As required by Appendix B Requirements (D)(i), the following topics related to stormwater are addressed below:

- Monthly and/or seasonal precipitation (Appendix B Requirement (D)(i)): see below under "Climate and Precipitation"
- Infiltration and stormwater runoff (Appendix B Requirement (D)(i)): see below under "Infiltration and Stormwater Runoff"

The following sections are informed by Project design plans, including a 2-D Hydraulic Study (Appendix G), which is incorporated by reference herein.

Climate and Precipitation

The Project Application Area is located within the southern portion of California's Imperial Valley, where the climate is hot and arid, with long, dry summers, late summer to early fall monsoon rains, and slightly wet winters. The average temperature is 73 degrees Fahrenheit (°F) (WRCC 2009).

Table 1-7 in Appendix G provides detailed estimates of rainfall amount in inches over a range of durations between 5 minutes to 24 hours and accounting for rainfall intensity associated with storm sizes ranging from the 1-year storm (anticipated to occur every year) through the 100-year storm (anticipated to occur every 100 years) and up to the 1,000-year storm event.

Rainfall data indicates that over 24 hours of a 1-year storm event, an average of 0.73 inch of rain would fall on the Project Application Area while, over the same period during a 100-year storm event, an average of 3.84 inches of rain would fall on the area. Graphical representations of the data in Table 1-7 are provided in Figures 1-2 and 1-3 of Appendix G. Figure 1-5 of Appendix G shows the amount of precipitation that occurs is directly correlated with the size of the storm event (i.e., *average recurrence interval*) and the duration of rainfall.

Average annual precipitation in the Project area is about 2.61 inches total, most of which occurs from August through March (WRCC 2009).

Infiltration and Stormwater Runoff

Infiltration Rates

Approximately 98 percent of soils on the Project site are classified by the USGS as Group A soils (NRCS, n.d.). Group A soils in the Project Application Area contain Rositas loamy fine sand (78.6 percent) with Rositas fine sands (14.3 percent), superstition loamy fine sand (4.7 percent), and Antho loamy fine sand (0.1 percent). Group A soils generally have a higher rate of infiltration, with good drainage and high infiltration rates, indicating that most precipitation is absorbed by the soil and does not sheet flow across the landscape.

The restrictive layer of soil limits the movement of water and air as well as the movement of roots through the soil. Soils in the Project Application Area do not contain a restrictive layer in the form of dense, frozen or cemented layers or areas of bedrock (NRCS, n.d.).

Runoff

The Project Application Area primarily consists of HSG Group A soils with low runoff potential and high infiltration rates. The hydraulic characteristics of the Project Application Area are dry, flat desert shrub. Any excess runoff concentrates in shallow pools at low points in the terrain. Pooling of excess runoff is also concentrated near roadways due to runoff from impervious paved asphalt roads. The topography is more or less consistently flat with a predominant slope of 0 percent to 2.5 percent. Excess runoff is distributed or dispersed into shallow sheet flow as it traverses the surface at low velocity of less than 1 foot per second (fps). The runoff eventually reaches the lowest area of elevation and begins to form shallow pools.

Stormwater runoff generally flows in a westerly direction through the Project Application Area. Hydrologic features are either non-existent or poorly defined and there is no consistent hydrologic network as the areas have consistent gentle slopes, which push surface runoff as sheet flow down-gradient, towards the lower western portions of the closed basins. A substantial amount of any significant rainfall infiltrates into the soil strata with any remaining excess runoff then concentrating into shallow pools distributed throughout the watershed and at the lowest points on the terrain.

Flooding and Inundation

Inundation Areas

For the purposes of this analysis, *inundation area* refers to the area of land that would be inundated by water in the event of a tsunami, seiche, or dam failure.

- Tsunami. Tsunamis are seismically induced waves generated by sudden movements of the ocean bottom during earthquakes, landslides, or volcanic activity. The Project Application Area is not located near the ocean and is separated from the coast by the geologic formations of the Jacumba Mountains. The Project Application Area is not located within the inundation area for a tsunami.
- Seiche. Seiches are wind or earthquake-induced "standing waves" within enclosed water bodies, such as bays, lakes, or reservoirs. The Project Application Area is not located within the inundation area for a seiche or near any enclosed body of water that could produce a seiche that could result in water being released and inundating downstream areas.
- Dam failure. The Project Application Area is not located downstream of or within the inundation area for any dam identified as having potential for failure with an associated inundation area (DWR, n.d.). The Project is not subject to inundation due to the failure of a dam or levee.

The Project Application Area is not located within the inundation area of any tsunami, seiche, or dam or levee failure.

Flood Hazard Areas

FEMA-designated flood hazard areas represent those areas that would be inundated by a storm of the magnitude that occurs once every 100 years or has a 1-percent chance of occurring during any given year (i.e., 100-year storm). As shown in Figure 4.15-2, the Project Application Area is not within a FEMA flood hazard area.

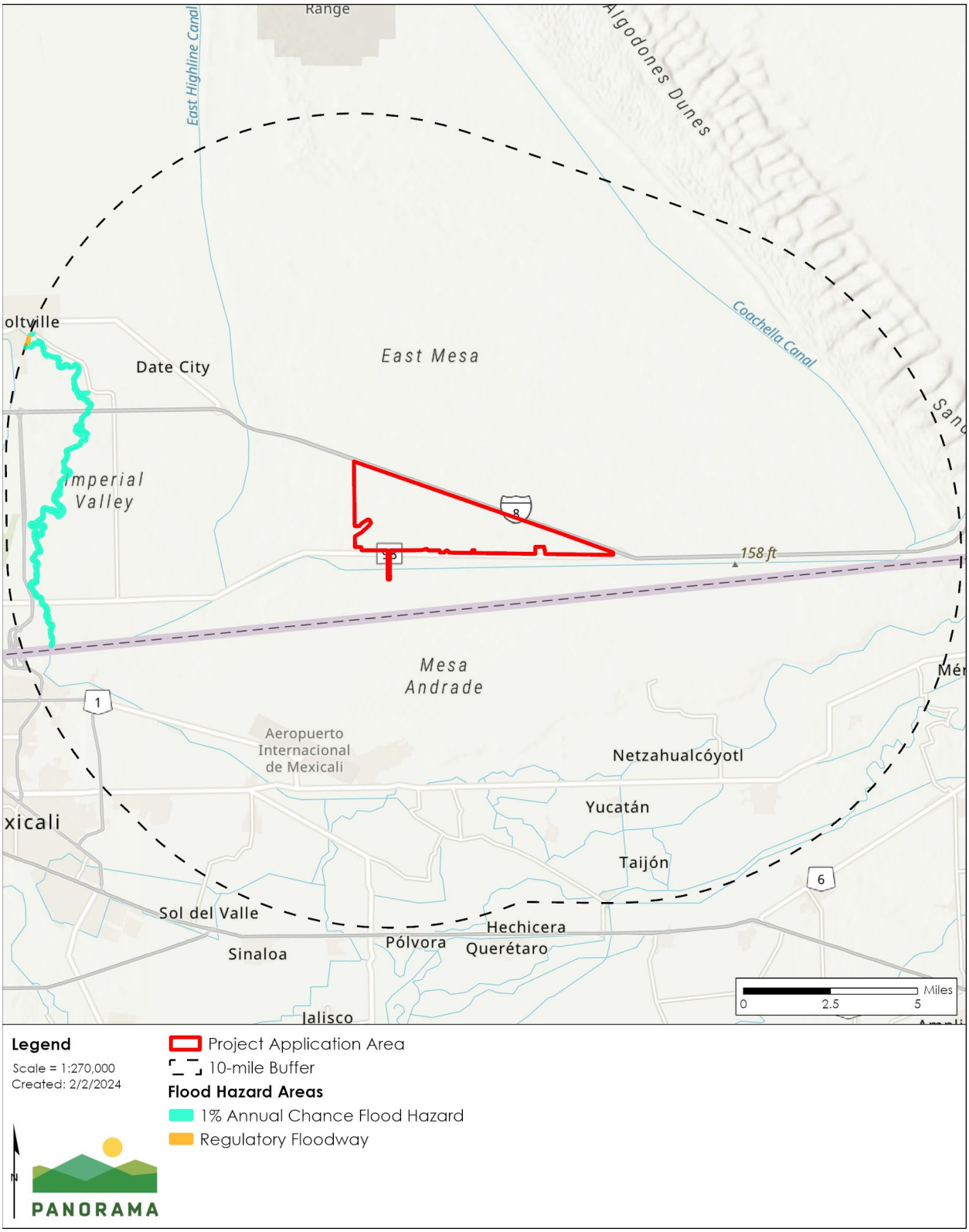
The characteristics of the terrain in the Project Application Area, coupled with the low rainfall volume produced in this area of the southwestern U.S., produces a floodplain that is dispersed and not particularly well defined except in those areas where runoff begins to pool at low elevation. The 100-year-storm rainfall for this area is determined by Atlas 14 to be 3.84 inches, which is very low. The flat and gentle sloping of the topography at the foot of the Imperial Valley is a significant distance from the nearest mountainous area and distributes the rainfall uniformly across the watershed area into very shallow sheet flows. The maximum depth of the floodplain, where the water does not pool, is for the most part between 0 and 1 foot, with most flood depths shown by the model to be less than 1 foot for the vast majority of the Project Application Area (WRMA 2021). Water begins to pool at lower elevations towards the westerly side of the Project Application Area. There are no existing regulatory floodplains on or near the Project Application Area, as shown in Figure 4.15-2.

Man-made grade breaks in the form of agricultural water supply ditches and roads border the agricultural areas surrounding the eastern outer limits of the City of Holtville within the Imperial Valley agricultural areas to the west of the Project Application Area. The ditch systems to the west and south of the Project Application Area are primarily for irrigation purposes, including the All-American Canal, which is operated by the IID west of the Project Application Area at the Imperial Diversion Dam. The All-American Canal is a man-made canal on both sides.

Figure 2-6 in Appendix G shows that the areas most affected by the flood inundation from the 100-year flood were shown to be those areas at the lowest elevations within the Terrain model. Given the limited extents, shallow depth, and undefined character of the computed flood inundation boundaries, the desktop analysis indicates that the Project Application Area has a low flood risk profile when considering that the rainfall event modeled is the 100-year/24-hour (1% annual chance) storm event.

In general, velocities within the floodplain were shown to be within 0 to 1 foot per second (fps). In some isolated areas the velocity may reach 2 fps; however, these velocities would be brief as the flow velocity would drop significantly following the peak of the response to less than 1 fps. The flat nature of the Project Application Area effectively distributes the flow into low velocity distributed sheet flow, as shown in Figure 2-8 in Appendix G.

Figure 4.15-2 FEMA Flood Hazard Areas in Project Application Area



Source: (Intersect Power 2023a) (FEMA 2022)

The Project Application Area has a generally low maximum floodplain inundation depth of 1 foot or less, with velocities of 1 fps or less. Consequently, the Project Application Area has a low flood risk, which is consistent with the hydrologic characteristics, including Group A soils (high infiltration), low annual rainfall (3 inches +/-), and a low 100-year/24-hour point rainfall volume of 3.84 inches (WRMA 2021).

Wastewater

There is no existing wastewater service in the Project Application Area.

Water Supply

There is no existing water supply to the Project Application Area. The Project Application Area is undeveloped and does not currently have water service. The private lands within the Project Application Area are zoned open space and do not have any agricultural water supply from IID. No groundwater supply wells or other water supply facilities occur on the Project site. A groundwater monitoring well occurs in the southeastern portion of the Project Application Area near an existing telecommunications tower. The IID All American Canal is located south of and parallel to the Project site and within the loop-in transmission corridor.

4.15.2 Impact Analysis

Methodology

To identify and assess potential impacts related to water resources, the activities of the Project were considered against existing conditions, as characterized in Section 4.15.1 Environmental Setting, and based upon review of publicly available information including maps, online databases, articles, reports, and published research papers. The section below presents detailed impact analyses, with each impact characterized for construction and operation (including maintenance) periods, under each of the following key Project components: Project site components including the solar arrays, BESS, and Project substation, and 500 kV loop-in transmission line and BAAH switchyard.

Impact Evaluation Criteria

The following threshold criteria, as defined by the CEQA Guidelines Environmental Checklist (Appendix G of the CEQA Guidelines), were used to evaluate potential impacts on water resources. Based on these criteria, a project would have a significant environmental impact on water resources if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater 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 off-site;
  - 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; and/or
  - Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; and/or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impact WAT-1

Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (*Less than Significant*)

Construction:

Project Site Components

The BESS, substation, operation and maintenance buildings, and roads would require vegetation clearing, grading, and compaction. Inverter-transformer station locations would require light grubbing. Where excavation is required, most construction activities would be limited to less than 6 feet in depth within the Project site; however, some excavations, such as those undertaken for the installation of gen-tie poles and dead-end structures, may reach depths of 45 feet or more.

Temporary areas of disturbance would be restored in accordance with the Restoration and Integrated Weed Management Plan (Appendix M). The Applicant would be required to apply for coverage under a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order numbers WQ 2022-0057-DWQ and CAS000002 (Construction General Permit), and any following versions applicable at the time of construction. The Construction General Permit was developed to ensure that stormwater is managed and erosion is controlled on construction sites. The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which requires implementation of best management practices (BMPs) to control stormwater run-on and runoff from construction work sites. BMPs may include, but would not be limited to, physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other

measures to be identified by a qualified SWPPP developer that would substantially reduce or prevent erosion during construction.

The Applicant has also proposed to implement a Drainage, Erosion, and Sediment Control Plan (DESCP) to reduce the impact of run-off during construction, operation, and maintenance (see PDF HWQ-1). The DESCP would ensure proper protection of water quality and soil resources, address disturbed soil stabilization treatments in the Project area for both road and non-road surfaces, and identify all methods used for temporary and final stabilization of inactive areas. The Plan would cover all Project component areas subject to disturbance. The DESCP would cover site mobilization, excavation, construction, and post-construction (i.e., operation and maintenance) activities. Site monitoring would involve inspections to ensure that the BMPs required by the Project-specific SWPPP and DESCP are properly maintained and reducing the risk of run-off to an adequate level. Implementation of the Project-specific SWPPP and DESCP would ensure that downstream water bodies are not affected by sediment transport.

Construction activities would also involve the handling, use, and storage of limited quantities of hazardous materials, which would be limited to waste oil, oil filters, oil rags, solvents, fuels, welding materials, empty hazardous materials containers, spent batteries, and controlled substances. As regulated hazardous materials would be present on site, storage procedures would be dictated by the Hazardous Materials Business Plan (HMBP) and Spill Prevention Control and Countermeasures (SPCC) Plan that would be developed prior to construction in compliance with State and federal regulations for management of hazardous materials (California Health and Safety Code, Division 20, Chapter 6.95, Article 1, Sections 2550 to 25519; California Code of Regulations, Title 19, Division 2, Chapter 4, Article 4, Sections 2620 to 2671; Clean Water Act §311). The HMBP and SPCC Plan would specify safe handling and emergency response procedures should an unintended lead or release of hazardous materials occur. Implementation of safety and response measures during Project construction would minimize the potential for hazardous materials to be released into the environment such that water resources would not be substantially degraded.

The Project would require discharge of fill material to ephemeral drainages and a swale that meet the definition of waters of the State. An application for Waste Discharge Requirements in compliance with the Porter-Cologne Water Quality Control Act is provided in Appendix L. Because the Project would obtain a permit for discharge of any fill materials to waters of the State in compliance with the Porter-Cologne Water Quality Control Act, the Project would not violate any waste discharge requirements.

The Colorado River Basin Plan is the water quality control plan for the Project Application Area. The Project Application Area drains into the Alamo River, which is on the 303(d) list with 20 TMDLs, as defined in the Basin Plan (SWRCB 2022). The Alamo River is on the 303(d) list and has a TMDL for sediment in addition to multiple pesticides and chemicals in agricultural runoff. The TMDL for sediment focuses on controlling sediment in agricultural runoff. The Project would not release any pesticides or pollutants that are listed on the 303(d) list but has the potential to result in increased erosion and sedimentation as a result of ground disturbance.

As the Project is not an agricultural project and is located more than 8 miles from the Alamo River, the impact on the water quality control plan, including the TMDL, would be less than significant.

A groundwater sustainability plan has not been adopted for the groundwater basin underlying the Project Application Area; therefore, the Project would not conflict with a sustainable groundwater management plan.

Because construction of the Project site components would comply with the requirements of the Construction General Permit and would implement BMPs 85 through 93 and BMPs 128 through 130, PDFs BIO-3, BIO-8, and HWQ-1; and CMAs LUPA-BIO-15, LUPA-SW-1, LUPA-SW-2, and LUPA-SW-20 through 22 to protect water quality, the Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Construction of the Project site components also would not obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, impacts to surface or groundwater quality would be less than significant.

Breaker-and-a-Half Switchyard

The impacts from construction of the BAAH switchyard would be the same as those discussed above for project site components. Because construction of the BAAH would comply with the requirements of the Construction General Permit and would implement the BMPs, PDFs, and CMAs noted above to protect water quality, the Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Construction of the BAAH also would not obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, impacts to surface or groundwater quality would be less than significant.

Loop-in Transmission Lines

Construction activities for the 500 kV loop-in transmission lines would include excavation that could result in encountering perched or shallow groundwater, depending on site-specific conditions at the location of excavation. For instance, approximately 12 transmission structures would be installed within the 500 kV loop-in transmission line corridor and would be placed within holes excavated to up to 45 feet or more. If water is encountered during excavation, dewatering may be required.

The water removed from the work area during dewatering activities may be discharged to the ground surface or stored and reused on site, such as for dust suppression. If the removed water is discharged to land, either the discharge would comply with the requirements of a report of waste discharge or Form 200 would be filed with the Colorado River RWQCB and a permit would be obtained prior to discharge of groundwater to avoid any violation of waste discharge requirements. In addition, any surface discharge of groundwater would require testing and treatment to ensure that the discharge does not exceed the effluent limitations specified in the permit.

The Project's 500 kV loop-in transmission line would traverse the All-American Canal, which is on the Colorado River RWQCB 303(d) list for chlordane, DDT, and PCBs (Colorado River RWQCB, n.d.). The loop-in transmission lines would span the All-American Canal and would not generate any DDT or PCBs. The loop-in transmission lines would therefore not conflict with implementation of the water quality control plan.

Construction of the loop-in transmission lines would involve vegetation removal, grading, and soil disturbance similar to that for the Project site components. As described for the Project site components above, the Project would be subject to the requirements of the Construction General Permit and would implement a SWPPP to protect water quality.

Because the loop-in lines would avoid impacts to water quality in the All-American Canal and would obtain any required permits for discharge of groundwater (if needed), the loop-in transmission lines would not violate any water quality standards or waste discharge requirements. The loop-in transmission lines would also comply with the Construction General Permit and would not otherwise substantially degrade surface water quality. The loop-in line would not obstruct implementation of a sustainable groundwater management plan, as a sustainable groundwater management plan does not exist for the Project Application Area. Therefore, conflicts with a water quality control plan or waste discharge requirements and impacts to water quality would be less than significant.

Operation and Maintenance:

Project Site Components

The Construction General Permit described above dictates post-construction requirements involving the implementation of BMPs and *low impact development* (LID) features to provide post-Project runoff conditions that are comparable or improved compared to existing conditions. In addition, the Project would implement a Restoration and Integrated Weed Management Plan (Appendix M.5), which would help to stabilize soils on the site, and a DESCP during operations per PDF HWQ-1. The Project would not include use of an existing stormwater drainage system within the site. As discussed above, the high infiltration rate of soils on site would result in most stormwater being quickly absorbed in the Project Application Area. In the event of extreme rainfall that could not be absorbed in the Project Application Area, stormwater flow would follow the topography, exiting the Project Application Area to the west, where stormwater flows enter the existing agricultural drainage system. Implementation of operational BMPs, including the DESCP (PDF HWQ-1) and low impact development features, would control stormwater runoff and reduce pollutants to prevent degradation of water quality.

A septic system would be installed for O&M facility restrooms. If the septic system is not self-contained, an associated leach field would be required. The septic system and leach field would be permitted by the CEC and would not be located within 0.25 mile of any drinking water well. For a 750-gallon septic facility, the leach field would consist of two compartments, each 20 feet long, 2 feet high, and 4 feet wide, with 10 feet of separation between the compartments. The precise design of the septic system would be determined based on final Project design.

Hazardous operational waste generated by the Project would include waste oil, oil filters, oily rags, solvents, empty hazardous materials containers, fuels, welding materials, spent solar panels, spent lead batteries, and controlled substances. The use, storage, transport, and disposal of hazardous materials used in operation and maintenance of the facility would be carried out in accordance with federal, State, and County regulations. No extremely hazardous substances (i.e., those governed pursuant to Title 40, part 355 CFR) are anticipated to be produced, used, stored, transported, or legally disposed of as a result of Project operations. As discussed in Section 4.5 Hazards Materials Handling, a HMBP and SPCC Plan would be prepared prior to construction and would be implemented during Project operation and maintenance in compliance with State and federal laws to specify safe handling and emergency response procedures should an unintended leak or release of hazardous materials occur. Implementation of safety and response measures during Project operation and maintenance would minimize the potential for hazardous materials to be released into the environment such that water resources could be affected.

Hazardous waste and electronic waste would not be placed in a landfill but, rather, would be transported to a hazardous waste handling facility (e.g., electronic-waste recycling). Battery waste from construction vehicles and equipment would be recycled or disposed of in accordance with regulations.

Operation of the solar facility would involve using water to wash the PV panels up to four times per year. Water would only be applied in quantities necessary to remove dust from the panels to maintain their efficiency. Solar panel washing would not cause runoff or discharge such that water quality could be affected.

Operation and maintenance of the solar facility components would not contribute to the degradation of water quality within a 303(d) listed waterbody as the operation would not generate polluted runoff.

Because operation and maintenance of the solar components would implement permanent BMPs (BMP-86, BMP-90, BMP-91, BMP-93, BMP-127), PDFs (PDF-BIO-8, PDF HWQ-1), and CMAs (LUPA-SW-1, LUPA-SW-2, LUPA-SW-16, LUPA-SW-20 through 22) to protect water quality post-construction, the Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Operation and maintenance of the Project site would not obstruct implementation of a water quality control plan or sustainable groundwater management plan as the operation would not generate polluted runoff and a groundwater management plan does not exist for the Project site. Therefore, impacts to surface or groundwater quality would be less than significant.

Decommissioning activities would require similar equipment and workforce as construction but would be less intensive. Excavation and removal of Project materials would follow the same BMPs, PDFs, and CMAs as required for construction and, therefore, impacts to water quality standards or waste discharge requirements would be less than significant. Decommissioning activities would not substantially degrade surface or groundwater quality, nor would the

Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Breaker-and-a-Half Switchyard

Similar to the Project site components, the BAAH would be subject to permanent erosion control and stabilization under the Construction General Permit and DESCP to prevent degradation of water quality. Any hazardous materials within the BAAH switchyard would also be subject to the requirements of the HMBP and SPCC Plan and State and federal laws for pollution control. The same BMPs, PDFs, and CMAs that would be applied to the Project site components would be implemented to protect water quality within the BAAH switchyard. Therefore, impacts on surface and groundwater quality from the BAAH switchyard would be less than significant.

Loop-in Transmission Lines

Similar to the Project site components, the loop-in transmission lines would be subject to permanent erosion control and stabilization under the Construction General Permit and DESCP to prevent degradation of water quality. The same BMPs, PDFs, and CMAs that would be applied to the Project site components would be implemented to protect water quality within the loop-in transmission corridor. Therefore, impacts on surface and groundwater quality from the loop-in transmission lines would be less than significant.

Impact WAT-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? (*Less than Significant*)

Construction

Project Site Components

During the 24-month construction timeframe, it is anticipated that a total of up to 1,000 acre-feet of water would be used for dust control and suppression (including truck wheel washing) and other construction activities during. Soil binders would also be used along Project roadways to minimize water usage. During construction, restroom facilities would be provided by portable units to be serviced by licensed providers.

Water for dust control during construction would be sourced from up to four on-site groundwater wells, and treated prior to application, if necessary. If on-site wells are not able to supply the full water quantity required for construction, the water supply would be supplemented from off-site local water purveyor(s) and trucked in from an off-site location up to 80 miles from the Project site (30 roundtrips per day maximum).

Groundwater usage, both on and off site, would be metered daily and well testing conducted quarterly. Quarterly well testing would include wells dedicated to Project use, both on and off site, and selected monitoring wells. The Project would also implement PDF HWQ-2, with a Groundwater Monitoring Reporting and Management Plan (GMRMP), as well as CMAs LUPA-SW-17 and LUPA-SW-18, which restrict groundwater usage, and LUPA-SW-19, which requires

installation of flow meters on extraction wells. LUPA-SW-23 requires a groundwater supply assessment, and LUPA-SW-24, LUUPA-SW-25, LUPA-SW-26, LUPA-SW-27, LUPA-SW-28, LUPA-SW-29, LUPA-SW-30, LUPA-SW-31, and LUPA-SW-32 further regulate usage and monitoring of groundwater extraction. In addition, the Project will prepare a groundwater resources technical report to demonstrate there are sufficient water supplies available for the Project. The groundwater use during construction would be limited to the 2-year construction period. After the construction is complete, groundwater use for construction would cease. Due to the temporary nature of the groundwater supply for construction, the construction water demand of 1,000 acre-feet would not substantially decrease groundwater supplies as groundwater supplies would rebound following the construction withdrawal. The Project construction would introduce impervious surfaces at the location of the inverters, new transmission structures, Project substation, BESS, and O&M facility. The new Project substation would include new impervious areas on portions of an approximately 20-acre site, primarily associated with concrete foundations and a prefabricated control building. The BESS would include approximately 35 acres of impervious surfaces. The operation and maintenance yard and facility would add approximately 10 acres of impervious surfaces. The total new impervious surface area would be equivalent to less than 2 percent of the Project Application Area, including those for the BAAH and loop in transmission line discussed below. The solar arrays would generally allow rainfall to infiltrate to the soil and recharge the groundwater. The limited areas of impervious surface spread out over the Project Application Area would not substantially reduce groundwater recharge.

Because water use during construction would be limited to the 2-year construction period and the Project would implement BMPs, PDFs, and CMAs to regulate and monitor groundwater usage, and would also implement a GMRMP, the Project would not substantially decrease groundwater supplies, adversely affect other groundwater users in the basin, or result in any changes in the physical or chemical characteristics of water in the basin. The limited areas of impervious surface throughout the Project Application Area would not interfere substantially with groundwater recharge. The resulting impacts to groundwater supplies and groundwater recharge would be less than significant.

Breaker-and-a-Half Switchyard

The water supply for construction of the BAAH switchyard is included in the 1000 acre-feet discussed above and the impacts of BAAH construction water supply would be the same as those discussed above for Project site components. The same BMPs, PDFs, and CMAs would be implemented. Because water use during construction would be limited to the 2-year construction period and the Project would implement the same BMPs, PDFs, and CMAs described above to regulate and monitor groundwater usage, and would also implement a GMRMP, the Project would not substantially decrease groundwater supplies. Project construction would introduce impervious surfaces at the location of the BAAH switchyard. The BAAH switchyard would include approximately 40 acres of impervious surface. The limited area of impervious surface would not substantially reduce groundwater recharge. The resulting impacts to groundwater supplies and groundwater recharge would be less than significant.

Loop-in Transmission Lines

The water supply for construction of the loop-in transmission lines is included in the 1000 acre-feet discussed above and the impacts of loop-in transmission line construction water supply would be the same as those discussed above for Project site components. The same BMPs, PDFs, and CMAs would be implemented. Because water use during construction would be limited to the 2-year construction period and the Project would implement BMPs, PDFs, and CMAs to regulate and monitor groundwater usage, and would also implement a GMRMP, the Project would not substantially decrease groundwater supplies. Project construction would introduce impervious surfaces at the location of the new transmission structures in the loop-in transmission corridor. The limited area of impervious surface would not substantially reduce groundwater recharge. The resulting impacts to groundwater supplies and groundwater recharge would be less than significant.

Operation and Maintenance

Project Site Components

During the operation and maintenance phase, water would be required for panel washing and maintenance as well as for workforce restroom facilities. During operation, the Project would require the use of approximately 50 acre-feet annually for panel washing (up to 4 times per year) and other uses. No wastewater would be generated during panel washing as water would be absorbed into the surrounding soil or would evaporate. Alternatively, waterless panel washing options would also be explored in coordination with regulatory agencies including the CEC, BLM, BOR, and Imperial County. Water for operation and maintenance would be sourced from one of the on-site groundwater wells, or from an off-site local water purveyor. The groundwater basin underlying the Project Application Area is a low priority groundwater basin under SGMA, indicating groundwater supplies are not in a state of overdraft. There are no operating groundwater wells in proximity to the Project site, and the extraction of 50 AFY of groundwater is not expected to affect any existing groundwater uses due to the limited volume of water that would be extracted and the distance to any operating groundwater well. Groundwater usage during operation would be monitored following the PDF HWQ-2 and the GMRMP, similar to during construction.

The presence of PV panels on the Project site would not constitute new impervious surfaces because precipitation would run off the surface of the panels to the underlying ground surface. As described above, the Project would introduce impervious surface to the Project Application Area, equivalent to less than 2 percent of the Project Application Area. The limited areas of impervious surface spread out over the Project Application Area would not substantially reduce groundwater recharge.

Because operation, maintenance, and decommissioning of the solar components would include implementation of BMP-125 and BMP-126, PDF HWQ-2, and CMAs LUPA-SW-17 through 29 to regulate and monitor groundwater usage, and would also implement a GMRMP, the Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge during operation and maintenance, and impacts to groundwater supplies would be less than significant.

Breaker-and-a-Half Switchyard
Water use for the BAAH is included in the 50 acre-feet total per year for the Project site and the impacts would be the same as those discussed above for the Project site components. Because operation, maintenance, and decommissioning of the BAAH would include implementation of the BMPs, PDFs, and CMAs described above to regulate and monitor groundwater usage, and would also implement a GMRMP, the Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge during operation and maintenance, and impacts to groundwater supplies would be less than significant.

Loop-in Transmission Lines
Water use for the loop-in transmission lines is included in the 50 acre-feet total per year for the Project site and the impacts would be the same as those discussed above for the Project site components. Because operation, maintenance, and decommissioning of the loop-in transmission lines would include implementation of the BMPs, PDFs, and CMAs described above to regulate and monitor groundwater usage, and would also implement a GMRMP, the Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge during operation and maintenance, and impacts to groundwater supplies would be less than significant.

Impact WAT-3

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration 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? (*Less than Significant*)

Construction
Project Site Components
No components of the Project would alter the course of a stream or river as there are no perennial watercourses in the Project Application Area. Small ephemeral drainages and swales occur on the southwestern edge of the Project site and would be impacted by Project construction. The Project would involve some minor spot regrading but would not substantially change the drainage pattern of the Project site as the spot grading would be spread out over the Project site and the Project site is generally flat (0 percent to 2.5 percent grade). Drainage patterns would continue to be towards the west. Project construction would add impervious surfaces at the Project substation, BESS, transformer-inverter stations, and operation and maintenance facility and yard. The additional impervious surfaces would be equivalent to less than 2 percent of the Project site. The removal of vegetation during Project construction and installation of new impervious surfaces would have the potential to create localized changes in the runoff or drainage patterns on the Project site, which could result in increased erosion or siltation.

As discussed under Impact WAT-1, above, the Project would be required to comply with the Construction General Permit and prepare and implement a site-specific SWPPP that would include detailed evaluation of pre-and post-Project runoff/drainage patterns and implementation of BMP-87, BMPs-90 through 93, and BMPs-128 and 129 to minimize or avoid increased runoff and sedimentation after implementation of the Project. Such BMPs may

include, but would not be limited to, on-site stormwater management within the areas containing impervious surfaces (i.e., BESS, operations and maintenance facility, substation) and BMPs for soil stabilization and erosion prevention throughout the Project site. In addition to the SWPPP and associated BMPs, the Project would implement PDF HWQ-1 with a pre-construction DESCP to control drainage erosion, sedimentation, and associated runoff; PDF BIO-3 and PDF BIO-8 to protect vegetation and minimize habitat impacts; and CMAs LUPA-BIO-15, LUPA- SW-2, and LUPA-SW-21, all of which are developed to minimize erosion.

Because construction of the Project would implement BMPs, PDFs, and CMAs to avoid or minimize erosion and siltation and the minor Project grading would not substantially alter the existing drainage pattern of the site or area, the Project would not result in substantial erosion or siltation on or offsite, and the impact would be less than significant.

Breaker-and-a-Half Switchyard

The BAAH switchyard would not alter the course of any stream or river as no drainages occur within the BAAH switchyard area. The BAAH switchyard would introduce approximately 40 acres of impervious surface. The minor grading of the BAAH switchyard site would not substantially change the drainage pattern of the area as the BAAH switchyard site is relatively flat (less than 2 percent grade) and the drainage pattern of the area would continue to be towards the west. While the BAAH switchyard would introduce 40 acres of new impervious surfaces, the Project would be required to comply with the requirements of the Construction General Permit, including preparation and implementation of a SWPPP. The SWPPP would include details on on-site stormwater control at the BAAH switchyard and would include measures to reduce erosion or siltation at the BAAH switchyard during construction. The Project would also implement PDF HWQ-1 with a pre-construction DESCP to control drainage erosion, sedimentation, and associated runoff; PDF BIO-3 and PDF BIO-8 to protect vegetation and minimize habitat impacts; and CMAs LUPA-BIO-15, LUPA- SW-2, and LUPA-SW-21, all of which are developed to minimize erosion. Because the BAAH switchyard would not substantially change the drainage pattern of the area and the construction would implement the SWPPP, PDFs, and CMAs, the additional impervious surfaces from the BAAH switchyard would not result in substantial erosion on or off site and impacts would be less than significant.

Loop-in Transmission Lines

The loop-in transmission lines would not alter the course of any stream or river as the transmission structures would be sited to avoid streams or drainages. The loop-in transmission lines would span the All-American Canal. The transmission structures would be impervious surfaces. The transmission structures/poles would be small in total area and would not change the drainage pattern of the surrounding area. The Project would be required to comply with the requirements of the Construction General Permit, including preparation and implementation of a SWPPP. The Project would also implement PDF HWQ-1 with a pre-construction DESCP to control drainage erosion, sedimentation, and associated runoff; PDF BIO-3 and PDF BIO-8 to protect vegetation and minimize habitat impacts; and CMAs LUPA-BIO-15, LUPA- SW-2, and LUPA-SW-21, all of which are developed to minimize erosion. Because the loop-in transmission lines would not substantially change the drainage pattern of the area and the construction

would implement the SWPPP, PDFs, and CMAs, the additional impervious surfaces from the loop-in transmission lines would not result in erosion on or off site and impacts would be less than significant.

Operation and Maintenance:

Project Site Components

During operation and maintenance of the Project, the concrete pads for the inverter-transformers, posts and foundations of the solar arrays, Project substation, BESS, and operation and maintenance facilities would be impervious surfaces that would generate increased runoff compared to existing pre-Project conditions. All impervious surfaces would be removed during decommissioning and the site would be restored.

As discussed above, construction of the Project would include implementation of a Project-specific SWPPP with the BMPs described above to avoid or minimize the Project's potential to result in erosion or siltation from increased impervious surfaces. The Project would also implement a Restoration and Invasive Weed Management Plan (Appendix M.5) that would require restoration of site conditions in all temporarily impacted areas to reduce erosion and siltation. PDF HWQ-1 requires implementation of a DESCP for erosion control during facility operation.

Because operation and maintenance of the Project site components would address the requirements of the DESCP and SWPPP, including proper design to avoid increased runoff from impervious surfaces, operation and maintenance of the Project would not result in substantial erosion or siltation on or off site, and the impact would be less than significant.

Breaker-and-a-Half Switchyard

During operation and maintenance of the BAAH switchyard, the impervious surfaces at the BAAH switchyard would remain. As discussed above, the BAAH would implement a SWPPP, which would avoid or minimize the contribution to erosion and sedimentation and would include measures to manage stormwater on site such that the BAAH does not result in substantially increased runoff. A Restoration and Invasive Weed Management Plan (Appendix M.5) that would require restoration of site conditions in all temporarily impacted areas used for construction to reduce erosion and siltation would be implemented at temporary impact areas. PDF HWQ-1 requires implementation of a DESCP for erosion control during facility operation, including operation of the BAAH switchyard. All impervious surfaces at the BAAH switchyard would be removed during decommissioning and the site would be restored.

Because operation and maintenance of the BAAH switchyard would address the requirements of the DESCP and SWPPP, including proper design to avoid increased runoff from impervious surfaces to avoid increased erosion, operation and maintenance of the Project would not result in substantial erosion or siltation on or off site, and the impact would be less than significant.

Loop-in Transmission Lines

During operation and maintenance of the 500 kV loop-in transmission lines, the impervious surfaces at the loop-in transmission structures would remain. As discussed above, the loop-in

transmission line would implement a SWPPP, which would avoid or minimize the contribution to erosion and sedimentation and would include measures to manage stormwater on site such that the loop-in transmission line structures do not result in substantially increased runoff. A Restoration and Invasive Weed Management Plan (Appendix M.5) that would require restoration of site conditions in all temporarily impacted areas used for construction to reduce erosion and siltation would be implemented at temporary impact areas along the loop-in transmission lines. PDF HWQ-1 requires implementation of a DESCP for erosion control during facility operation, including operation of the loop-in transmission lines. All impervious surfaces for the loop-in transmission line would be removed during decommissioning and the area would be restored.

Because operation and maintenance of the loop-in transmission lines would address the requirements of the DESCP and SWPPP, including proper design to avoid increased runoff from impervious surfaces to avoid increased erosion, operation and maintenance of the Project would not result in substantial erosion or siltation on or off site, and the impact would be less than significant.

Impact WAT-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 off-site? (*Less than Significant*)

Construction

Project Site Components

As described in Impact WAT-2, the Project site components would require minor spot grading and would result in minor fill to ephemeral drainages on the western portion of the Project site. The minor spot grading and fill of the small ephemeral drainages would not affect flood flows on or off-site as the minor drainages would be full during a flood event and water would be sheet flowing over the areas of minor spot grading and the minor surface changes would not redirect any flood flows.

The Project site components would also introduce new areas of impervious surfaces, equivalent to less than 2 percent of the Project Application Area. The new impervious surfaces would also generally be spread out over the Project Application Area. Runoff currently sheet flows over the Project Application Area and water surface elevations during a 100-year flood are projected to be approximately 1 foot. Due to the flat aspect of the site and limited grading involved in the Project, the Project would not concentrate flows in any area. The new areas of impervious surfaces at the substation, inverters, BESS, and BAAH would not result in flooding on or off site due to the limited total area of impervious surface, dispersed locations of the new impervious surfaces and low total rainfall and water surface elevation during a 100-year flood event. The new impervious surfaces would not substantially increase the rate or amount of surface runoff in a manner that would cause flooding on or off site and the impact would be less than significant.

Breaker-and-a Half Switchyard

As described in Impact WAT-2, the BAAH switchyard site would require minor spot grading. The minor spot grading would not affect flood flows on or off-site as the minor drainages would be full during a flood event and water would be sheet flowing over the areas of minor spot grading and the minor surface changes would not redirect any flood flows.

The BAAH switchyard would also introduce 40 acres of impervious surfaces. Runoff currently sheet flows over the Project Application Area and water surface elevations during a 100-year flood are projected to be approximately 1 foot. Due to the flat aspect of the site and limited grading involved in the Project, the Project would not concentrate flows in any area. The new areas of impervious surfaces at the BAAH would not result in flooding on or off site due to the limited total area of impervious surface, dispersed locations of the new impervious surfaces and low total rainfall and water surface elevation during a 100-year flood event. The new impervious surfaces would not substantially increase the rate or amount of surface runoff in a manner that would cause flooding on or off site and the impact would be less than significant.

Loop-in Transmission Lines

The loop-in transmission line structures would introduce new areas of impervious surfaces. The new areas of impervious surfaces would not result in flooding on or off site due to the limited total area of impervious surface, dispersed locations of the new impervious surfaces and low total rainfall and water surface elevation during a 100-year flood event. The new impervious surfaces would not substantially increase the rate or amount of surface runoff in a manner that would cause flooding on or off site and the impact would be less than significant.

Operation and Maintenance

Project Site Components

During the operation and maintenance period, the impervious surfaces at the Project site components would remain. As described for construction, the new areas of impervious surfaces would be dispersed and would not concentrate flood flows in any area. Runoff during operation and maintenance would be consistent with patterns described for construction and would not result in concentrated flows in any area or in flooding either on or offsite. Impervious surfaces would not substantially increase the rate or amount of surface runoff during operations in a manner that would cause flooding on or off site, and the impact from operation and maintenance would be less than significant. All Project site impervious surfaces would be removed during decommissioning.

Breaker-and-a-Half Switchyard

During the operation and maintenance period, the impervious surfaces at the BAAH switchyard would remain. As described for construction, the new areas of impervious surfaces would be dispersed and would not concentrate flood flows in any area. Runoff during operation and maintenance would be consistent with patterns described for construction and would not result in concentrated flows in any area or in flooding either on or offsite. Impervious surfaces would not substantially increase the rate or amount of surface runoff during operations in a manner that would cause flooding on or off site, and the impact from

operation and maintenance would be less than significant. The BAAH switchyard impervious surfaces would be removed during decommissioning.

Loop-in Transmission Lines

During the operation and maintenance period, the impervious surfaces at the loop-in transmission line structures would remain. As described for construction, the new areas of impervious surfaces would be dispersed and would not concentrate flood flows in any area. Runoff during operation and maintenance would be consistent with patterns described for construction and would not result in concentrated flows in any area or in flooding either on or offsite. Impervious surfaces would not substantially increase the rate or amount of surface runoff during operations in a manner that would cause flooding on or off site, and the impact from operation and maintenance would be less than significant. The loop-in transmission line impervious surfaces would be removed during decommissioning.

Impact Wat-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? (*Less than Significant*)

Construction

Project Site Components

As discussed under Impact WAT-3, construction of the solar facility would not substantially alter drainage patterns of the Project site or area. The Project site is in an undeveloped area and is not in proximity to a city or town. There is no existing stormwater drainage system on or off site to which the Project would contribute water. The Project would therefore not contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems as no stormwater drainage systems exist downstream of the site.

Construction activities would involve soil disturbance that could result in increased sediment loads in runoff and would involve the handling, use, and storage of limited quantities of hazardous materials including waste oil, oil filters, oil rags, solvents, fuels, welding materials, empty hazardous materials containers, spent batteries, and controlled substances, which could be an additional source of polluted runoff if the hazardous materials entered site runoff.

The Project would be required to comply with the Construction General Permit and implement a Project-specific SWPPP and associated BMPs throughout construction to minimize erosion or sedimentation that could affect water quality and provide for proper handling and use of potentially hazardous materials to avoid spills and as well as appropriate clean-up as needed. As regulated hazardous materials would be present on site, storage procedures would be dictated by the HMBP and SPCC Plan that would be developed prior to construction in compliance with State and federal regulations. The HMBP and SPCC Plan would specify safe handling and emergency response procedures should an unintended leak or release of hazardous materials occur. Implementation of safety and response measures during Project construction would minimize the potential for hazardous materials to be released into the

environment such that the Project would contribute to significant polluted runoff. Because the Project construction would comply with State and federal laws requiring preparation and implementation of a SWPPP, HMBP, and SPCC, the Project would not generate substantial polluted runoff and the impact would be less than significant.

Breaker-and-a-Half Switchyard

As discussed under Impact WAT-3, construction of the BAAH switchyard would not substantially alter drainage patterns of the Project site or area. Impacts would be the same as those discussed above for Project site components and the BAAH would be subject to the same BMPs, PDFs, CMAs, and permit requirements as the Project site components. Because the BAAH construction would comply with State and federal laws requiring preparation and implementation of a SWPPP, HMBP, and SPCC, the Project would not generate substantial polluted runoff and the impact would be less than significant.

Loop-in Transmission Lines

As discussed under Impact WAT-3, construction of the loop-in transmission lines would not substantially alter drainage patterns of the Project site or area. Impacts would be the same as those discussed above for Project site components and the loop-in transmission lines would be subject to the same BMPs, PDFs, CMAs, and permit requirements as the Project site components. Because the BAAH construction would comply with State and federal laws requiring preparation and implementation of a SWPPP, HMBP, and SPCC, the Project would not generate substantial polluted runoff and the impact would be less than significant.

Operation and Maintenance

Project Site Components

As discussed above, the Project would not contribute runoff to any existing or planned stormwater drainage system, and the Project operation and maintenance would therefore not affect any stormwater drainage facilities.

A new source of polluted runoff could be introduced during Project operation should operational activities for the Project result in substantial erosion and sedimentation or an accidental spill or release of hazardous materials to the environment. However, as discussed in Impact WAT-1, hazardous materials would be properly stored and handled in compliance with existing laws and regulations, including the Project-specific HMBP and SPCC Plan(s), minimizing the potential for an accidental spill or release to occur and providing effective and timely clean-up should an accidental spill occur. Potential impacts would be less than significant. The Project operation would also implement sediment and erosion controls per HWQ-1, which requires a DESCP to implemented during facility operation.

Because operation, maintenance, and decommissioning of the Project would comply with State and federal requirements for control of hazardous materials and would implement BMPs, PDFs, and CMAs to avoid or minimize polluted runoff, the impact from polluted runoff would be less than significant.

Breaker-and-a-Half Switchyard
Impacts would be the same as those discussed above for operation and maintenance of Project site components. Because operation, maintenance, and decommissioning of the BAAH would comply with State and federal requirements for control of hazardous materials and would implement the same BMPs, PDFs, and CMAs described above to avoid or minimize polluted runoff, the impact from polluted runoff would be less than significant.

Loop-in Transmission Lines
Impacts would be the same as those discussed above for operation and maintenance of Project site components. Because operation, maintenance, and decommissioning of the loop-in transmission lines would comply with State and federal requirements for control of hazardous materials and would implement the same BMPs, PDFs, and CMAs described above to avoid or minimize polluted runoff, the impact from polluted runoff would be less than significant.

Impact WAT-6

Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation or impede or redirect flood flows? (No Impact)

The Project Application Area is not located within a FEMA flood hazard, tsunami, or seiche zone, as discussed in Section 4.15.1 Flooding and Inundation and shown in Figure 4.15-1**.** The Project Application Area would not be subject to inundation, and the Project would not impede or redirect flood flows. Because the Project is not in a flood hazard, tsunami, or seiche zone, the Project would not impede or redirect flood flows and would have no impact from release of pollutants due to location within a flood hazard, tsunami, or seiche zone.

4.15.3 Cumulative Impacts

All Project Components

Impacts of the Project would be considered cumulatively considerable if they would have the potential to combine with other past, present, or reasonably foreseeable projects to become significant. A list of closely related past, present, and reasonably foreseeable future projects is provided in Table 4-1 and shown in Figure 4-1 in Chapter 4: Environmental Analysis. The Project is not in a flood hazard, tsunami, or seiche zone, so there would be no risk of release of pollutants due to Project inundation or potential to impede or redirect flood flows (WAT-6) as a result of the Project. Therefore, the project would not contribute to cumulative impacts from impeding or redirecting flood flows. The Project is also not located in an area with a sustainable groundwater management plan and does not contribute water to any existing or planned stormwater drainage facility and, therefore, would not contribute to any cumulative impacts associated with conflicts with a sustainable groundwater management plan or impacts on stormwater drainage facilities. The analysis below addresses the potential for cumulative impacts that the Project has the potential to contribute to.

Degrade Surface or Groundwater Quality
The cumulative projects in the Alamo River watershed have created a significant impact on water quality, as evidenced by the 303(d) listing and established TMDLs on the Alamo River

and All-American Canal. The cumulative impact on water quality is generally due to the historic and existing agricultural operations, which have resulted in pesticides, sediment, and other chemicals present in agricultural runoff. The proposed projects within the Alamo River watershed would involve ground disturbance and, in combination with the Project, could contribute additional sediment load to the Alamo River. Increased sediment loading to the Alamo River would be a significant cumulative impact as the Alamo River is already impaired for sediment.

The Project would comply with the requirements of the Construction General Permit and would implement BMPs-85 though 87, BMPs-90 through 93, BMPs-128 and 129, PDFs BIO-8 and HWQ-1, and CMAs LUPA-BIO-15, LUPA-SW-1, LUPA-SW-2, LUPA-SW-16, and LUPA-SW-20 through 22 to protect water quality and control sediment in runoff. Because the Project would implement BMPs, PDFs and CMAs to control sediment during construction and operation and maintenance, the Project's contribution to a cumulatively considerable impact on water quality would be less than significant.

Groundwater Supplies

The IVGB is not in a state of critical overdraft and is a low priority basin under SGMA, indicating that there is no current or past cumulative impact on groundwater supplies. The proposed projects within 6 miles of the Project include multiple operational utilities, which would not have a demand for groundwater supplies. The North Gila–Imperial Valley 500 kV transmission line, VEGA SES 4, and Viking Solar Energy Generation Projects are currently proposed and would be constructed in the future. The VEGA SES 4 project and Viking Solar Energy Project would obtain water from IID surface water supplies and construction and operation of those projects would not impact groundwater supplies. The source of water for the North Gila–Imperial Valley 500 kV line is unknown; however, the transmission line is a long linear facility, and the volume of water that could potentially be required in the IVGB would not be substantial. Due to the lack of any past cumulative impacts on groundwater supplies and no proposed use of groundwater within the IVGB from cumulative projects, the cumulative impact on groundwater would be less than significant.

Erosion, Flooding, or Risk Release of Pollutants

The cumulative projects within 6 miles of the Project include a number of operational geothermal projects, several operational transmission lines, an IID reservoir, two proposed solar facilities, and a proposed transmission line. The existing operational projects are part of the baseline hydrologic and drainage conditions in the area that were analyzed as part of the Project baseline analysis. The proposed solar projects would be located northwest of the Project and within the same watershed as the Project. The solar projects have a potential to result in cumulative impacts on erosion and flooding and risk release of pollutants in combination with the Project because the cumulative projects would require ground disturbance, including some degree of grading, and would install additional impervious surfaces similar to those of the Project. The proposed solar projects and the Project are all required to comply with the State of California Construction General Permit and to implement stormwater management BMPs and pollution prevention BMPs. The proposed solar projects would also be required to comply with

State and federal laws for management of hazardous materials, including preparing any applicable HMBP and SPCC. Because the Project and the cumulative projects would need to comply with State and federal laws, which define specific requirements for reduction of erosion and procedures to offset post-project changes in runoff to avoid flooding or release of pollutants, the cumulative impact would be less than significant.

Breaker-and-a-Half Switchyard

Construction and operation of the BAAH switchyard is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the BAAH switchyard would have a less than considerable contribution to cumulative impacts related to water resources.

Loop-in Transmission Lines

Construction and operation of the loop-in transmission lines is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the loop-in transmission lines would have a less than considerable contribution to cumulative impacts related to water resources.

4.15.4 Proposed Best Management Practices, Project Design Features, Conservation Management Actions, and Mitigation Plans

As part of the Project, the Applicant and other entities involved in construction and operation would implement BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM.

Project Site Components

Best Management Practices and Project Design Features

The Project would implement the following BMPs and PDFs related to water resources. See Appendix D.1 for the full text of the measures.

- BMP-85 through BMP-87
- BMP-90 through BMP 93
- BMP-125 through BMP 130
- PDF BIO-3
- PDF BIO-8
- PDF HWQ-1
- PDF HWQ-2

Conservation Management Actions

The Project would implement the following DRECP CMAs relevant to water resources. See Appendix D.2 for the full text of the CMAs.

- LUPA-BIO-5
- LUPA-BIO-8
- LUPA-BIO-9

- LUPA-BIO-15
- LUPA-SW-1
- LUPA-SW-2
- LUPA-SW-5
- LUPA-SW-6
- LUPA-SW-7
- LUPA-SW-16
- LUPA-SW-17
- LUPA-SW-18
- LUPA-SW-19
- LUPA-SW-20
- LUPA-SW-21
- LUPA-SW-22
- LUPA-SW-23
- LUPA-SW-24
- LUPA-SW-25
- LUPA-SW-26
- LUPA-SW-27
- LUPA-SW-30
- LUPA-SW-31
- LUPA-SW-32

Mitigation Plans

The Project would implement the following mitigation plans relevant to water resources:

- Decommissioning and Revegetation Plan – Appendix M.6
- Restoration and Integrated Weed Management Plan – Appendix M.5
- Groundwater Monitoring, Reporting, and Mitigation Plan
- Hazardous Materials Management and Oil Spill Response Plan – Appendix I.3

Breaker-and-a-Half Switchyard

The same BMPs, PDFs, CMAs, and mitigation plans would apply to the BAAH switchyard.

Loop-in Transmission Corridors

The same BMPs, PDFs, CMAs, and mitigation plans would apply to the 500 kV loop-in transmission lines.

4.15.5 Laws, Ordinances, Regulations, and Standards Compliance

Table 4.15-2 Federal Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Clean Water Act (CWA) of 1977 (including 1987 amendments) section 402, 33 United States Code (USC) section 1342, 40 CFR parts 112, 122–131	The objective of the CWA (1977) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA regulates both direct and indirect discharges, including storm water discharges from construction and industrial activities.	The Project would comply with the Clean Water Act including storm water discharge, through filing of a Notice of Intent for the Construction General Permit and preparation of a SWPPP.
CWA section 311, 33 USC section 1321, Oil and Hazardous Substance Liability; 40 CFR section 112	Section 311 of the CWA provides the U.S. Environmental Protection Agency (EPA) and the U.S. Coast Guard with authority to establish a program to prevent, prepare for, and respond to oil spills that occur in navigable waters of the U.S.	The Project would adhere to this section of the CWA regarding oil spills through implementation of a Hazardous Materials Business Plan and Spill Prevention, Control, and Countermeasure Plan.
CWA section 404, Regulatory Programs; 33 CFR sections 323 and 328	40 CFR section 112 implements CWA oil spill prevention provisions (Spill Prevention Control and Countermeasures [SPCC] Plan requirements).	The Project would adhere to this section of the CWA regarding oil spills through implementation of a Hazardous Materials Business Plan and Spill Prevention, Control, and Countermeasure Plan.
Title 42, USC, sections 300f et seq. – Public Health Service Act, sections 1401 et seq. (known as the Safe Drinking Water Act).	The Safe Drinking Water Act (SDWA) establishes requirements and provisions for the Underground Injection Control (UIC) program to protect public health by preventing injection wells from contaminating underground sources of drinking water (USDW). General provisions for the UIC program (including state primacy for the program)are established in sections 1421–1426. The California Division of Oil, Gas, and Geothermal Resources (DOGGR) has been delegated the authority to issue federal Class V UIC permits for geothermal fluid injection.	The Project would not include any underground injection wells.

LORS	Applicability	Compliance
CFR title 40, chapter I, subchapter D – Water Programs (parts 100 –149).	These federal regulations provide specific requirements for implementation of water-related environmental laws by the EPA. Among other things, the regulations establish minimum administrative and technical standards and criteria for both the NPDES and UIC programs, including requirements for state implementation of the programs.	The Project would comply with this CFR through implementation of a SWPPP. The Project would not include any groundwater discharges and does not propose any injection wells.

Table 4.15-3 State Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
CWC, division 7, chapter 4, sections 13260 et seq.	Requires the filing with the appropriate Regional Water Quality Control Board a Report of Waste Discharge (ROWD) for issuance of a WDR for any discharge that could affect the water quality of the state, unless the requirement is waved pursuant to CWC section 13269 (a)	An application for WDR is included in Appendix L.
The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	Prohibits the discharge or release of chemicals known to the State of California to cause cancer or reproductive harm.	The Project would not discharge or releases chemicals known to the State of California to cause cancer or reproductive harm. The Project would implement a SWPPP and a Hazardous Materials Business Plan and Spill Prevention, Control, and Countermeasure Plan.
CWC division 7, article 4, sections 13271–13272; CCR, Title 23 sections 2250–2260	Requires reporting of the releases of specified reportable quantities of hazardous substances or sewage and releases of specified quantities of oil or petroleum products when the release is into, or where it will likely discharge into, waters of the State.	The Project is not projected to release hazardous substances, sewage, oil, or petroleum products into waters of the State.

LORS	Applicability	Compliance
CWC division 1, chapter 6, section 461; California Constitution, Article 10, Section 2	Prohibits the waste or unreasonable use of water, regulates the method of use and method of diversion of water, and requires all water users to conserve and reuse available water supplies to the maximum extent possible.	The Project would adhere to water conservation policies outlined in this provision and as described in Impact WAT-2.
SWRCB Construction Activities General Permit (SWRCB Order No. Order WQ 2022-0057-DWQ, NPDES No. CAS000002)	A National Pollutant Discharge Elimination System (NPDES) California General Activities Construction Permit is necessary if an area greater than one acre will be disturbed. Industrial facilities (including power plants) with potential to affect storm water discharges are required to obtain an NPDES permit during operation (Industrial Storm Water General Permit).	The Project would comply with the SWRCB and its policies through filing of a Notice of Intent for coverage under the Construction General Permit and implementation of a SWPPP.
Colorado River Basin Regional Water Quality Control Board, Order No. 98-300. NPDES General Permit No. CAG677001	This order establishes general Water Discharge Requirements for the discharge of wastewater from the hydrostatic testing of pipes, tanks, or any storage vessel to surface waters or tributaries of surface waters within the Colorado River Basin Region.	The Project would not discharge wastewater to surface waters or tributaries of surface waters.

Table 4.15-4 Local Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Imperial County Code, title 9, division 21: Water Well Regulations	A well construction permit from Imperial County Planning & Development Services is required prior to drilling a water well in Imperial County.	Under AB 205, CEC subsumes the authority to issue conditional use and construction permits on behalf of the local authority. The Project's CEC authorization under AB 205, if granted, would include the well construction permit that would otherwise be required to be obtained from Imperial County prior to drilling a well on the Project site.

Imperial County Code, section 13.040.010 Public Water Systems; sections 116330 et seq. of the Health and Safety Code, and administering regulations contained in Title 22 of the California Administrative Code	The County requires a permit for a public water system for any water system serving more than 25 people.	The Project operation would not meet the definition of a Non-Transient Non-Community (NTNC) public water and would not require a permit from Imperial County Department of Public Health.
Imperial County Stormwater Control Ordinance	The County prohibits certain discharges and allows other discharges including discharges permitted under an NPDES permit.	The Project would comply with the SWRCB and its policies through filing of a Notice of Intent for coverage under the Construction General Permit and implementation of a SWPPP.

4.15.6 Agencies Contacted and Permits

A list of agencies that were contacted during preparation of this application is provided in Appendix E.1. Permits required to construct, operate, and maintain the project, including the BAAH, and loop-in transmission line, are summarized in Table E.2. Pursuant to Assembly Bill 205 subsection 25545.1(b)(1), the CEC retains exclusive authority over permitting and supersedes any applicable statute, ordinance, or regulation of a local district. The Applicant and CEC would collaborate with the local districts on review of this Opt-in Application to ensure compliance with rules and regulations.

4.15.7 References

California Department of Water Resources (DWR). 2004. "Basin Report 7_030 (Hydrologic Region Colorado River, Imperial Valley Groundwater Basin)." In *Bulletin 118 Update 2003*. Available: https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118#.

———. 2020. "Critically Overdrafted Basins." Available: https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118/Critically-Overdrafted-Basins.

———. 2021. "I08 B118 CA Groundwater Basins." Feature layer. Vector digital data. Using Arc GIS (January 9, 2024). Last updated February 16, 2022. https://gis.data.cnra.ca.gov/datasets/bdfc6550b4f3401a83ad1e2f468140ca_0/about.

———. 2022. "Domestic and Irrigation Wells." Feature service. Arc GIS dashboard. Using Domestic Wells WCR Dashboard: https://sgma.water.ca.gov/CalGWLive/ (January 10, 2024). https://www.arcgis.com/apps/dashboards/24a820bfd4a54859993fde22384f654f.

———. n.d.-a. "Dam Breach Inundation Map Web Publisher." Map viewer. Accessed January 12, 2024. https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2.

———. n.d.-b. "Groundwater Sustainability Plans." Accessed January 10, 2024. https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainability-Plans.

California Department Water Resources (DWR). 2015. "Chapter 12: Colorado River Hydrologic Region." In *Groundwater Update 2013 - California Natural Resources Agency Open Data*. https://data.cnra.ca.gov/dataset/california-water-plan-groundwater-update-2013.

California State Water Resources Control Board (SWRCB). 2022. *2020-2022 California Integrated Report*. https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html.

California Water Boards. n.d. "Salton Sea." Colorado River Basin - R7. Accessed January 11, 2024. https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/salton_sea/.

Colorado River Regional Water Quality Control Board (RWQCB). 2023. *Water Quality Control Plan for the Colorado River Basin Region*. State Water Resources Control Board. Available: https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/.

Colorado River RWQCB. n.d. "Final California 2018 Integrated Report (303(d) List/305(b) Report), Regional Board 7 - Colorado River Basin Region, All American Canal." Accessed January 11, 2024. https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/tmdl/2018/Appendix%20A%20-%20Waterbody%20Fact%20Sheets/01526.shtml.

U.S. Geological Survey (USGS). 2023. "National Hydrography Dataset Plus - NHDPlus." Geodatabase. Vector digital data, raster digital data, tabular digital data. Washington, D.C.: U.S. Environmental Protection Agency. https://www.sciencebase.gov/catalog/item/57645ff2e4b07657d19ba8e8.

USDA Natural Resources Conservation Service (NRCS). n.d. "National Cooperative Soil Survey (NCSS)." Vector digital data, raster digital data, tabular digital data. "Custom Soil Resources Report for Imperial County, California, Imperial Valley Area" generated by Panorama Environmental, Inc.: Using Web Soil Survey (WSS) (12/19/2023). Accessed December 19, 2023. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

Western Regional Climate Center (WRCC). 2009. "Imperial, California - Climate Summary." Imperial, California Climate Summary. April 23, 2009. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?caimpe.

WRMA. 2021. "2-D Hydraulic Study Summary Analysis of Findings, East Mesa Study Area, Imperial County, CA."

4.16 Wildfire

This section describes existing environmental conditions and anticipated impacts associated with the Proposed Project and Project Alternatives for Wildfire. Impacts evaluated in this section include directly or indirectly exacerbating wildfire risks, exposing people or structures to significant wildfire risks, including post-fire conditions, and substantially impairing wildfire emergency response, wildfire suppression, or emergency evacuation. Emergency response plans and evacuation plans are addressed in Section 4.5: Hazards and Hazardous Materials.

Section 4.16.1 describes the environmental setting. Section 4.16.2 identifies the potential wildfire impacts during Project construction and operation (including maintenance) and decommissioning. Section 4.16.3 discusses potential cumulative impacts. Section 4.16.4 discusses measures to address impacts. Section 4.16.5 provides an overview of applicable federal, State, and local LORS applicable to wildfire and the Project's compliance therewith.

4.16.1 Environmental Setting

Wildfire Fundamentals

A *wildfire* (or wildland fire) is an uncontrolled fire in an area of combustible vegetation occurring in a rural area; they are unplanned and unwanted fires. Wildfires can be classified broadly or specifically by the type of vegetation present, such as forest fires, brush fires, and grass fires. Wildfires can be ignited naturally (i.e., by lightning) or by human activities and manmade features. Large, severe wildfires are major threats to people, property, and ecosystems. The likelihood, intensity, and susceptibility of wildfires varies significantly by location, depending on fuel density and topography as well as daily and seasonal conditions (i.e., heat, humidity, and wind). Certain land uses and development within or near wildland areas have the potential to cause or exacerbate wildfires or hazardous post-wildfire conditions (i.e., flooding or landslides), and/or impede fire management, emergency response, or emergency evacuation.

Wildfire risk has three basic elements: how and where its ignition occurred; how and why it moves across a landscape from its point of origin; and what the fire's nature is upon arrival at a location.

The terminology used in the analysis of wildfire conditions and impacts is provided in Table 4.16-1, below.

Information on wildfire was obtained through a review of literature, maps, GIS data, and online sources published by the California Department of Forestry and Fire Protection (CAL FIRE), the United States Forest Service (USDA Forest Service), the Bureau of Land Management (BLM), and the California Public Utilities Commission (CPUC).

Table 4.16-1 Wildfire Terminology

Term	Definition
Emergency evacuation	An organized, phased, and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas, and their reception and care in safe areas
Emergency response provider	Any federal, state, or local emergency public safety, law enforcement, emergency responder, emergency medical (including hospital emergency facilities), and related personnel, agencies, and authorities. It is any organization responding to an emergency, or providing mutual aid support to such an organization, whether in the field, at the scene of an incident, or operations center.
Fire cause	Agency or circumstance which started a fire or set the stage for its occurrence; source of a fire's ignition. For statistical purposes fires are grouped into broad cause classes. The nine general causes used in the U.S. are lightning, campfire, smoking, debris burning, incendiary, machine use (equipment), railroad, children, and miscellaneous.
Fire hazard	A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control
Fire potential	The likelihood of a wildland fire event measured in terms of anticipated occurrence of fire(s) and management's capability to respond. Fire potential is influenced by a sum of factors that includes fuel conditions (fuel dryness and/or other inputs), ignition triggers, significant weather triggers, and resource capability.
Fire prevention	Activities such as public education, community outreach, law enforcement, engineering, and reduction of fuel hazards that are intended to reduce the incidence of unwanted human-caused wildfires and the risks they pose to life, property or resources
Fire risk	The chance of fire starting, as determined by the presence and activity of causative agents; a chance of suffering harm or loss
Fire suppression	An appropriate management response to wildfire or prescribed fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire
Fire threat	A measure of fuel conditions and fire potential in the ecosystem, representing the relative likelihood of damage or difficultly controlling a wildfire occurring for a given area
Hazard assessment	Assess hazards to determine risks; assess the impact of each hazard in terms of potential loss, cost, or strategic degradation based on probability and severity
Ignition factor	The conditions, subsequent actions, and sequence of events that bring a competent ignition source into contact with the materials first ignited; also referred to as the cause of the fire
Ignition source	Any process or event capable of causing a fire
Ignition trigger	A causative agent for wildland fire; for example, human or lightning

Source: NWCG Glossary of Wildland Fire, PMS 205 (National Wildfire Consulting Group [NWCG], n.d.)

Wildfire-conducive Conditions

Regional Setting

Wildfire is influenced by many factors, including the presence and condition of fuels (vegetation), weather conditions (temperature, humidity, and wind), and topography. A fuel's composition, including moisture level, chemical makeup, and density, determines its degree of flammability. The moisture content and distribution of these fuels define how quickly a fire can spread and how intense or hot a fire may become. Some plants, shrubs, and trees contain oils or resins that promote combustion, causing them to burn more easily, quickly, or intensely than those without such oils. Dense fuels that exist close together also cause fuel to burn more freely. Weather conditions such as wind, temperature, and humidity also contribute to fire behavior. Temperature of fuels is determined by the ambient temperature because fuels attain their heat by absorbing surrounding solar radiation. In general, fuels will ignite more readily at high temperatures than at low temperatures. *Humidity*, the amount of water vapor in the air, affects the moisture level of a fuel. At low humidity levels, fuels become dry and, therefore, catch fire more easily and burn more quickly than when humidity levels are high. Lastly, topographical features such as elevation, slope (the steepness of the land), aspect (the direction a slope faces), or other land features can help or hinder the spread of fire. For example, a rocky slope can act as a natural fire break due to a lack of fuel and wide gap of open space. Drainages can also act as fire breaks if fuels are moist or there is little vegetation. Elevation and aspect can determine how hot and dry a given area will be. For example, higher elevations will be drier but colder than low ones, and a north-facing slope will be slower to heat up or dry out.

Vegetation

Vegetation can act as fuel for a wildfire and exacerbate fire conditions and risk. The relationship between vegetation and wildfire is complex, but generally some vegetation is naturally fire resistant while some vegetation is extremely flammable. Grass is considered an open fuel, in which oxygen has free access to promote the spread of fire. Additionally, weather and climate conditions, such as drought, can lead to increasingly dry vegetation with low moisture content and, thus, higher flammability.

The majority of the vegetation in the Project Application Area consists of sparse shrublands, consistent with a dry desert biome. Trees and herbaceous vegetation are scarce within the Project area. This relative lack of fire fuel is one contributor to the lack of identified fire hazards on the Project site.

Slope, Elevation, and Aspect

Topographical features such as elevation, slope (the steepness of the land), aspect (the direction a slope faces), or other land features can help or hinder the spread of fire. Slope can determine how quickly a fire spreads as fire typically burns faster uphill because it can pre-heat the fuels above with rising hot air, and upward drafts are more likely to create fire spots (NPS, n.d.). Following severe wildfires, sloping land is also more susceptible to landslide or flooding from increased runoff during substantial precipitation events. Landslides and surficial slope failure

are most likely to occur in areas with more than 25 percent slope (hillside areas) and along steep bluffs.

The topography of the Project site is flat and generally slopes downward at a gradient of less than 1 percent toward the northwest. Ground elevations of the Project site range from approximately 85 feet (26 meters) in the northwest corner of the Project site to 125 feet (38 meters) in the southeast corner of the Project site. The closest steep terrain is the Algodones Dunes, also called the Imperial Sand Dunes, located approximately 9 miles east of the Project site. The flat topography in the Project vicinity is one contributor to the lack of fire hazard severity at the Project site.

Climate and Weather

Weather conditions such as wind, temperature, and humidity also contribute to fire behavior. Wind is one of the most important factors because it can bring a fresh supply of oxygen to the fire and push the fire toward a new fuel source. Wind, temperature, and relative humidity are the most influential weather elements in fire behavior and susceptibility (NPS, n.d.). Fire moves faster under hot, dry, and windy conditions. Wind may also blow embers ahead of a fire, causing its spread. In addition, drought conditions lead to extended periods of excessively dry vegetation, increasing the fuel load and ignition potential.

The climate in Imperial County is characterized by long, hot, dry summers and short winters with light rain. Most of the seasonal precipitation occurs between October and April, and lightning occurs during the summer monsoonal moisture season. The summer average daily high temperature is above 99 degrees Fahrenheit and the hottest month of the year is July, with an average high of 107 degrees Fahrenheit and average low of 79 degrees Fahrenheit. The cool season lasts for 3 months, from November to February, with an average daily high temperature below 76 degrees Fahrenheit. The coldest month of the year is December, with an average low of 43 Fahrenheit and average high of 69 Fahrenheit. The area experiences significant seasonal variation in the perceived humidity. The most humid period of the year lasts for 3 months, from June to September, and the month with the most humid days is August (Weather Spark, n.d.).

Wind within Imperial County is highly dependent on local topography and other factors. The average hourly wind speed near the Project experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 4 months, from March to July, with average wind speeds of more than 8 miles per hour. The windiest month of the year is May, with an average hourly wind speed of 9 miles per hour. The calmer time of year lasts for 8 months, from July to March. The calmest month of the year is December, with an average hourly wind speed of 6.5 miles per hour (Weather Spark, n.d.).

Power Lines

Aboveground power lines have the potential to contribute to wildfire risk, especially when they are near or traverse undeveloped areas. In some instances, high winds can blow nearby trees

and branches into power lines, sparking fires. Wind can also snap wooden poles, causing live wires to fall onto nearby grass or other fuel, igniting it.

Existing condition of the Project site and 500 kv loop-in transmission corridor are shown in Figure 2.2-3 and Figure 2.2-4, respectively. The Project would include a high-voltage, breaker-and-a-half switchyard (BAAH switchyard) and two 500 kV loop-in transmission lines, each within a 175-foot-wide loop-in transmission corridor, that would be required to interconnect to the existing SDG&E Southwest Power Link (SWPL) 500 kV transmission line that traverses east–west to the south of the Project site. The exact location of the 500 kV loop-in transmission lines and the associated corridors within the 2,000-foot-wide survey corridor and new Project interconnection substation to the SDG&E SWPL would be determined based on engineering, resources, and existing utility corridor constraints in coordination with SDG&E, BOR, BLM, and CPUC.

Wildfire Hazard Designations

Within California, *fire hazard severity zones* (FHSZs) are designated by CAL FIRE. FHSZs are designated as moderate, high, or very high. FHSZs are administered by the federal, State, or local government that is financially responsible for preventing and suppressing wildfires in a given area and are categorized into the following groups:

- State Responsibility Area (SRA): The state is financially responsible for wildfire suppression.
- Local Responsibility Area (LRA): Cities or counties are financially responsible for wildfire suppression.
- Federal Responsibility Area (FRA): The federal government is financially responsible for wildfire suppression.
- Unspecified Responsibility Area (URA): Fire hazard severity zone not within an SRA, LRA, or FRA.

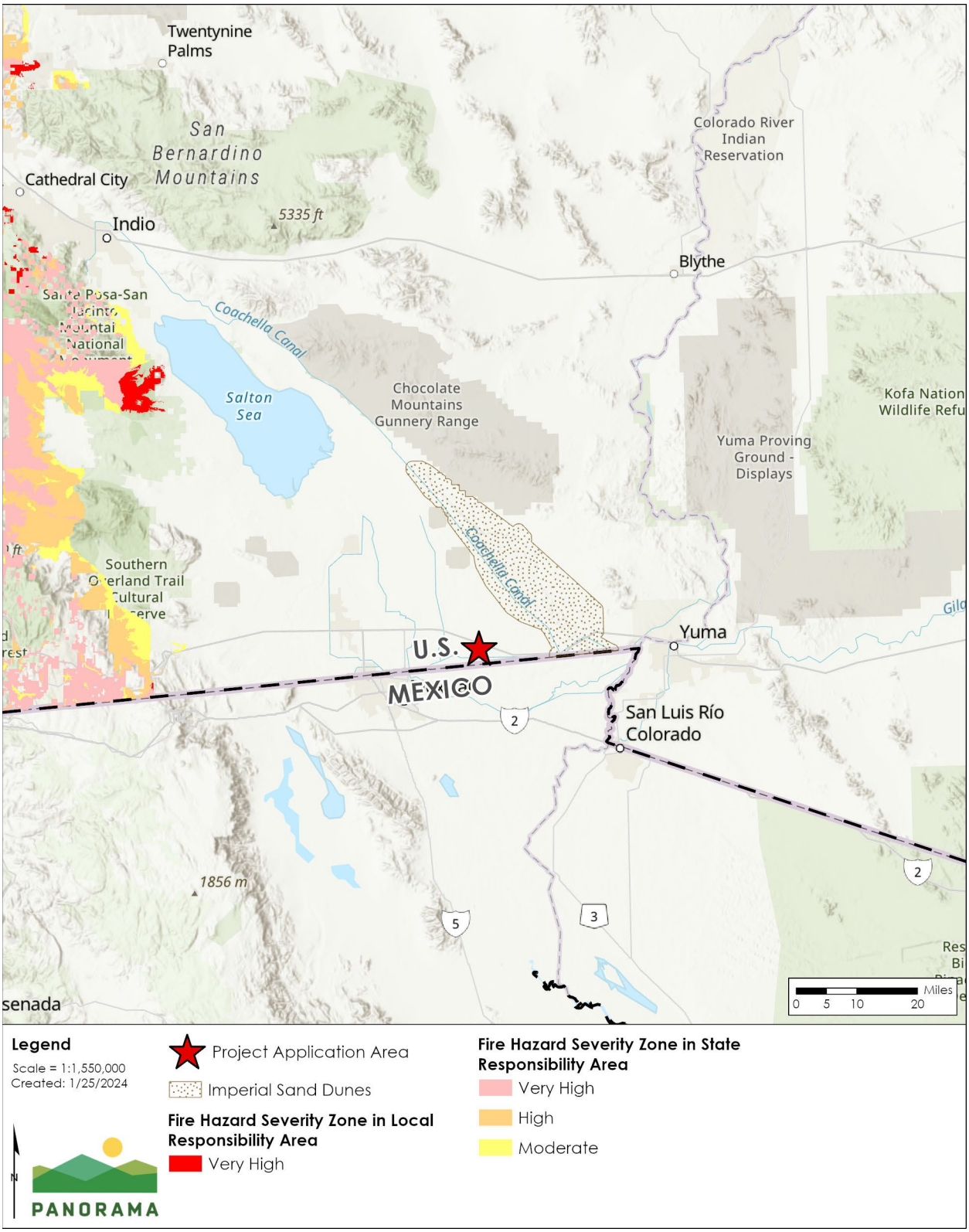
Each of the FHSZs influences how people construct buildings and protect property to reduce risk associated with wildland fires. Under state regulations, areas within very high (VH) FHSZs must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life in those areas. However, none of the fire zones specifically prohibit development or construction. The Project is not located in or near a FHSZ, which means there is a low risk of wildfire within the Project area. The nearest FHSZ is located approximately 45 miles west (CAL FIRE FRAP 2018).

As shown in Figure 4.16-1, the Project site is located in an FRA. Only a small portion of the County, approximately 45 miles west of the Project site, near the community of Ocotillo, is designated an SRA (CAL FIRE 2017).

Fire History

The frequency, size, and severity of wildfires that have occurred in an area can be used to qualitatively predict the likelihood of similar events happing in the future without consideration to other factors that affect the fire risk, such as changing climate and weather

Figure 4.16-1 Fire Hazard Severity Zones



Source: (Intersect Power 2023)(BLM 2012)(CalFire 2018)

trends, presence or absence of fuels, or other long-term change in wildfire risk levels. According to wildfire data published by National Interagency Fire Center (NIFC), three wildfires have been recorded within 10 miles of the Project site (NIFC 2022).

Post-Fire Slope Instability and Drainage Pattern Changes

Vegetation loss from wildfire scarring of the landscape can result in slope instability in the form of more intensive flooding and landslides. These post-fire slope soils and altered drainage patterns can result in soil creep on downslope sides of foundations and reduce lateral support.

The Project site is generally flat and generally slopes downward at a gradient of less than 1 percent toward the northwest. The Project site and surrounding areas are not susceptible to landslides due to the flat terrain. Furthermore, there are not any particularly well-defined hydrologic features within the Project area. The four subwatersheds within the Deer Peak watershed are characterized by closed, bowl shaped basins with no existing watershed outlet. This suggests that a substantial amount of rainfall infiltrates into the soil with any remaining excess runoff then concentrates into shallow pools distributed throughout the watershed and at the lowest points on the terrain (WRMA Engineering 2021). Due to the flat terrain and lack of defined drainage features on site, the Project is not expected to destabilize slopes or drainage patterns such that it would exacerbate post-fire conditions.

Fire Protection Services

As described in Section 4.17: Worker Safety, the Imperial County Fire Department (ICFD) provides a full range of emergency response services including, but not limited to, structural fire suppression, wildland fire suppression, response to hazardous materials incidents, and life support medical services to the Project area. The nine ICFD stations are located in the communities of Heber, Seeley, Ocotillo, Palo Verde, Niland, Winterhaven, Salton City, and the city of Imperial. The closest fire station to the Project site is located approximately 22 miles northwest, at 2514 La Brucherie Road, in the City of Imperial.

The BLM El Centro Field Office is responsible for responding to wildfires located within BLM Direct Protection Areas in conjunction with the ICFD. The BLM conducts a broad range of actions to protect the public, natural landscapes, wildlife habitat, and recreational areas from wildland fires. The BLM operates a fire response program, known as BLM Fire, that provides fire protection on approximately 650 million acres of public land. This land is commonly intermixed with other federal, State, and local jurisdictions, and the BLM uses partnerships and collaborative efforts for fire management. BLM Fire consists of fire suppression, preparedness, predictive services, vegetative fuels management, community assistance and protection, and fire prevention through education.

4.16.2 Impact Analysis

The following subsections discuss the potential direct and indirect impacts related to wildfire during construction and operation (including maintenance) of the Project.

Methodology

Fire Protection and Prevention Programs

As detailed in Section 4.17: Worker Safety, a Fire Management and Prevention Plan (Fire Plan) has been prepared in coordination with the BLM fire crews to identify the fire hazards and response scenarios that may be involved with operating the solar facility. The Fire Plan meets the requirement of the BLM Conservation and Management Action (CMA) DFA-VPL-BIO-FIRE-1, which requires site-specific fire prevention/protection actions. The plan includes information on response to accidents involving downed power lines or accidents involving damage to solar arrays and facilities. The Plan includes measures to safeguard human life, prevent personnel injury, preserve property, and minimize downtime due to fire or explosion. Topics include fire-safe construction, reduction of ignition sources, control of fuel sources, availability of water, and proper maintenance of firefighting systems. The Fire Plan also includes a section on fire risk from a BESS.

Fire extinguishers and other portable fire-fighting equipment would be available on site along with additional water for use at the on- or off-site O&M facility. These fire extinguishers would be maintained for the full construction duration in accordance with local and federal Occupational Safety and Health Administration (OSHA) requirements. Locations of portable fire extinguishers would include, but not be limited to, office spaces, hot work areas, flammable storage areas, and mobile equipment such as work trucks and other vehicles. Firefighting equipment would be marked conspicuously and be accessible. Portable equipment would be routinely inspected, as required by local and federal laws, ordinances, regulations, and standards, and replaced immediately if defective or needing charge.

Impact Evaluation Criteria

The potential for impacts related to hazardous materials was evaluated using the criteria described in Appendix G of the CEQA Guidelines (California Code of Regulations, title 14, chapter 3, sections 15000–15387). A project would have a significant environmental impact in terms of wildfire if it were located in or near SRAs or lands classified as VHFHSZs and would:

- Substantially impair an adopted emergency response plan or emergency evacuation plan;
- 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;
- 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;
- 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.

Section 4.5: Hazardous Materials Handling, Impact HAZ-4 includes a discussion and analysis related to adopted emergency response and evacuation plans and therefore is not included in the impact analysis below.

The Project is not located in or near SRAs or lands classified as VHFHSZs, as shown in Figure 4.16-1. Nonetheless, the remaining criteria were analyzed to provide additional information on the wildfire risk to the Project.

Impact W-1

If located in or near SRAs or lands classified as VHFHSZs, would the project exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors? (*Less than Significant*)

Construction

Project Site

Construction-related activities for all components within areas located in or near wildlands have the potential to ignite a wildland fire. Examples of construction-related ignition sources include increased human activity and sparks from vehicles, equipment, welding, or metal striking metal or stone, which could ignite surrounding vegetation. Fires could also be ignited by parking vehicles over dry vegetation, where hot undercarriages could ignite grass or shrubs. If construction were to result in an ignition, wildfire could result in smoke and air pollutants that could impact air quality for the surrounding communities.

The Project area is not located in or near SRAs or lands classified as VHFHSZs. The existing conditions on the Project site include flat topography and sparse vegetation. Therefore, while the use of vehicles and equipment on the Project site could result in an ignition that could lead to the spread of wildfire, the risk of such an impact would be low due to the existing flat topography and lack of vegetation on site. In addition, a Fire Management and Prevention Plan (Fire Plan) has been prepared and would be reviewed by BLM or other emergency response organizations to identify the fire hazards and response scenarios that may be involved with operating the solar facility. The Fire Plan identifies measures, safe procedural practices, environmental protection measures, and other specific stipulations and methods to prevent and respond to fires during construction and operation. These measures include procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, and hot work restrictions. The Fire Plan also requires the Project owner to coordinate with the BLM and ICFD to create a training component for emergency first responders to prepare for specialized emergency incidents that may occur at the Project site, including incidents such as fire or explosion at or within the BESS. The Fire Plan also includes information on response to accidents involving downed power lines or accidents involving damage to solar arrays and facilities. As the Project is not located in or near SRAs or lands classified as VHFHSZs, the implementation of a Fire Management and Prevention Plan would further reduce wildfire risks. Impacts would be less than significant.

Breaker-and-a-Half Switchyard

The Project would also include a high-voltage BAAH switchyard that would be required to interconnect to the existing SDG&E SWPL 500 kV transmission line that traverses east–west to the south of the Project site. As with the solar field, the BAAH switchyard is not located in or near SRAs or lands classified as VHFHSZ.

Construction of the BAAH switchyard would be subject to the requirements in the Fire Plan. This would include information on responses to accidents involving downed power lines and facilities. Impacts would be less than significant.

Loop-in Transmission Lines

The Project would also include two 500-kV loop-in transmission lines that would be required to interconnect to the existing SDG&E SWPL 500 kV transmission line that traverses east–west to the south of the Project site. As with the solar field, the loop-in transmission line is not located in or near SRAs or lands classified as VHFHSZ, as shown in Figure 4.16-1.

Construction of the 500 kV loop-in transmission line would be subject to the requirements in the Fire Plan. This would include information on responses to accidents involving downed power lines and facilities. During construction, the 500 kV loop-in transmission lines would not be energized and so would have a reduced risk of being an ignition source for a wildfire. Impacts would be less than significant.

Operation and Maintenance

Project Site

The risk of ignition from vehicle and equipment use would be reduced during operation and maintenance of the Project because there would be many fewer vehicles used on the site and they would remain primarily on the access roads and near the O&M building. Routine maintenance and vegetation clearance during operation and maintenance would ensure that all required fire prevention strategies comply with all applicable regulatory requirements. The Fire Plan would include a suite of responsibilities to implement during operation and maintenance, which would reduce fire risk.

On-site vegetation would be managed to ensure access to all areas of the site and reduce fire risk. On-site vegetation may be trimmed approximately once every 3 years, as needed. For the first year, weed management and control would be performed quarterly in accordance with an approved Restoration and Integrated Weed Management Plan and then annually thereafter. No heavy equipment would be used during normal operation. O&M vehicles would include trucks (pickup and flatbed), forklifts, and loaders for routine and unscheduled maintenance and water trucks for solar panel washing. Large heavy-haul transport equipment may be brought to the solar facility infrequently for equipment repair or replacement.

Maintenance activities would comply with the requirements of the Fire Plan. With vegetation management activities and compliance with the Fire Plan, operation and maintenance of the Project would not exacerbate wildfire risks. Impacts would be less than significant.

Breaker-and-a-Half Switchyard
Operation and maintenance activities for the BAAH switchyard would comply with CPUC's requirements regarding fire. Operation and maintenance activities would also comply with the requirements of the Fire Plan. As the Project is not located in or near SRAs or lands classified as VHFHSZs, impacts would be less than significant.

Loop-in Transmission Lines
Operation and maintenance activities for the loop-in transmission line would be consistent with SDG&E's ongoing maintenance of the SWPL and would comply with CPUC's requirements regarding fire. Operation and maintenance activities would also comply with the requirements of the Fire Plan. Impacts would be less than significant.

Impact W-2

If located in or near SRAs or lands classified as VHFHSZs, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? (*Less than Significant*)

Construction and Operations

Project Site
The Project includes the installation of access roads, power lines, and other electrical utilities that could exacerbate fire risk. Water for operations would be sourced from up to four on-site groundwater wells or an off-site local water purveyor. Limited water would also be used for the O&M facility staff, including restrooms.

The Project would construct up to five driveways off SR 98 for access to the solar site. The access driveways would be 24 feet wide (20 feet wide with a 2-foot shoulder on either side) and constructed to achieve facility maintenance requirements and Imperial County standards. These roads would be surfaced with gravel, compacted soil, or another commercially available surface, depending upon site conditions and constraints. The Project's roadway system would include a perimeter road, access roads off the driveways, and internal roads. The 20-foot-wide perimeter road (16 feet wide with 2-foot-wide shoulder on either side) would be built on the inside of the fence. A network of regularly spaced 20-foot-wide internal access roads would be installed connecting to the perimeter road. Roads would be surfaced with compacted soil or another commercially available surface acceptable to regulatory agencies and would provide a fire buffer, accommodate Project operation and maintenance activities such as cleaning of solar panels, and facilitate on-site circulation for emergency vehicles. The roads would be built to meet fire safety requirements and would be available to Project construction and operation personnel only. They would not exacerbate fire risk.

Battery Energy Storage System
The Project would include a battery energy storage system (BESS) capable of storing 1,150 MW of electricity, housed in electrical enclosures, and buried electrical conduit, see Appendix F for schematic drawings of the BESS. The BESS would be located near the Project switching station. The BESS would require vegetation clearing, grading, and compaction. The Project could use

commercially available battery technology, including but not limited to lithium-ion, lead acid, sodium sulfur, and sodium or nickel hydride. The enclosures for the energy system would be delivered to the Project site and installed on concrete foundations designed for secondary containment, as appropriate.

The batteries used for the solar facility would be handled and recycled properly to prevent combustion and fire hazards. Numerous regulations ensure the safe transport, use, storage, and disposal of hazardous materials. Pursuant to manufacturer specifications, the BESS units would be fully certified to the most rigorous international safety standards. This includes the following select certifications:

- UL 1642 – Standard for Lithium Batteries (cell level certification)
- UL 1973 – Standard for Batteries for Use in Stationary Applications (module level certification)
- UL 9540 – Standard for Energy Storage Systems and Equipment (system level certification)
- UL 9540A – Standard for Inverters, Controllers, Converters, and Interconnection Equipment for DER
- IEC 62619 – Standard for Battery Safety in Stationary Applications

Thermal runway is one of the potential risks associated with Lithium-ion batteries. Thermal runway occurs when the temperature within a cell goes above the critical level, resulting in a chain reaction as a steep increase in temperature occurs in a very short interval of time (milliseconds), leading to a sudden release of the energy stored in the battery cell. Temperature magnitudes close to 400° C are created, making the battery gaseous and resulting in a fire eruption that is not extinguishable by traditional methods. The fire can propagate to neighboring battery cells and cause an explosion.

Active fire protection systems that protect against thermal runway for the particular battery system ultimately selected would be implemented. These fire protection systems provide means of extinguishing fire in the case of a thermal runway event or other fire, limit fire escalation by controlling the fire, and limit the effects of a fire and allow safe emergency escape, evaluation, and rescue activities. Active fire protection systems include fire water systems, gaseous agent systems, and fire extinguishers.

The BESS would be designed and installed according to the latest National Fire Protection Association (NFPA) 855 standards. NFPA 855 is the industry standard fire code and employs a practical large-scale fire test called UL 9540A to demonstrate the efficacy of fire detection, suppression, and deflagration management. Based on these standards, vegetation around and under the BESS would be cleared to prevent fire propagation in the areas among containers. The proposed BESS would comply with the NFPA 855-2023 and the more stringent local code to mitigate risks of fires or rapid combustion in battery storage units.

Fire mitigation systems vary by manufacturer, but to comply with NFPA 855, the system must include a NFPA 72-compliant central station fire alarming system and deflagration

management system that complies with NFPA 68/69. NFPA 855 also limits fire suppression to methods specified in NFPA 12, 15, 750, 2001, and 2019. These methods include the use of dry agents, water mist, high pressure water, and a passive fire containment method. The use of dry agents provides rapid fire suppression but may not address thermal runaway events as they can be ineffective in extinguishing fires fueled by the high heat and chemical reactions involved in battery thermal events. Water-based interventions can extinguish fires but risk creating toxic runoff and require significant volumes of water. A code-compliant passive fire containment method primarily uses field-tested spacing between units, which allows the fire to burn while venting gases and preventing fire propagation, leaving only ash for easier cleanup and reduced environmental impacts. Compliance with NFPA 855 would limit potential impacts associated with thermal runaway.

In accordance with PDF FIRE-1, a Fire Management and Prevention Plan has been prepared in coordination with the BLM to identify the fire hazards and response scenarios that may be involved with operating the solar facility. The Fire Plan includes information on response to accidents involving downed power lines or accidents involving damage to solar arrays and facilities. The BESS fire protection system is described in the Fire Plan. The fire protection system would comply with BLM and ICFD requirements. The Project would also comply with BMP 131, which requires the development of a hazardous materials and waste management plan and a fire safety plan, facility design to include isolation valves to limit HTF releases (where applicable), and worker training to be considered in reducing fire risks. During decommissioning, the BESS components, including batteries, would be shipped to a universal waste handler or authorized recycling facility as described in the decommissioning protocol provided by the batteries' original equipment manufacturer. As described in Section 4.17: Worker Safety, fire risks related to construction and operation of Project components would be minimized through implementation of the Fire Management and Prevention Plan. None of the Project infrastructure improvements would exacerbate fire risk or result in additional temporary or ongoing impacts to the environment beyond those already identified and disclosed throughout this Application.

Breaker-and-a-Half Switchyard

Construction of the BAAH switchyard is considered in the Fire Plan. Maintenance activities would comply with the requirements of the Fire Plan and existing SDG&E fire management plans and requirements. The CPUC regulates SDG&E and has a number of fire safety regulations, in particular for areas that are identified on the CPUC Fire-Threat Map (CPUC 2017). The BAAH switchyard are not in an area identified as elevated or extreme fire-threat areas (CPUC 2019a; 2019b). As the BAAH switchyard is not located in or near SRAs or lands classified as VHFHSZs, is not in areas identified by the CPUC as elevated or extreme fire-threat areas, would comply with the CPUC fire regulations during operation, and would implement a Fire Management and Prevention Plan during construction, impacts would be less than significant.

Loop-in Transmission Lines

Construction of the loop-in transmission line is considered in the Fire Plan. This would include information on response to accidents involving downed power lines. Maintenance activities would comply with the requirements of the Fire Plan and existing SDG&E fire management plans and requirements. The CPUC regulates SDG&E and has a number of fire safety regulations, in particular for areas that are identified on the CPUC Fire-Threat Map (CPUC 2017). The loop-in transmission line is not in an area identified as elevated or extreme fire-threat areas (CPUC 2019a; 2019b). As the Project is not located in or near SRAs or lands classified as VHFHSZs, is not in areas identified by the CPUC as elevated or extreme fire-threat areas, would comply with the CPUC fire regulations during operation, and would implement a Fire Management and Prevention Plan during construction, impacts would be less than significant.

Impact W-3

If located in or near SRAs or lands classified as VHFHSZs, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? (*No Impact*)

Construction and Operation

Project Site

Wildfire is influenced by many factors, including the presence and condition of fuels (vegetation), weather conditions (temperature, humidity, and wind), and topography. Topographical features, such as elevation, slope (the steepness of the land), aspect (the direction a slope faces), or other land features can help or hinder the spread of fire. Drainages could also act as fire breaks if fuels are moist or there is little vegetation.

The Project is not located in or near a FHSZ, which means there is a low risk of wildfire within the Project area. As shown in Figure 4.16-1, the Project site is not located in a SRA. The Project site is flat and thereby would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. The Project does not include any housing nor is it within 1 mile of any existing housing and would not expose people to increased risk associated with flooding, landslides, or post-fire slope instability as a result of locating housing near such existing risks.

As discussed in Section 4.15: Water Resources, the Project would not substantially alter existing drainage patterns, cause erosion, create surface runoff that would contribute to flooding on or off site, affect stormwater drainage capacity, or impede flood flows. A site-specific Stormwater Pollution Prevention Plan (SWPPP) would be implemented which would include BMPs to minimize or avoid adverse effects associated with drainage and runoff.

Project construction and operation would have a less-than-significant wildfire risk due to limited ground disturbance, flat site topography, and minimal vegetation. As the Project would have a low potential to exacerbate wildfire risk, it would not pose a substantial risk of causing post-fire slope instability. Therefore, the Project would not expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Breaker-and-a-Half Switchyard
As described above, the Project site, including the BAAH switchyard, is flat and would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. It does not include any housing nor is it near any housing; therefore, it would not expose people to increased risk associated with flooding, landslides, or post-fire slope instability as a result of locating housing near such existing risks.

The loop-in transmission construction would be covered under the SWPPP prepared for the Project. Project construction and operation would have a less-than-significant wildfire risk due to limited ground disturbance, flat site topography, and minimal vegetation. As the Project would have a low potential to exacerbate wildfire risk, it would not pose a substantial risk of causing post-fire slope instability. Therefore, the Project would not expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Loop-in Transmission Lines
The loop-in transmission, which does not include housing nor is it near housing, is flat and would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

The loop-in transmission would be covered under the SWPPP prepared for the Project. The SWPPP would include BMPs to minimize or avoid adverse effects associated with drainage and runoff. The loop-in transmission construction and operation would have a less-than-significant wildfire risk due to limited ground disturbance, flat site topography, and minimal vegetation. It would not pose a substantial risk of causing post-fire slope instability. Therefore, the loop-in transmission line would not expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

4.16.3 Cumulative Impacts

Impacts of the Project would be considered cumulatively considerable if they would have the potential to combine with other past, present, or reasonably foreseeable future projects to become significant. A list of closely related past, present, and reasonably foreseeable future projects are provided in Table 4-1 of Chapter 4: Environmental Analysis.

Areas subject to potential wildfire impacts include areas around the Project site are those within the nearby vicinity within the FRA. Cumulative projects within a 6-mile radius include Ormesa 1, 2, and 1E, operational geothermal plants, two potential solar projects on agricultural lands, and a potential transmission line and communication facility. None would be located in areas within an VHFHSZ or HFHSZ.

Impacts related to exacerbated fire risks are project- and site-specific. Construction and operation of the Project would result in less than significant impacts related to risks associated

with slope, winds, and other factors due to the flat nature of the Project site, limited vegetation, and fire breaks created by access roads surrounding (and throughout) the Project site as well as the existing I-8 and SR 98, which act as fire breaks. The Project would implement a Fire Management and Prevention Plan and Hazardous Materials Business Plan and would adhere to all applicable federal, State, and local laws and regulations to reduce the potential impacts from wildfire to a less than significant level during construction and operation of the Project. Cumulative projects would have variable fire risk depending on individual project site conditions. However, similar to the Project, cumulative projects would adhere to all applicable federal, State, and local laws and regulations to reduce risk of wildfire. Therefore, cumulative impacts related to exacerbated wildfire risk would be less than significant.

Breaker-and-a-Half Switchyard

Construction and operation of the BAAH switchyard is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the BAAH switchyard would have a less than considerable contribution to cumulative impacts related to wildfire.

Loop-in Transmission Lines

Construction and operation of the loop-in transmission lines is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the loop-in transmission lines would have a less than considerable contribution to cumulative impacts related to wildfire.

4.16.4 Proposed Best Management Practices, Project Design Features, Conservation Management Actions, and Mitigation Plans

As part of the Project, the Applicant and other entities involved in construction and operation would implement BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM.

Project Site Components

Best Management Practices and Project Design Features

The Project would implement the following BMPs and PDFs related to wildfire:

- BMP 45 (Hazardous Materials)
- BMP 131 (Safety)
- PDF FIRE-1

Conservation Management Actions

The Project would implement the following DRECP CMAs relevant to Wildfire. See Appendix D.2 for the full language of the CMAs.

- DFA-VPL-BIO-FIRE-1

Mitigation Plans

The Project would implement the following mitigation plans:

- Fire Management and Prevention Plan

Breaker-and-a-Half Switchyard

The same BMPs, PDFs, CMAs, and mitigation plans would apply to the BAAH switchyard.

Loop-in Transmission Corridors

The same BMPs, PDFs, CMAs, and mitigation plans would apply to the 500 kV loop-in transmission lines.

4.16.5 Laws, Ordinances, Regulations, and Standards Compliance

Table 4.16-2 Federal Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Federal Wildland Fire Management Policy	Acknowledges the essential role of fire in maintaining natural ecosystem and provides further guidance: • Firefighter and public safety is the first priority in every fire management activity. • The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process. • Fire management plans, programs, and activities support land and resource management plans and their implementation. • Sound risk management is a foundation for all fire management activities. • Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives. • Fire management plans and activities are based upon the best available science. • Fire management plans and activities incorporate public health and environmental quality considerations. • Federal, State, tribal, local, interagency, and international coordination and cooperation are essential. • Standardization of policies and procedures among Federal agencies is an ongoing objective.	The Project would implement the Federal Wildland Fire Management Policy and its best practices.

Table 4.16-3 State Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
California Fire Code	Regulates the use, handling, and storage requirements for hazardous materials at fixed facilities.	The Project would adhere to the regulations within the California Fire Code.
California Fire Plan	Statewide plan for reducing the risk of wildfire that includes the following: • Involving the community in fire management planning process • Assess public and private resources that could be damaged by wildfires • Develop pre-fire management solutions and implement cooperative programs to reduce community's potential wildfire losses • Pre-fire management solutions such as fuel breaks, Wildfire Protection Zones, and prescribed fires to reduce the availability of fire fuels	The Project would implement the California Fire Plan in its fire management practices.
CPUC Fire Safety Regulations (GO 95, Rule 18A; GO 95, Rules 31.2, 80.1A, and 90.1B; GO 95, Rule 35; GO 95, Appendix E; GO 165, Appendix A; and GO 166, Standard 1.E)	• GO 95, Rule 18A, which requires electric utilities and communication infrastructure providers (CIPs) to place a high priority on the correction of significant fire hazards in high fire-threat areas of Southern California • GO 95, Rules 31.2, 80.1A, and 90.1B, which set the minimum frequency for inspections of aerial communication facilities located in close proximity to power lines in high fire-threat areas throughout California • GO 95, Rule 35, Table 1, Case 14, which requires increased radial clearances between bare-line conductors and vegetation in high fire-threat areas of Southern California • GO 95, Appendix E, which authorizes increased time-of-trim clearances between bare-line conductors and vegetation in high fire-threat areas of Southern California • GO 165, Appendix A, Table 1, which requires more frequent patrol inspections of overhead powerline facilities in rural, high fire-threat areas of Southern California • GO 166, Standard 1.E., which requires each electric utility in Southern California to develop and submit a plan to reduce the risk of fire ignitions by overhead facilities in high fire-threat areas during extreme fire-weather events. Electric utilities in Northern California must also develop and submit a plan if they	The loop-in transmission line would adhere to fire safety regulations set by the CPUC, as applicable.

have overhead facilities in high fire-threat areas that are subject to extreme fire-weather events

No local laws, ordinances, regulations, and standards are applicable.

4.16.6 Agencies Contacted and Permits

A list of agencies that were contacted during preparation of this application is provided in Appendix E.1. Permits required to construct, operate, and maintain the project, including the BAAH, and loop-in transmission line, are summarized in Table E.2.

4.16.7 References

CAL FIRE Fire and Resource Assessment Program (FRAP). 2018. "Fire Hazard Severity Zones." Map Service. Raster digital data. "Perkins East Mesa Fire Hazard Severity Zones" created by Panorama Environmental, Inc.: Using Arc GIS (01/11/2024). Last updated June 2, 2022. https://gis.data.ca.gov/maps/CALFIRE-Forestry::california-fire-hazard-severity-zones-fhsz/about.

California Public Utilities Commission (CPUC). 2017a. "Order Instituting Rulemaking to Develop and Adopt Fire-Threat Maps and Fire-Safety Regulations." Rulemaking 15-05-006 (Filed May 7, 2015) Decision 17-01-009. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M172/K762/172762082.PDF.

———. 2017b. "Order Instituting Rulemaking to Develop and Adopt Fire-Threat Maps and Fire-Safety Regulations." Rulemaking 15-05-006 Decision 17-12-024. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M200/K976/200976667.PDF.

———. 2019a. "CPUC_Fire-Threat_Map_Tier_2." Feature service. Vector digital data. "Perkins East Mesa CPUC Fire-Threat Map" created by Panorama Environmental, Inc.: Using Arc GIS (01/11/2023). Last updated May 31, 2019. https://gis-calema.opendata.arcgis.com/datasets/CalEMA::tier-2-elevated/about.

———. 2019b. "CPUC_Fire-Threat_Map_Tier_3." Feature service. Vector digital data. "Perkins East Mesa CPUC Fire-Threat Map" created by Panorama Environmental, Inc.: Using Arc GIS (01/11/2023). Last updated May 31, 2019. https://gis-calema.opendata.arcgis.com/datasets/CalEMA::tier-3-extreme/about.

National Park Service (NPS). n.d. "Wildland Fire Behavior." Last updated February 16, 2017. Accessed September 15, 2023. https://www.nps.gov/articles/wildland-fire-behavior.htm.

National Wildfire Consulting Group (NWCG). n.d. "NWCG Glossary of Wildland Fire, PMS 205." Database. Glossary. EDG Explorer: https://www.nwcg.gov/publications/pms205#edg. Accessed January 9, 2024. https://www.nwcg.gov/publications/pms205.

Weather Spark. n.d. "Climate and Average Weather Year Round in El Centro." Accessed December 7, 2023. https://weatherspark.com/y/2201/Average-Weather-in-El-Centro-California-United-States-Year-Round.

WRMA Engineering. 2021. "2-D Hydraulic Study Summary Analysis of Findings." East Mesa Study Area: Imperial County, CA: Prepared for Intersect Power. Available in the Project Record.

4.17 Worker Safety

This section summarizes the worker health and safety issues that may be encountered during construction and operation of the Project. Section 4.17.1 discusses the work environment and setting. Section 4.17.2 describes the analyses conducted to identify hazards for health and safety programs as well as the safety compliance and training programs that would be established during Project construction and operation and maintenance. Section 4.17.3 evaluates potential cumulative impacts on worker safety. Section 4.17.4 discusses mitigation measures to address impacts. Section 4.17.5provides an overview of applicable federal, State, and LORS applicable to worker safety.

4.17.1 Environmental Setting

Regional Setting

The Project Application Area is characterized by undeveloped natural land with scattered geothermal and utility scale solar power plants. Agricultural land is located an estimated 2.5 miles west of the Project Application Area. The Imperial Sand Dunes, the largest mass of sand dunes in California, is located over 9 miles to the east of the Project Application Area. The U.S.–Mexico border is located approximately 1.2 miles to the south.

Climate and Weather

The climate in Imperial County is characterized by long, hot, and dry summers and short winters with light rain. Most of the seasonal precipitation occurs between October and April, and lightning occurs during the summer monsoonal moisture season. The summer average daily high temperature is above 99 degrees Fahrenheit, and the hottest month of the year is July, with an average high of 107 degrees Fahrenheit and low of 79 degrees Fahrenheit. The cool season lasts for 3 months, from November to February, with an average daily high temperature below 76 degrees Fahrenheit. The coldest month of the year is December, with an average low of 43 degrees Fahrenheit and high of 69 degrees Fahrenheit. The area experiences significant seasonal variation in the perceived humidity. The most humid period of the year lasts for 3 months, from June to September, and the month with the most humid days is August (Weather Spark, n.d.).

Wind within Imperial County is highly dependent on local topography and other factors. The average hourly wind speed near the Project experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 4 months, from March to July, with average wind speeds of more than 8 miles per hour. The windiest month of the year is May, with an average hourly wind speed of 9.4 miles per hour. The calmer time of year lasts for 8 months, from July to March. The calmest month of the year is December, with an average hourly wind speed of 6.5 miles per hour (Weather Spark, n.d.).

Weather conditions such as wind, temperature, and humidity also contribute to fire behavior. Wind is one of the most important factors because it can bring a fresh supply of oxygen to a fire

and push it towards a new fuel source. Wind, temperature, and relative humidity are the most influential weather elements in fire behavior and susceptibility (National Park Service 2017). Fire moves faster under hot, dry, and windy conditions. Wind may also blow embers ahead of a fire, causing its spread. In addition, drought conditions lead to extended periods of excessively dry vegetation, increasing the fuel load and ignition potential.

Fire Protection Services

Imperial County Fire Department provides a full range of emergency response services including, but not limited to, structural fire suppression, wildland fire suppression, response to hazardous materials incidents, and life support medical services to the Project Application Area. The nine Imperial County Fire Department stations are located in the communities of Heber, Seeley, Ocotillo, Palo Verde, Niland, Winterhaven, Salton City and the city of Imperial. The closest fire station to the Project site is located approximately 22 miles northwest, at 2514 La Brucherie Road, in the city of Imperial.

4.17.2 Impact Analysis

Methodology

Project construction, operation and maintenance (O&M), and decommissioning activities have the potential to expose workers to safety hazards. A hazard analysis was conducted to determine impacts to worker health and safety from these Project activities. The analysis identifies the hazards anticipated during construction, O&M, and decommissioning activities and indicates which safety programs should be developed and implemented to avoid, mitigate, and/or appropriately manage such hazards.

Impact Evaluation Criteria

The CEQA Environmental Checklist (Appendix G of the CEQA Guidelines) does not include criteria that specifically address health and safety related impacts to Project construction and operations personnel. CEQA Environmental Checklist impact evaluation criteria related to workers residing in the Project Application Area are included under Section 3.7: Noise and Section 3.5: Hazardous Materials Handling. The following section provides a hazard analysis of construction and O&M activities to address CEC requirements for Opt-In Applications, as specified in California Code of Regulations, title 20, section 1704, Appendix B, for worker safety.

Impact WS-1

Impacts Associated with Shock hazards, Electric Arcs, and Ground Fault (*Less than Significant)*

Project Site

Shock Hazards

Alternating current overhead electric transmission lines produce electric and magnetic fields (i.e., *electromagnetic fields*, or EMFs) that have the potential to create induced voltages and currents in nearby conductive objects. See Section 3.3.5: Transmission System Safety and Nuisance for a discussion on EMFs. Nearby conductive objects could include buildings, roofs, fences, railroads, communication lines, pipelines, farm equipment, and vehicles. Induced voltages and currents can result in potential hazards including electrical shock. Regulations and

industry standards for safe construction and operation of transmission lines minimize the potential for the public to be exposed to hazards resulting from induced current and voltage (Golder Associates, Inc. 2013). Based on historical information and industry standards, a 500 kV transmission line, such as the gen-tie or loop-in transmission line, would need to be significantly parallel to an existing linear metallic pipeline or a long wire fence for induced currents and voltages to be of concern. There are no linear metallic pipelines or long wire fences along the gen-tie or loop-in transmission line pathways. SDG&E would abide by all CPUC regulations regarding shock hazards during construction and operation of the loop-in transmission lines as it currently does with the existing SWPL.

Electric Arcs

Electric arcs may form across small gaps between conductive surfaces. Arcing also can occur if a conductive object is raised such that it is too close to a transmission, power, or distribution line. Even excessive smoke can potentially provide a pathway to ground. More commonly, lightning strikes on overhead lines can create an ionized air path from the line to the tower during fault conditions. These arcs can have secondary effects, such as ignition of flammable materials, in the vicinity of the arc. It is theoretically possible for a spark discharge from the induced voltage on a large vehicle to ignite gasoline vapor during refueling; however, the likelihood of ignition is very low. Vehicles should not be refueled under energized lines unless specific precautions are taken to ground the vehicle and the fueling source.

Ground Faults

An accidental connection between an electrical system conductor and the earth is called a *ground fault*. Ground faults may be caused by many things, including dirt buildup on conductor insulators (creating a dirty-water path for current from the conductor to the pole and to the ground when it rains), groundwater infiltration in buried lines, or fallen tree branches. A tree branch touching an energized overhead line would provide an accidental path for current to flow through the tree. A ground fault could result in induced current and voltage, with potentially hazardous impacts.

Construction of the gen-tie would involve construction of 500 kV transmission lines. These lines would not be electrified during construction. The Applicant would utilize safety devices such as traveling grounds, guard structures, and radio-equipped public safety roving vehicles and linemen prior to the initiation of wire-stringing activities to ensure the safety of workers. There is a low potential for shock hazards from induced current. Voltage impacts could occur during construction due to the incorrect closure of switches or circuit breakers at the Project substation. Atmospheric conditions such as lightning could also potentially induce current during construction; however, these situations rarely occur. Overhead ground wires would be constructed at the Project substation and gen-tie to provide lightning protection. Electrical equipment and fencing at the Project substation and metal fencing and gates would be grounded to prevent shock. Project construction would meet or exceed OSHA and Cal/OSHA safety regulations; therefore, impacts resulting from induced current and voltage to workers during construction of the Project would be less than significant.

Breaker-and-a-Half Switchyard

Voltage impacts could occur during construction due to the incorrect closure of switches or circuit breakers at the BAAH switchyard. Atmospheric conditions such as lightning could also potentially induce current during construction; however, these situations rarely occur. Electrical equipment and fencing at the BAAH switchyard and metal fencing and gates within the transmission line ROWs, if any, would be grounded to prevent shock. Project construction would meet or exceed CPUC GO 95 safety standards and OSHA and Cal/OSHA safety regulations; therefore, impacts resulting from induced current and voltage to workers during construction of the Project would be less than significant.

Loop-in Transmission Lines

Construction of the loop-in transmission lines would involve construction of 500 kV transmission lines. These lines would not be electrified during construction. SDG&E would utilize safety devices such as traveling grounds, guard structures, and radio-equipped public safety roving vehicles and linemen prior to the initiation of wire-stringing activities to ensure the safety of workers and the public. There is a low potential for shock hazards from induced current. Atmospheric conditions such as lightning could also potentially induce current during construction; however, these situations rarely occur. Overhead ground wires would be constructed along the transmission lines to provide lightning protection. Project construction would meet or exceed CPUC GO 95 safety standards and OSHA and Cal/OSHA safety regulations; therefore, impacts resulting from induced current and voltage to workers during construction of the Project would be less than significant.

Plans and Conservation and Management Actions

As described in Section 2.0: Project Description, the Applicant has prepared multiple mitigation plans as required by the BLM. The completed plans are included as appendices to this Application. Additional plans and technical studies, listed below, are currently in preparation and will be prepared to support Project permitting, construction, operation and maintenance, and decommissioning activities. These plans will be submitted as a supplement to the Application when they are available. The plans relevant to worker safety are provided below:

- Fire Management and Prevention Plan
- Flight Operations Plan
- Fugitive Dust Control Plan
- Hazardous Materials Management and Oil Spill Response Plan
- Health, Safety and Noise Plan
- Operations and Maintenance Plan
- Decommissioning & Revegetation Plan
- Security and Emergency Preparedness Plan
- Night Lighting Plan

Impacts and Measures

Table 4.17-1 and Table 4.17-2, below, show the results of the hazards analysis for Project construction activities and O&M activities, respectively. Impacts or hazards for each activity are listed along with controls or mitigation measures for each hazard activity.

Table 4.17-1 Project Construction Hazard Analysis

Activity	Hazard	Control program and/or measure(s)
Motor vehicle and heavy equipment use	• Personnel injury and/or property damage from collisions between people, motor vehicles, and/or equipment	• Construction Injury and Illness Prevention Program (Construction IIPP) • Construction Personal Protective Equipment Program (Construction PPE Program)
Forklift operation	• Personnel injury and/or property damage from collisions between people, forklifts, and/or equipment	• Construction IIPP • Construction PPE Program
Trench and excavation	• Personnel injury and/or property damage from the collapse of trenches and excavations • Exposure to fumes or vapors that have collected in the trench/excavation	• Construction IIPP • Construction PPE Program
Working at elevated locations	• Personnel injury and/or property damage resulting from falls from elevated areas • Personnel injury resulting from overhead hazards	• Construction IIPP • Construction PPE Program
Crane operation	• Personnel injury and/or property damage from falling loads • Injuries and property damage from contact with crane or derrick	• Construction IIPP • Construction PPE Program
Working with flammable and combustible liquids	• Personnel injury and/or property damage resulting from fire/spills	• Construction IIPP • Construction PPE Program • Fire Management and Prevention Plan • Hazardous Materials Management & Oil Spill Response Plan
Hot work (including cutting and welding)	• Personnel injury and/or property damage from fire or exposure to hot materials. • Exposure to fumes during cutting and welding • Personnel injury resulting from ocular exposure to ultraviolet and infrared radiation during cutting and welding	• Construction IIPP • Construction PPE Program • Fire Management and Prevention Plan

Activity	Hazard	Control program and/or measure(s)
Inspection and maintenance of temporary systems	• Personnel injury and/or property damage from contact with hazardous energy sources (electrical, thermal, and mechanical)	• Construction IIPP • Construction PPE Program
Working on electrical equipment	• Personnel injury resulting from contact with live electricity and energized equipment • Fire hazard resulting from contact with live electricity and energized equipment	• Construction IIPP • Construction PPE Program • Fire Management and Prevention Plan
Exposure to hazardous waste	• Personnel exposure to contaminated materials or debris during construction	• Construction IIPP • Construction PPE Program • Hazardous Materials Management & Oil Spill Response Plan
Confined space entry	• Personnel injury from physical and chemical hazards during activities conducted within a confined space	• Construction IIPP • Construction PPE Program
General construction activities	• Personnel injury from hand and portable power tools • Personnel injury/property damage from inadequate walking and work surfaces and/or poor housekeeping • Personnel exposure to occupational noise • Personnel injury from improper lifting, carrying materials and equipment, and poor ergonomics • Personnel exposure to hazardous gases, vapors, dusts, and fumes • Personnel exposure to various hazards. • Heat and cold stress • Personnel injury and property damage from unsafe driving	• Construction IIPP • Construction PPE Program
Construction and testing of high-pressure systems	• Personnel injury and/or property damage attributable to failure of pressurized system components or unexpected release of pressure	• Construction IIPP • Construction PPE Program
Working near water	• Personnel injury when working near on-site stormwater retention ponds, wastewater treatment systems, or storage tanks	• Construction IIPP

Activity	Hazard	Control program and/or measure(s)
Working outdoors/ remote	• Personnel injury resulting from working alone and/or in a remote area • Personnel injury and/or property damage resulting from lightning strikes during a storm	• Construction IIPP
Working in multiple days of high head	• Personnel injury resulting from excessive heat/heat stroke	• Construction IIPP
Biological hazards	• Personnel injury and/or property damage resulting from wildfire hazards • Personnel injury resulting from exposure to flora/fauna • Exposure to COVID-19 or other pathogens	• Construction IIPP • Construction PPE Program • Hazardous Materials Management & Oil Spill Response Plan
Fire/explosion hazards including from BESS	• Personnel injury and/or property damage from contact with explosive energy sources • Personnel exposure to post blast air quality • Personnel injury and/or property due to improper storage and transport of explosives • Theft of explosives	• Construction IIPP • Construction PPE Program • Fire Management and Prevention Plan • Hazardous Materials Management & Oil Spill Response Plan

Source: California Code of Regulations (CCR); Occupational Safety and Health Administration (OSHA) Job Hazard Analysis (OSHA 2002)

Table 4.17-2 O&M Hazard Analysis

Activity	Hazard	Control program and/or measure(s)
Motor vehicle and heavy equipment use	• Personnel injury and/or property damage from collisions between people, motor vehicles, and/or equipment	• O&M IIPP • O&M PPE Program
Forklift operation	• Personnel injury and/or property damage from collisions between people, forklifts, and/or equipment	• O&M IIPP • O&M PPE Program
Trench and excavation	• Personnel injury and/or property damage from the collapse of trenches and excavations • Exposure to fumes or vapors that have collected in the trench/excavation	• O&M IIPP • O&M PPE Program

Activity	Hazard	Control program and/or measure(s)
Working at elevated locations	• Personnel injury and/or property damage resulting from falls from elevated areas • Personnel injury resulting from overhead hazards	• O&M IIPP • O&M PPE Program
Crane operation	• Property damage from falling loads. • Personnel injuries from falling loads • Injuries and property damage from contact with crane or derrick	• O&M IIPP • O&M PPE Program
Working with flammable and combustible liquids	• Personnel injury and/or property damage resulting from fire/spills	• O&M IIPP • O&M PPE Program • Fire Management and Prevention Plan • Security and Emergency Preparedness Plan • Hazardous Materials Management & Oil Spill Response Plan
Working with hazardous materials	• Personnel injury (chemical burns, inhalation, digestion, absorption) resulting from exposure to hazardous chemicals	• O&M IIPP • O&M PPE Program • Hazardous Materials Management & Oil Spill Response Plan • Security and Emergency Preparedness Plan
Hot work (including cutting and welding)	• Personnel injury and/or property damage resulting from fire • Personnel exposure to fumes during cutting and welding • Ocular exposure to ultraviolet and infrared radiation during cutting and welding	• O&M IIPP • O&M PPE Program • Fire Management and Prevention Plan
Troubleshooting and maintenance of Project systems and general operational activities	• Personnel injury and/or property damage from contact with hazardous energy sources (e.g., electrical, thermal, mechanical)	• O&M IIPP • O&M PPE Program • Hazardous Materials Management & Oil Spill Response Plan
Working on electrical equipment	• Personnel injury resulting from contact with live electricity and energized equipment • Fire hazard resulting from contact with live electricity and energized equipment • Shock hazard, electrical arc, or ground fault	• O&M IIPP • O&M PPE Program • Complying with National Electric Safety Code (NESC) requires induced current to be limited to less than 5 milliamperes (mA) for the largest anticipated truck, vehicle, or equipment under an energized line.

Activity	Hazard	Control program and/or measure(s)
Confined space entry	• Personnel injury from physical and chemical hazards during activities conducted within a confined space	• O&M IIPP • O&M PPE Program
General Project operations	• Personnel injury and property damage from unsafe driving • Personnel overexposure to hazardous gases, vapors, dusts, and fumes • Personnel injury from hand and portable power tools • Personnel injury/property damage from inadequate walking and work surfaces and/or poor housekeeping • Personnel exposure to occupational noise • Personnel injury from improper lifting and carrying materials and equipment • Personnel exposure to hazardous gases, vapors, dusts, and fumes • Personnel exposure to various hazards. • Heat and cold stress	• O&M IIPP • O&M PPE Program
Maintaining and repairing high-pressure systems	• Personnel injury and/or property damage attributable to failure of pressurized system components or unexpected release of pressure	• O&M IIPP • O&M PPE Program
Working near water	• Personnel injury when working near on-site stormwater retention ponds, wastewater treatment systems, or storage tanks	• O&M IIPP
Working outdoors/ remote	• Personnel injury resulting from working alone and/or in a remote area • Personnel injury and/or property damage resulting from lightning strikes during a storm	• O&M IIPP • O&M PPE Program
Biological hazards	• Personnel injury and/or property damage resulting from wildfire hazards • Personnel injury resulting from exposure to flora/fauna • Exposure to COVID-19 or other pathogens	• O&M IIPP • O&M PPE Program • Security and Emergency Preparedness Plan • Hazardous Materials Management & Oil Spill Response Plan

Activity	Hazard	Control program and/or measure(s)
Battery energy storage systems	• Personnel injury and/or property damage attributable to failure of battery energy storage system components	• O&M IIPP • O&M PPE Program • Fire Management and Prevention Plan • Security and Emergency Preparedness Plan • Hazardous Materials Management & Oil Spill Response Plan

Source: CCR, OSHA Job Hazard Analysis (OSHA 2002)

Training and Safety Programs

Health and safety programs identified in Table 4.17-1 and Table 4.17-2, above, would be developed to mitigate potential safety hazards from Project construction and O&M activities and to comply with applicable regulations. Each program and plan detailed in Table 4.17-1 and Table 4.17-2 would contain job-specific training requirements that would be translated into trainings for Project personnel, as applicable. For example, all Project O&M personnel would receive training in evacuation procedures under the Security and Emergency Preparedness Plan, but only those personnel working with flammables would receive training under the Fire Management and Prevention Plan. The following subsections contain information on the anticipated content of the respective health and safety programs.

Construction Health and Safety Programs

The following construction health and safety programs would be developed and implemented during Project construction. An outline of the key items to be included in each construction health and safety program is included below.

Worker Environmental Awareness Program

In accordance with PDF HAZ-1, a Worker Environmental Awareness Program (WEAP) would be prepared for the Project prior to construction. The WEAP would include a personal protective equipment (PPE) program, Emergency Action Plan (EAP), and Injury and Illness Prevention Program (IIPP) to address health and safety issues associated with normal and unusual (emergency) conditions. The WEAP would be reviewed and approved by the BLM and CEC prior to construction. The WEAP would include the following:

- Environmental health and safety training (including training on the potential hazards of valley fever, which, while low risk in Imperial County, would be discussed (e.g., symptoms, proper work procedures, how to use PPE, informing supervisor of suspected symptoms of valley fever)
- Site security measures
- Site first aid training
- Site fire protection and extinguisher maintenance, guidance, and documentation
- Furnishing and servicing of sanitary facilities records
- Trash collection and disposal

- Disposal of hazardous materials and waste guidance in accordance with local, State, and federal regulations

Construction Injury and Illness Prevention Program

In accordance with CCR title 8, sections 1509 and 3395 and PDF HAZ-1, an IIPP would be developed, implemented, and maintained during Project construction. The Construction IIPP would include the following elements:

- Identification of the various parties and personnel responsible for implementing the program during construction activities
- Definition of a framework for Project personnel compliance with Project-specific and general safe and healthy work practices, including training and retraining programs, disciplinary actions, or other such means to promote Project personnel compliance with such practices
- Establishment of a chain of command for communicating in a clear and concise manner for all affected personnel, including provisions designed to encourage Project personnel to communicate hazards at the Project site
- Outline of procedures for identifying and evaluating workplace hazards, including but not limited to the following:
  - Physical hazards
    - Use of motor vehicles, heavy equipment, forklifts, and cranes
    - Hot work and work with electrical equipment
    - Working outdoors, in remote locations, or near water
    - Working outdoors in areas of extreme heat
    - Exposure to pressurized systems
    - Trenching, excavation, and confined space entry
    - Working at elevation and overhead hazards
  - Chemical hazards
    - Handling hazardous waste, flammable and/or combustible liquids, gaseous materials, explosives, and batteries
  - Biological hazards
    - General construction hazards, including those encountered during inspections and/or maintenance activities
- Outline of procedures to investigate occupational injury or illness
- Outline of procedures for correcting unsafe or unhealthy conditions, work practices and procedures, and an emergency response protocol, including the following:
  - Procedures for reporting fires and other emergencies
  - Evacuation procedures and emergency escape route assignments, including evacuation areas and/or muster locations
  - Procedures for Project personnel who remain to operate critical plant operations before they evacuate

  - Establishment of a means for accounting for all Project personnel after an emergency evacuation
  - Rescue and medical duties performed by Project personnel, including responses to excessive heat or heat stroke
  - Identification of key persons to be contacted in the event of evacuation or other emergencies
  - Description of alarm systems that would notify Project personnel to evacuate or take other actions
  - Establishment of the site of an alternative communications center to be used in the event of a fire or explosion
  - Identification of a secure location for storage of original or duplicate copies of important records
- Identification of training and instruction required under the Construction IIPP, including framework for who receives training and when training is implemented
- Outline of procedures to allow Project personnel access to the program
- Establishment of procedures for recordkeeping and documentation

Fire Management and Prevention Plan

In accordance with CCR title 8 section 1920 and PDF FIRE-1, a Fire Management and Prevention Plan has been drafted and would be revised and implemented during Project construction based on Project engineering updates. The Fire Management and Prevention Plan would include the following elements:

- A list of applicable standards and publications
- A map showing the Project site, including layout, ingress, egress, drainage and grading, potential ignition sources during various phases of construction, and evacuation areas and/or muster locations
- A description of fire protections that would be implemented during construction activities, including water systems, gaseous agent systems, and fire extinguishers
- A description of detection and alarm systems that would be implemented during construction activities
- A list of all major fire hazards, including but not limited to the following:
  - Chemical fire hazards such as diesel
  - Physical fire hazards such as electrical equipment, heavy equipment and motor vehicles, and wildfire
- An outline of procedures to control accumulation of flammable and combustible waste materials
- An outline of procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent or control sources of ignition or fires, including BESS specific fire safeguards
- Identification of Project personnel responsible for the control of fuel source hazards

Construction Personal Protective Equipment Program
In accordance with CCR title 8 sections 1514–1522 and PDF HAZ-1, a PPE Program would be developed and implemented during Project construction. The Construction PPE Program would include the following elements:

- Identification of physical and health hazards specific to Project construction
- Outlines appropriate and adequate PPE for Project personnel for the specific work to be conducted at the Project
- Outline of training on the use, inspection, storage, cleaning, and limitations of the PPE
- Outline of training on the maintenance of PPE, including replacing worn or damaged PPE
- Establishment of periodic reviews to update and evaluate the effectiveness of the PPE Program

Construction Hazardous Materials Management and Oil Spill Response Plan
In accordance with PDF HAZ-2, a Hazardous Materials Management and Oil Spill Response Plan would be developed prior to construction to regulate the hazardous materials that would be used and stored on site. The Plan would provide guidance to construction and O&M contractors and field personnel on measures to minimize effects during construction and O&M and decommissioning activities associated with the Project. The Plan would identify the expected waste and describe the hazardous waste management procedures to be used to maximize diversion and reduce the quantity of waste requiring disposal. The Plan would include detailed information on the following:

- Hazardous material management
- Waste disposal facilities
- Vehicle and equipment inspections
- Fueling, and maintenance
- Employee spill prevention and response training
- Spill response procedures including notifications and reporting

O&M Health and Safety Programs
Upon completion of construction and commencement of O&M activities at Project facilities, the construction health and safety programs would transition into an operation-oriented program to focus on the hazards and controls necessary during O&M activities. An outline of the key items to be included in each operations health and safety program is included below.

O&M Injury and Illness Prevention Program
In accordance with CCR title 8, section 3203 and PDF HAZ-1, an IIPP would be developed, implemented, and maintained during Project O&M activities. The O&M IIPP would include the following elements:

- Identification of the various parties and personnel responsible for implementing the program during O&M activities

- Definition of a framework for Project personnel compliance with Project-specific and general safe and healthy work practices, including training and retraining programs, disciplinary actions, or other such means to promote Project personnel compliance with such practices
- Establishment of a chain of command for communicating in a clear and concise manner for all affected personnel, including provisions designed to encourage Project personnel to communicate hazards at the Project site
- Outline of procedures for identifying and evaluating workplace hazards, including but not limited to the following:
  - Physical hazards
    - Use of motor vehicles, heavy equipment, forklifts, and cranes
    - Hot work and work with electrical equipment
    - Working outdoors, in remote locations, or near water
    - Exposure to pressurized systems
    - Trenching, excavation, and confined space entry
    - Working at elevation and overhead hazards
  - Chemical hazards
    - Handling hazardous waste, flammable and/or combustible liquids, gaseous materials, explosives, and batteries
  - Biological hazards
- Outline of procedures to investigate occupational injury or illness
- Outline of procedures for correcting unsafe or unhealthy conditions, work practices and procedures, and an emergency response protocol, including the following:
  - Procedures for reporting fires and other emergencies
  - Evacuation procedures and emergency escape route assignments, including evacuation areas and/or muster locations
  - Procedures for Project personnel who remain to operate critical plant operations before they evacuate
  - Establishment of a means for accounting for all Project personnel after an emergency evacuation
  - Rescue and medical duties performed by Project personnel
  - Identification of key persons to be contacted in the event of evacuation or other emergencies
  - Description of alarm systems that would notify Project personnel to evacuate or take other actions
  - Establishment of the site of an alternative communications center to be used in the event of a fire or explosion
  - Identification of a secure location for storage of original or duplicate copies of important records
- Identification of training and instruction required under the O&M IIPP, including framework for who receives training and when training is implemented

- Outline of procedures to allow Project personnel access to the program
- Establishment of procedures for recordkeeping and documentation

O&M Fire Management and Prevention Plan

In accordance with CCR title 8, section 3221 and PDF FIRE-1, a Fire Management and Prevention Plan would be developed and implemented during Project O&M activities. The O&M Fire Management and Prevention Plan would include the following elements:

- A list of applicable standards and publications
- A map showing the Project site, facilities, ingress, egress, potential ignition sources, and evacuation areas and/or muster locations
- A description of fire protections that would be implemented during O&M activities, including permanent water systems, gaseous agent systems, and fire extinguishers
- A description of detection and alarm systems that would be implemented during O&M activities
- A list of all major fire hazards, including but not limited to the following:
  - Chemical fire hazards such as diesel
  - Physical fire hazards such as electrical equipment, heavy equipment and motor vehicles, and wildfire
- An outline of procedures to control accumulation of flammable and combustible waste materials
- An outline of procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent or control sources of ignition or fires, including the BESS specific procedures and safeguards
- Identification of Project personnel responsible for the control of fuel source hazards
- An outline of procedures to respond to wildland and grass fires within the Project vicinity or Project site.

O&M Personal Protective Equipment Program

In accordance with PDF HAZ-1, a PPE Program would be developed and implemented during Project O&M activities. The O&M PPE Program would include the following elements:

- Identification of physical and health hazards specific to the workplace
- Outline of appropriate and adequate PPE for Project personnel for the specific O&M activities to be conducted at the Project site
- Outline of training on the use, inspection, storage, cleaning, and limitations of the PPE
- Outline of training on the maintenance of PPE, including replacing worn or damaged PPE
- Establishment of periodic reviews to update and evaluate the effectiveness of the PPE Program

Security and Emergency Preparedness Plan
In accordance with CCR title 8, section 3220, a Security and Emergency Preparedness Plan would be developed and implemented during Project O&M activities. The Security and Emergency Preparedness Plan would include the following elements:

- An outline of procedures for reporting fires and other emergencies
- Establishment of procedures for emergency evacuation, including evacuation type and exit routes
- An outline of procedures for Project personnel who remain to operate critical plant operations before they evacuate
- Establishment of a means for accounting for all Project personnel after an emergency evacuation
- An outline of rescue and medical duties if performed by Project personnel
- Identification of key persons to be contacted in the event of evacuation or other emergencies
- Alarm systems intended to notify Project personnel to evacuate or take other actions
- Description of the site of an alternative communications center to be used in the event of a fire or explosion
- Identification of a secure location for storage of original or duplicate copies of important records

O&M Hazardous Materials Management and Oil Spill Response Plan
In accordance with PDF HAZ-2, a Hazardous Materials Management and Oil Spill Response Plan would be developed prior to construction to regulate the hazardous materials that would be used and stored on site. The Hazardous Materials Management and Oil Spill Response Plan would include detailed information on the following:

- Hazardous materials that would be used on the project and management of these materials
- Spill prevention, control, and countermeasures that would be implemented to prevent spills or respond to accidental spills
- An overview of the notification and documentation procedures to be followed in the event of a spill

Decommissioning Health and Safety Programs
At the time of decommissioning, all decommissioning related activities would follow the then-applicable LORS. Decommissioning activities would require equipment and workforce similar to that for construction; therefore, the construction health and safety programs outlined above would be updated as needed and implemented.

Safety Training
Comprehensive safety training programs for Project construction and O&M activities would be required for Project personnel. Each of the safety procedures developed to control and mitigate potential site hazards would require training through a variety of methods, consistent with the requirements of California Division of Occupational Safety and Health (Cal/OSHA) standards,

the complexity of the topic, the characteristics of the workforce, and the degree of risk associated with each of the identified hazards. Table 4.17-3, below, summarizes the safety training programs that would be provided to Project construction personnel. Table 4.17-4, below, summarizes the safety training programs that would be provided to Project O&M personnel. Safety training would be tracked using sign-in sheets, hardhat stickers, or other similar methods.

Table 4.17-3 Project Construction Training Program

Training course	Target Project personnel
Worker Environmental Awareness Program	All
Injury and Illness Prevention Training	All
PPE Training	All
Fire Management and Prevention Plan	Project personnel responsible for the handling and storage of flammable or combustible liquids or gases, operating heavy machinery, or performing hot work
Hazardous Materials Management and Oil Spill Response Plan	All

Source: (State of California Division of Occupational Safety and Health, n.d.; OSHA 2002)

Table 4.17-4 Project O&M Training Program

Training course	Target Project personnel
Worker Environmental Awareness Program	All
Injury and Illness Prevention Training	All
PPE Training	All
Fire Management and Prevention Plan	Project personnel responsible for the handling and storage of flammable or combustible liquids or gases, performing hot work, operating heavy machinery, or maintaining battery energy storage systems
Security and Emergency Preparedness Plan	All
Hazardous Materials Management and Oil Spill Response Plan	All

Source: *(State of California Division of Occupational Safety and Health, n.d.; OSHA 2002)*

Fire Protection and Prevention Plan

In accordance with PDF FIRE-1, a Fire Management and Prevention Plan would be prepared in coordination with the BLM fire crews or other emergency response organizations to identify the fire hazards and response scenarios that may be involved with operating the solar facility. This would include information on response to accidents involving downed power lines or accidents involving damage to solar arrays and facilities. The Plan would include measures to safeguard

human life, prevent personnel injury, preserve property, and minimize downtime due to fire or explosion. Of concern would be fire-safe construction, reduction of ignition sources, control of fuel sources, availability of water, and proper maintenance of firefighting systems.

Fire extinguishers and other portable fire-fighting equipment would be available on site as well as additional water for use at the on- or off-site O&M facility. These fire extinguishers would be maintained for the full construction duration in accordance with local and federal OSHA requirements. Locations of portable fire extinguishers would include, but not be limited to, office spaces, hot work areas, flammable storage areas, and mobile equipment such as work trucks and other vehicles. Firefighting equipment would be marked conspicuously and be accessible. Portable equipment would be routinely inspected as required by local and federal laws, ordinances, regulations, and standards and replaced immediately if defective or needing charge.

Battery Energy Storage System

The Project would include a BESS capable of storing 1,150 MW of electricity housed in electrical enclosures and buried electrical conduit. The BESS would be located near the BAAH switchyard or at an optional location on the private land. Up to 5,000 individual BESS electrical enclosures measuring approximately 52 feet by 8 feet by 8.5 feet high would be installed. The Project could use any commercially available battery technology, including but not limited to lithium-ion, lead acid, sodium sulfur, and sodium or nickel hydride. Pursuant to manufacturer specifications, the BESS units would be fully certified to the most rigorous international safety standards. This includes the following select certifications:

- UL 1642 – Standard for Lithium Batteries (cell level certification), which consists of testing for:
  - Short circuit
  - Abnormal charging
  - Forced discharging
  - Crush
  - Impact
  - Shock
  - Vibration
  - Heating
  - Temperature cycling
  - Fire exposure
- UL 1973 – Standard for Batteries for Use in Stationary Applications (module level certification)
- UL 9540 – Standard for Energy Storage Systems and Equipment (system level certification)
- UL 9540A – Standard for Inverters, Controllers, Converters, and Interconnection Equipment for DER
- IEC 62619 – Standard for Battery Safety in Stationary Applications

Thermal runaway is one of the potential risks associated with Lithium-ion batteries. Thermal runaway occurs when the temperature within a cell goes above the critical level, resulting in a chain reaction as a steep increase in temperature occurs in a very short interval of time (milliseconds), leading to a sudden release of the energy stored in the battery cell. Temperature magnitudes close to 400° C are created, making the battery gaseous and resulting in a fire eruption that is not extinguishable by traditional methods. The fire can propagate to neighboring battery cells and cause an explosion.

Active fire protection systems that protect against thermal runaway for the particular battery system ultimately selected would be implemented. These fire protection systems provide means of extinguishing fire in the case of a thermal runaway event or other fire, limit fire escalation by controlling the fire, and limit the effects of a fire and allow safe emergency escape, evaluation, and rescue activities. Active fire protection systems include fire water systems, gaseous agent systems, and fire extinguishers.

The selected fire protection system would be described in the Fire Management and Prevention Plan (PDF FIRE-1). This would include fire response procedures that would comply with BLM and ICFD requirements. The Plan would include measures to safeguard human life, prevent personnel injury, preserve property, and minimize downtime due to fire or explosion.

4.17.3 Cumulative Impacts

The worker safety analysis considers the safety of the workers actively performing construction activities at the Project, at the BAAH switchyard, and along the loop-in transmission line. Potential worker safety activities would be limited to the Project, BAAH switchyard, and loop-in transmission line sites themselves and would not combine with the construction or operation of the cumulative projects to result in a cumulatively considerable significant impact. Construction timing for the North Gila–Imperial Valley #2 transmission line is uncertain; however, if it were to overlap with loop-in transmission line, SDG&E would coordinate construction activities with the Imperial Irrigation District to reduce any potential worker safety concerns as is required by OSHA, Cal/OSHA, and CPUC requirements.

Breaker-and-a-Half Switchyard

Construction and operation of the BAAH switchyard is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the BAAH switchyard would have a less than considerable contribution to cumulative impacts related to worker safety.

Loop-in Transmission Lines

Construction and operation of the loop-in transmission lines is considered in the cumulative impact analysis of the overall Project discussed above; therefore, similar to the overall Project, the loop-in transmission lines would have a less than considerable contribution to cumulative impacts related to worker safety.

4.17.4 Proposed Best Management Practices, Project Design Features, Conservation Management Actions, and Mitigation Plans

As part of the Project, the Applicant and other entities involved in construction and operation would implement BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM.

Project Site Components

Best Management Practices

The Project would implement the following BMPs related to waste management. See Appendix D.1 for the full language of the BMPs.

- BMP 40 through BMP 54 (Hazardous Materials)
- BMP 131 (Wildfire)

Project Design Features

The Project would implement the following PDFs related to waste management. See Appendix D.1 for the full language of the BMPs.

- PDF HAZ-1
- PDF HAZ-2
- PDF FIRE-1

Mitigation Measures

None required.

BAAH Switchyard

The same BMPs, PDFs, CMAs, and mitigation plans would apply to the BAAH switchyard.

Loop-in Transmission Corridors

The same BMPs, PDFs, CMAs, and mitigation plans would apply to the 500 kV loop-in transmission lines.

4.17.5 Laws, Ordinances, Regulations, and Standards Compliance

The federal, State, and local LORS related to worker safety that may apply to the Project are summarized in Table 4.17-5, Table 4.17-6, and Table 4.17-7, respectively.

Table 4.17-5 Federal Laws, Ordinances, Regulations and Standards

LORS	Applicability	Project implementation
Title 29 Code of Federal Regulations (CFR) Part 1910	Contains the minimum occupational safety and health standards for general industry in the United States.	The Project will adhere to the occupational health and safety standards outlined in the Code of Federal Regulations 29 CFR Part 1910.

Title 29 CFR Part 1926	Contains the minimum occupational safety and health standards for the construction industry in the United States.	The Project will adhere to the occupational health and safety standards outlined in 29 CFR Part 1926.
National Institute for Occupational Safety and Health (NIOSH)	Conducts research and makes recommendations for prevention of work-related injury and illness.	The Project would comply with the health and safety requirements set forth by NIOSH.
29 CFR Part 1910	Outlines procedures for employees in the event of an emergency.	The Project would comply with the requirements set forth in 29 CFR Part 1910 to prepare an Emergency Action Plan.
NESC "5 mA Rule"	Requires induced current to be limited to less than 5 milliamperes (mA) for the largest anticipated truck, vehicle, or equipment under an energized line. A voluntary standard adopted by most electric utilities in the world.	The Project would comply with this standard for the loop-in transmission line.
Institute of Electrical and Electronics Engineers (IEEE) Standard 80, Guide for Safety in AC Substation Grounding	Covers grounding methods at outdoor AC substations, both conventional and gas-insulated, and distribution, transmission, and generating plant substations.	The BAAH switchyard and Project substation would comply with this standard.

Table 4.17-6 State Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
California Occupational Safety and Health Act, 1970	Establishes minimum safety and health standards for construction and general industry operations in California.	The Project would adhere to the health and safety guidelines outlined in the Occupational Safety and Health Act.
8 California Code of Regulations 339	Requires list of hazardous chemicals relating to the Hazardous Substance Information and Training Act.	The Project would adhere to the policies outlined in 8 CCR § 339.
8 CCR § 1509	Addresses requirements for construction, accident, and prevention plans.	The Project would adhere to the policies outlined in 8 CCR § 1509.
8 CCR 1509, et seq. §§ 1684 et seq.	Addresses construction hazards, including head, hand, and foot injuries and noise and electrical shock.	The Project would adhere to the policies outlined in 8 CCR § 1509, et seq., and 1684, et seq.

LORS	Applicability	Compliance
8 CCR §§ 1528 et seq. and §§ 3380 et seq.	Requirements for PPE	The Project would adhere to the policies outlined in 8 CCR § 1528, et seq., and 3380, et seq.
8 CCR 1597 §§ et seq. and §§ 1590 et seq.	Requirements addressing the hazards associated with traffic accidents and earth moving	The Project would adhere to the policies outlined in 8 CCR § 1597, et seq., and 1590, et seq.
8 CCR §§ 1604, et seq.	Requirements for construction hoist equipment	The Project would adhere to the policies outlined in 8 CCR § 1604.
8 CCR §§ 1620 et seq. And §§ 1723 et seq.	Addresses miscellaneous hazards	The Project would adhere to the policies outlined in 8 CCR §§ 1620 et seq. and §§ 1723 et seq.
8 CCR §§ 1709 et seq.	Requirements for steel reinforcing, concrete pouring, and structural steel erection operations	The Project would adhere to the policies outlined in 8 CCR § 1709.
8 CCR §§ 1920 et seq	Requirements for fire protection systems	The Project would adhere to the policies outlined in 8 CCR § 1920.
8 CCR §§ 2300 et seq. And §§ 2320 et seq.	Requirements for addressing low-voltage electrical hazards	The Project would adhere to the policies outlined in 8 CCR §§ 2300 et seq. and §§ 2320 et seq.
8 CCR §§ 2395 et seq.	Addresses electrical installation requirements	The Project would adhere to the policies outlined in 8 CCR § 2395.
8 CCR §§ 2700 et seq.	Establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical installation and equipment to provide practical safety and freedom from danger including grounding, cable requirements, tree trimming, etc.	The Project would adhere to the policies outlined in 8 CCR § 2700.
8 CCR §§ 3200 et seq. And §§ 5139 et seq.	Requirements for control of hazardous substances	The Project would adhere to the policies outlined in 8 CCR § 3200.
8 CCR §§ 3203 et seq.	Requirements for operational accident prevention programs	The Project would adhere to the policies outlined in 8 CCR § 3203.
8 CCR §§ 3270 et seq. §§ and 3209, et seq.	Requirements for evacuation plans and procedures	The Project would adhere to the policies outlined in 8 CCR § 3270.
8 CCR §§ 3360 et seq.	Addresses requirements for sanitary conditions	The Project would adhere to the policies outlined in 8 CCR § 3360.

LORS	Applicability	Compliance
8 CCR § 3395	Addresses requirements for working in conditions of 95 degrees and above.	The Project would adhere to the policies outlined in 8 CCR § 3395.
8 CCR §§ 3511 et seq. And §§ 3555 et seq.	Requirements for addressing hazards associated with stationary engines, compressors, and portable, pneumatic, and electrically powered tools	The Project would adhere to the policies outlined in 8 CCR § 3511.
8 CCR §§ 3649 et seq. And §§ 3700 et seq.	Requirements for addressing hazards associated with field vehicles	The Project would adhere to the policies outlined in 8 CCR § 3649.
8 CCR §§ 3940 et seq.	Requirements for addressing hazards associated with power transmission, compressed air, and gas equipment	The Project would adhere to the policies outlined in 8 CCR § 3940.
8 CCR §§ 5109 et seq.	Requirements for addressing construction accident and prevention programs	The Project would adhere to the policies outlined in 8 CCR § 5109.
8 CCR §§ 5110 et seq.	Requirements for the implementation of an ergonomics program	The Project would adhere to the policies outlined in 8 CCR § 5110.
8 CCR §§ 5150 et seq.	Requirements for confined-space entry	The Project would adhere to the policies outlined in 8 CCR § 5150.
8 CCR §§ 5155 et seq.	Requirements for use of respirators and for controlling employee exposure to airborne contaminants	The Project would adhere to the policies outlined in 8 CCR § 5155.
8 CCR §§ 5160 et seq.	Requirements for addressing hot, flammable, poisonous, corrosive, and irritant substances	The Project would adhere to the policies outlined in 8 CCR § 5160.
8 CCR §§ 5192 et seq.	Requirements for conducting emergency response operations	The Project would adhere to the policies outlined in 8 CCR § 5192.
8 CCR §§ 5193 et seq.	Requirements for controlling employee exposure to bloodborne pathogens associated with exposure to raw sewage water and body fluids associated with first aid/CPR duties	The Project would adhere to the policies outlined in 8 CCR § 5193.
8 CCR §§ 6150 et seq.; 6151 et seq.; 6165 et seq.; 6170 et seq.; and 6175 et seq.	Fire protection requirements	The Project would adhere to the policies outlined in 8 CCR §§ 6150 et seq.; 6151, et seq.; 6165, et seq.; 6170, et seq.; and 6175, et seq.

LORS	Applicability	Compliance
22 CCR	Requirements for satellite hazardous waste accumulation	The Project would adhere to the requirements for any hazardous wastes accumulated in the Application Area.
Title 24, Part 3, California Electrical Code	The Cal-OSHA electrical safety regulations incorporate the requirements of the Uniform Electrical Code located in Title 24, Part 3.	The Project would adhere to the policies outlined in Title 24.
Health and Safety Code §§ 25531 et seq.	Requires that every new or modified facility that handles, treats, stores, or disposes of more than the threshold quantity of any of the listed regulated materials prepare and maintain a Risk Management Plan (RMP).	The Project would adhere to the policies outlined in Health and Safety Code § 25531.
California Public Resources Code (PRC) § 4296	Presents guidelines for minimum clearance requirements around utility poles and transmission lines including a 10-foot clearance of tree branch or ground vegetation from base of poles carrying more than 110 kV and maintaining a 10-foot clearance between trees and transmission lines carrying more than 110 kV.	The loop-in transmission would adhere to this requirements as does the existing SWPL.
CPUC GO 95, Rules for Overhead Electric Line Construction, Section 35	Covers all aspects of design, construction, operation, and maintenance of overhead electrical lines and safety hazards.	The loop-in transmission line will adhere to all requirements of GO 95, as does the existing SWPL.

Table 4.17-7 Local Laws, Ordinances, Regulations and Standards

LORS	Applicability	Compliance
Imperial County Codified Zoning Ordinance	The Imperial County Codified Zoning Ordinance contains provisions which act to reduce fire hazards. The Zoning Ordinance is a tool that helps prevent the construction of incompatible or hazardous structures. For example, the ordinance separates industrial, commercial, and residential uses and provides for the isolation of land uses that may create excessive fire exposure to other properties. It also limits the height and bulk of buildings, specifies setbacks and distances between buildings.	The Project would adhere to requirements of the Imperial County Codified Zoning Ordinance.
Imperial County Fire Prevention and Explosives Ordinance	Sections 53101–53300 contain provisions for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion. Such measures in this ordinance address the following: storage of flammable materials; storage of radioactive materials; permit required for sale and use of fireworks; abatement of weeds and other vegetation.	The Project would adhere to the requirements of the Imperial County Fire Prevention and Explosives Ordinance.
Multi-jurisdictional Hazard Mitigation Plan (MHMP)	The MHMP describes past and current hazard mitigation activities and outlines goals, strategies, and actions for reducing future disaster losses. The MHMP identifies past and present mitigation activities, current policies and programs, and mitigation strategies for the future. The MHMP meets the statutory requirements Title 44 CFR 201.6 – Local Mitigation Plans	The Project would adhere to the goals and policies outlined in the MHMP.

4.17.6 Agencies Contacted and Permits

A list of agencies that were contacted during preparation of this application is provided in Appendix E.1. Permits required to construct, operate, and maintain the project, including the BAAH, and loop-in transmission line, are summarized in Table E.2.

4.17.7 References

Golder Associates, Inc. 2013. Induced Voltage and Current Report, A Review of Public Hazards Associated with High-Voltage Transmission Lines.

National Park Service (NPS). n.d. "Wildland Fire Behavior." Last updated February 16, 2017. Accessed September 15, 2023. https://www.nps.gov/articles/wildland-fire-behavior.htm.

Occupational Safety and Health Administration (OSHA). 2002. Job Hazard Analysis. (Revised). OSHA 3071. U.S. Department of Labor. https://www.osha.gov/sites/default/files/publications/osha3071.pdf.

State of California Department of Industrial Relations. n.d. "Cal/OSHA Safety & Health Training Requirements." Last updated July 2023. Accessed January 9, 2024. https://www.dir.ca.gov/dosh/dosh_publications/trainingreq.htm.

Weather Spark. n.d. "Climate and Average Weather Year Round in El Centro." Accessed December 7, 2023. https://weatherspark.com/y/2201/Average-Weather-in-El-Centro-California-United-States-Year-Round.

5 Alternatives

This chapter discusses alternatives to the proposed Perkins Renewable Energy Project (Project). It includes a discussion of the site selection criteria employed by the Applicant, the "No Project" alternative, a no private land alternative, and the alternatives considered but ultimately eliminated. This discussion focuses on alternatives that could feasibly accomplish the basic objectives of the Project and could avoid or substantially lessen one or more of the potential impacts. The Applicant has developed objectives for each of the Project's primary components, which are considered throughout this chapter; these objectives are detailed in Chapter 2: Project Description.

5.1 Project Site Selection

The Project site has been selected based on criteria intended to avoid or substantially lessen potential environmental impacts. This section describes the Applicant's site selection criteria consistent with the requirements of Public Resources Code section 25540.6(b) and describes consideration given to engineering constraints, site geology, environmental impacts, proximity to electrical transmission, and other constraints. Given the nature of the Project (i.e., a solar energy project), fuel and waste are not constraints. A discussion of water availability is provided in the groundwater resource technical report prepared for the Project (Appendix V).

The Applicant pursues a disciplined approach to site selection with a careful eye toward development opportunities where environmental and permitting obstacles, as well as complexity of interconnection, are minimized to the greatest extent possible. As part of this diligence exercise, significant development expenses are outlaid early in the process to thoroughly screen projects for potential fatal flaws that would impede viability or result in substantial community or environmental impacts. The Applicant's primary criteria for Project site selection were land use designations; proximity to existing transmission or utility corridors, the SDG&E Southwest Powerlink (SWPL) 500 kilovolt (kV) line, other existing transmission lines, and adequate roadways; distance from sensitive receptors; relatively flat topography; and minimal potential to impact sensitive species or their habitat, sensitive cultural resources, or important agricultural lands.

The Project site was selected because it satisfies the Applicant's selection criteria as listed above and was designated as a Development Focus Area (DFAs) by the BLM during the DRECP process. DFAs are areas identified as having the highest potential for the development of renewable energy resources absent any conflict with conservation, recreation, or other sensitive resources. Within Imperial County, the BLM identified DFAs mostly along the eastern border of the agriculture lands in the Imperial Valley, where the Project site is proposed. This coincides

with the CEC land use screens, which show the majority of Imperial County as a solar exclusion area, with exception of the proposed Project site, both public and private land, which is shown as one of the few available areas that is not on farmland, and therefore not considered a solar exclusion area. This aligns with the findings of the DRECP Draft EIR/EIS, which included private land, and included the Project's private land component in the Preferred Alternative as a preferred area for solar.

The BLM land within the Project site, which is designated by the DRECP as a DFA, was also studied in the 2012 Western Solar Plan Solar Programmatic EIS. Under the 2012 Solar PEIS, the Project's public lands were also designated for solar as the Imperial East Solar Energy Zone (SEZ). The Applicant therefore selected the proposed Project site because multiple, multi-stakeholder analyses, two programmatic EIS's, a Draft EIR/EIS, and two land use plans over the course of several decades classified the proposed Project's BLM lands as a priority area for solar energy development.

The private land was selected for incorporation into the Proposed project because it is located adjacent to and surrounded by DRECP designated BLM DFA lands and a BLM utility corridor. In addition, the private lands are vacant desert and are not irrigated, so the proposed conversion of the lands to solar energy would not conflict with past, present, or future agricultural land uses. The Imperial County General Plan land use designation for the private portion of the Project site is Recreation/Open Space, and the zoning is S-2. For lands within these designations and within the County's Renewable Energy Overlay Zone, Imperial County permits utility-scale renewable energy projects with a Conditional Use Permit. Although the Project's private land is not in the overlay zone, there are no other private tracts of land immediately adjacent to the Project site located within the overlay zone.

The Project site was selected to avoid areas where Project implementation would impact sensitive resources or require a BLM land use plan amendment. Areas of wetland and microphyll woodland located on the western and southern boundaries of the site would be fenced out of the Project and/or avoided. Additionally, the location of the loop-in transmission corridor was carefully selected to avoid the most sensitive habitat between the Project site and the existing 500 kV SWPL. As is discussed in Section 4.2 Biological Resources, seepage from the All-American Canal has resulted in the growth of vegetation in areas directly north and south of the canal. The Applicant chose the location of the 500 kV loop-in corridor, which would cross the All-American Canal perpendicularly to connect to the SWPL line, to avoid the areas of thickest seepage vegetation and therefore minimize the biological impacts associated with loop-in transmission line development. The location of the 500 kV loop-in transmission corridor was also selected to avoid impacts to Area D of the BLM-designated Lake Cahuilla Area of Critical Environmental Concern (ACEC) located southwest of the Project site, which protects cultural resources.

The Applicant also considered the location of potential future generation and transmission development in strategic siting of Project components. The BAAH switchyard would be located on the southern boundary of the Project site, directly adjacent to the BLM designated Utility

Corridor. This location would facilitate potential future transmission development in an existing utility corridor. As Imperial County is rich in geothermal resources, the BAAH switchyard is also sited so as to provide a point of interconnection on the SWPL for future renewable energy development in this area.

Earlier iterations of the project included additional lands north and northwest of the proposed Project site footprint, as well as additional renewable energy generation technologies, all of which were ultimately eliminated from the Project due to the high potential for resource and/or land use conflicts. A discussion of these earlier iterations of the project is included in Section 5.4: Alternatives Considered but Eliminated.

Owing to all the above-discussed attributes, the Project site is uniquely well-suited for a solar and BESS facility, and no equivalent alternative Project location satisfies the siting constraints analysis. Consequently, no alternative sites were carried forward for detailed consideration in this chapter.

5.2 No Project Alternative

The California Environmental Quality Act (CEQA) requires an evaluation of a "No Project" alternative so that decision-makers can compare the impacts of approving the Project with the impacts of not approving the Project (CEQA Guidelines section 15126.6(e)). Under the No Project alternative, the Project components—including the proposed solar facility, BESS, Project substation, gen-tie line, BAAH switchyard, and loop-in transmission lines—would not be constructed. Construction and operation of these facilities, as described in Chapter 2: Project Description, would not occur. It is assumed that the approximately 6,100-acre Project site would remain in its current condition, consisting largely of undeveloped land. If future development were to occur on the Project site under this alternative, it would potentially be a different solar development project or other utility infrastructure.

If the Project were not constructed, none of the Project objectives would be met, and the associated environmental, economic, and policy benefits would not be realized. A significant carbon-free contribution to the State's ambitious renewable energy and storage needs through the construction and operation of solar and BESS facilities would go unmet. The California Air Resources Board's (CARB's) 2022 Scoping Plan for Achieving Carbon Neutrality projects that an additional approximately 29,000 megawatts (MW) of customer solar and nearly 37,000 MW-hours (MWh) of battery storage will be required by 2045 to meet the State's goal of carbon neutrality under its Scoping Plan Scenario (CARB 2022). The Project's 1,150 MW solar facility and 1,150 MW 2- to 4-hour BESS would contribute approximately 4 percent toward the State's cumulative resource needs for solar and battery storage. Under the No Project alternative, this significant contribution would not occur. Furthermore, the No Project alternative would have compounding deleterious effects on the ability to meet the State's carbon-free energy goals as the BAAH switchyard, proposed under the Project, would not be constructed for future generators to use.

The No Project alternative could result in greater fossil fuel consumption, greenhouse gas emissions, air pollution, climate change, and other environmental impacts within the state because the Project would not be constructed to augment the state's energy supply with carbon-free and renewable energy and energy storage. For these reasons, the No Project alternative would not meet the Project objectives and would fail to deliver environmental benefits related to energy, air quality, and greenhouse gas emissions. However, because the No Project alternative is a CEQA-required alternative, a more detailed discussion of potential environmental impacts of the No Project alternative relative to the Project's potentially significant impacts, as well as a discussion of whether the alternative avoids or reduces any significant impacts of the Project, are provided in the sections that follow. CEQA requires the discussion of alternatives to focus on alternatives that could reduce or eliminate any significant impacts of a proposed project. At this time, with the implementation of BMPs, PDFs, CMAs, and Mitigation Measures, all Project impacts analyzed thus far have been identified as less than significant. This analysis will be supplemented upon completion of cultural resource surveys, visual simulations, and the groundwater resources analysis. While none of these impacts would be significant and unavoidable, because CEQA requires the discussion of alternatives to focus on alternatives that could reduce or eliminate the significant impacts of a proposed project, the following provides a comparison of the No Project with potentially significant impacts of the proposed Project, as well as other important resource areas.

5.2.1 Air Quality

As described in Section 4.1 Air Quality, the Project would result in potentially significant impacts related to generation of a cumulatively considerable net increase of criteria air pollutants. Specifically, Project construction could result in exceedances of Imperial County Air Pollution Control District (ICAPCD) daily emissions thresholds for nitrous oxides (NO_X), carbon monoxide (CO), and particulate matter with a diameter of 10 microns or less (PM_{10}) absent mitigation. Impacts to NO_X and CO would be reduced to a less-than-significant level with implementation of BMP 1-3, which requires reducing worker vehicle use by carpooling to the site, limiting equipment idling to less than 5 minutes, and considering using electric vehicles; PDF AQ-2, which includes several measures to control off-road equipment emissions such as using Tier 4 California Emission Standards for off-road compression-ignition engines; and Mitigation Measure AIR-1, which requires contribution to an ICAPCD regional mitigation program to reduce emissions of ozone precursors including NO_x and CO. Project BMPs also include strategies to reduce fugitive dust that is the cause of PM_{10} emissions. To reduce impacts due to PM_{10}, BMP 7 requires that all access roads be surfaced with aggregate or be paved. BMP 8 requires that all unpaved roads and disturbed areas be watered to minimize fugitive dust generation. BMP 9 requires that all vehicles on site limit their speeds to 15 miles an hour, and BMP 10 requires that all vehicles transporting loose materials be covered and watered to prevent the material from causing fugitive dust. CMA LUPA Air-5 would ensure that a fugitive dust control plan be developed and implemented during construction activities. In addition, PDF AQ-1 requires the preparation and implementation of the Fugitive Dust Control Plan as well as other reasonable precautions to prevent all airborne fugitive dust plumes from leaving

the Project Application Area and to prevent visible particulate matter from being deposited upon public roadways. Mitigation Measure AIR-2 for PM_{10} would also be implemented to provide off-site mitigation or an in-lieu fee to reduce the impact to less than significant. With implementation of the BMPs, PDFs, CMAs, the Fugitive Dust Control Plan, and mitigation measures, the Project construction emissions would result in a less than significant impact.

Under the No Project alternative, development of the Project site as envisioned under the Project and associated construction air quality emissions would not occur, and the site would remain undeveloped. However, as the site is located within BLM DFA lands, other projects may occur on the Project site in the future, including potential solar or other infrastructure development. To the extent such projects are of a lesser scale, they would be expected to result in reduced emissions of criteria pollutants, including NO_x, CO, and PM_{10}, relative to the Project. Furthermore, future projects on the Project site would be subject to all applicable ICAPCD regulations intended to be protective of air quality in the region. Accordingly, air quality impacts under the No Project alternative would be less than significant and reduced relative to the Project.

5.2.2 Biological Resources

As described in Section 4.2 Biological Resources, the Project would result in a potentially significant impact due to the potential for construction and operation of Project components to substantially adversely affect species identified as special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Specifically, Project components could directly or indirectly impact the following special status plant species: Pierson's milk vetch, Wiggin's croton, Algodones sunflower, ribbed cryptantha, slender cottonheads, giant Spanish needle, and sand food. However, none of these species were identified on the BLM portion of the Project site during surveys. Project components also could directly or indirectly impact the following special status wildlife species: western bumble bee and Crotch's bumble bee, flat-tailed horned lizards and Colorado desert fringe-toed lizards, burrowing owl, loggerhead shrike and black-tailed gnatcatchers, Swainson's hawk, northern harriers, prairie falcons and American peregrine falcons, western yellow bat, burro deer, American badger, and desert kit fox as well as birds protected by the California Fish and Game Code and Migratory Bird Treaty Act: California black rails, Ridgway's rails, and bank swallows.

All impacts would be reduced to a less-than-significant level with implementation of Conservation and Management Actions (CMAs) LUPA-BIO-COMP-1 and LUPA-BIO-COMP-2, which require habitat mitigation at a minimum 1:1 ratio for the Project and define additional mitigation required for any impacts to special status species; CMAs LUPA-BIO-5, LUPA-BIO-14, Project Design Features (PDFs) BIO-1, PDF BIO-2, PDF BIO-3, PDF BIO-4, PDF BIO-5, PDF BIO-6, PDF BIO-7, and species-specific CMAs, which include completion of Worker Environmental Awareness Training, construction best management practices (BMPs), preconstruction monitoring, biological management plans, nest buffers, bird diverters, and various species-specific avoidance measures.

Under the No Project alternative, development of the Project site as envisioned under the Project and associated construction and operation biological resources impacts would not occur, and the site would remain undeveloped. Individual projects may occur on the Project site on a case-by-case basis in the future, including potential solar or other infrastructure development. To the extent such projects are of a lesser scale, they would be expected to result in fewer impacts to biological resources due to loss of habitat and potential direct and indirect effects to wildlife. Furthermore, future projects on the Project site would be subject to CEQA and NEPA review and may require other resource permits (e.g., a streambed alteration agreement) unless they can avoid protected resources. Impacts to biological resources under the No Project alternative would be less than significant and reduced relative to the Project.

5.2.3 Traffic and Transportation

The Project would potentially result in a significant impact on a program, plan, ordinance, or policy addressing the circulation system including roadways because Project construction traffic could increase traffic during the evening peak period on the SR 98/I-8 westbound ramps, resulting in a level of service that is below the acceptable LOS identified in the Imperial County Circulation and Scenic Highways Element, which establishes requirements for operating at a LOS of "C" or better. The Project would implement a Construction Traffic Control Plan, which would include traffic control measures such as a trip reduction (i.e., rideshare/carpool) program for the construction workforce that would reduce construction commute traffic by approximately 50 percent. Other measures would include flagging operations during periods of concentrated inbound or outbound worker traffic and the preparation of a traffic monitoring plan to include monitoring of the I-8 off-ramp queues during commute periods. With implementation of the Construction Traffic Control Plan, Project construction would meet acceptable LOS standards during the PM peak period and impacts with the proposed Project would be less than significant.

Under the No Project alternative, construction activities associated with the Project would not occur. While individual development projects may occur consistent with the governing land use regulations on the approximately 6,100-acre Project site, such projects likely would draw a smaller and more localized construction workforce and, therefore, would be unlikely to generate construction-related trips at the same scale as the Project. This impact under the No Project alternative would be less than significant, and the Construction Traffic Control Plan would not be necessary. Impacts would be reduced relative to the Project.

The Project would not result in any other potentially significant transportation impacts that may be avoided or substantially lessened by this alternative.

5.2.4 Water Resources

As described in Section 4.15 Water Resources, to ensure that sufficient water supply would be available to the Project during Project construction, the Project would source water from up to four on-site groundwater wells. If on-site wells are not able to supply the full water quantity required for construction, the water supply would be supplemented from off-site local water

purveyor(s) and trucked in from an off-site location up to 80 miles from the Project site. The Project would also use soil binders as a dust control measure, which would reduce associated water use.

Under the No Project alternative, development of the site may still occur consistent with the governing land regulations use on the site. At this time, the Project site is undeveloped and does not require the use of any water. Therefore, impacts with respect to groundwater supplies and sustainable groundwater management under the No Project alternative would be less than significant and reduced relative to the Project.

The Project would not result in any other potentially significant water resources impacts that may be avoided or substantially lessened by this alternative.

5.2.5 Comparison to Project

The No Project Alternative would have reduced impacts compared to the Project. However, the No Project Alternative would not achieve any of the Project Objectives, including assisting California in meeting its GHG emissions reduction goals and renewable energy objectives; constructing backbone transmission infrastructure for future renewable energy facilities; or providing significant tax revenues for the County, significant employment and wage benefits, or other community benefits provided through the Project's community benefit agreements.

5.3 Federal Public Land Only Alternative

Under the Federal Public Land Only Alternative, the Project would remain the same except that the private land would not be included in the Project, reducing the Project site by approximately 515 acres and reducing overall capacity by 100 MW (see Figure 5.3-1). The private land within the Project site is zoned S-2, Open Space/Preservation, which allows for major facilities relating to the generation and transmission of electrical energy with a conditional use permit. The CEC's process subsumes the local permitting process, including the Conditional Use Permit. In the County General Plan's Renewable Energy and Transmission Element, the County established a Renewable Energy Overlay Zone and includes an amendment process if a project is not within the Renewable Energy Overlay Zone. While the County allows for amendments to the Renewable Energy Overlay Zone, this alternative considers the Project if it were to avoid the private land component, which is located outside the Renewable Energy Overlay Zone.

Under the Federal Public Land Only Alternative, the Project would avoid inconsistency with the Renewable Energy and Transmission Element, Renewable Energy Overlay Zone of Imperial County's General Plan and the private land would remain S-2 and undeveloped. Under S-2, agricultural uses, along with mineral extraction, are the primary uses allowed without a conditional use permit. With a conditional use permit and an amendment to the Overlay Zone, renewable energy would be allowed under Imperial County Code of Ordinances title 9, section 90519.02(i).

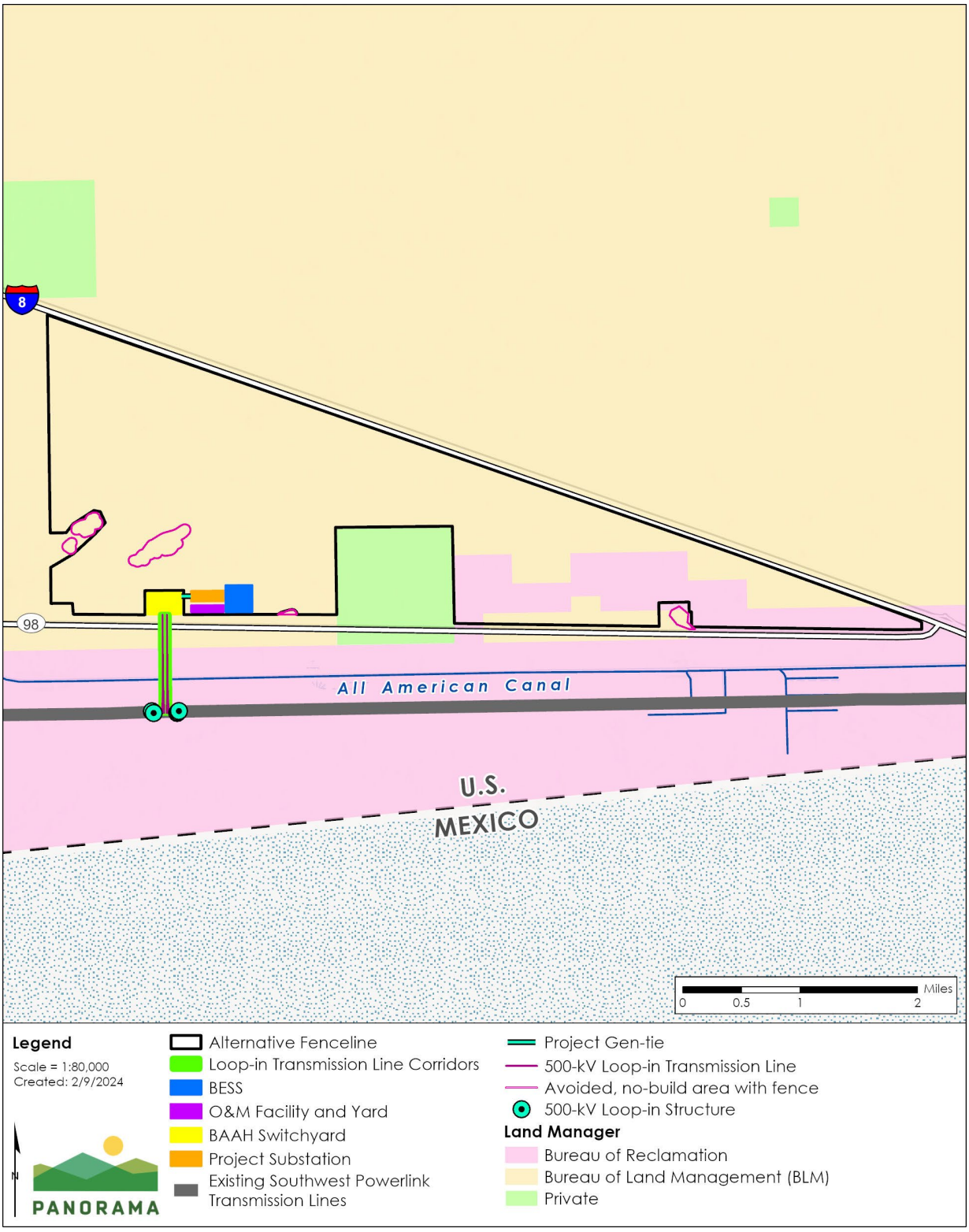
Because over 90 percent of the acres proposed for the Project would remain as part of the Project under this alternative, the construction and operation and maintenance requirements for the Project would remain substantially the same, including construction materials, workforce, water use, and construction duration. Therefore, impacts to air quality, biology, cultural resources, geological resources, hazardous materials, noise, paleontological resources, public health, soil, traffic and transportation, visual resources, waste management, water resources, wildfire, and worker safety also would be substantially the same. This alternative would not substantially reduce any impacts of the Project as proposed, except that it would avoid an inconsistency with a County zoning overlay. However, under the Project, the inconsistency would not result in a significant environmental impact because it would not physically divide a community or impact any nearby land use sensitive receptors or conflict with the purpose of the County zoning overlay. Indeed, developing the private land portion of the Project with renewable energy would largely be consistent with the overlay, given its proximity to transmission infrastructure, utility corridors, and BLM DFA lands, and that development on the land would be subject to various BMPs, PDFs, and Mitigation Measures that would minimize overall environmental impacts.

5.3.1 Comparison to Project

The Federal Public Land Only Alternative would result in substantially similar impacts compared to the Project, although it would avoid an inconsistency with the County's zoning overlay. However, as described above, developing renewable energy on the private land portion of the Project would largely be consistent with the intent of the overlay. Avoiding the private land would result in a reduction of overall capacity by approximately 9 percent and, therefore, this alternative would not achieve the Project Objectives to the same extent as the Project, including the objective of assisting California in meeting its GHG emissions reduction goals and renewable energy objectives. This alternative also would result in reduced economic benefits to the County through reduced annual real tax revenues on the private land portion of the project (see Impact SC-5 in Section 4.10-2).

Further, there are no other private tracts of land immediately adjacent to the Project site located within the overlay zone that could be developed to provide the same energy output as the Project. If other areas within the overlay zone were developed with the Project, they would be non-contiguous sites, requiring additional transmission infrastructure to connect to the federal land portion of the Project site. Constructing additional transmission infrastructure likely would result in increased environmental impacts compared to the Project, as the transmission lines would cross BLM-designated ACECs. The Applicant also does not control any private sites within the overlay. Finally, given the private land proposed as part of the Project is vacant, desert land located adjacent to and surrounded by DRECP designated BLM DFA lands, a BLM utility corridor, and existing transmission infrastructure, failing to incorporate it as part of the Project would underutilize land capacity of supporting renewable energy.

Figure 5.3-1 Federal Public Land Only Alternative



Source: (Intersect Power 2023) (BLM 2022)

5.4 Alternatives Considered but Eliminated

CEQA requires the selection of a range of reasonable alternatives, including those that could feasibly accomplish most of the basic Project objectives and could avoid or substantially lessen one or more of the Project's significant effects. Furthermore, CEQA requires identification of any alternatives that were considered by the lead agency but rejected as infeasible during the scoping process (CEQA Guidelines section 15126.6(c)). The following alternatives were considered but rejected, either on the grounds that they were deemed infeasible or that they were unlikely to substantially lessen one or more of the Project's significant effects.

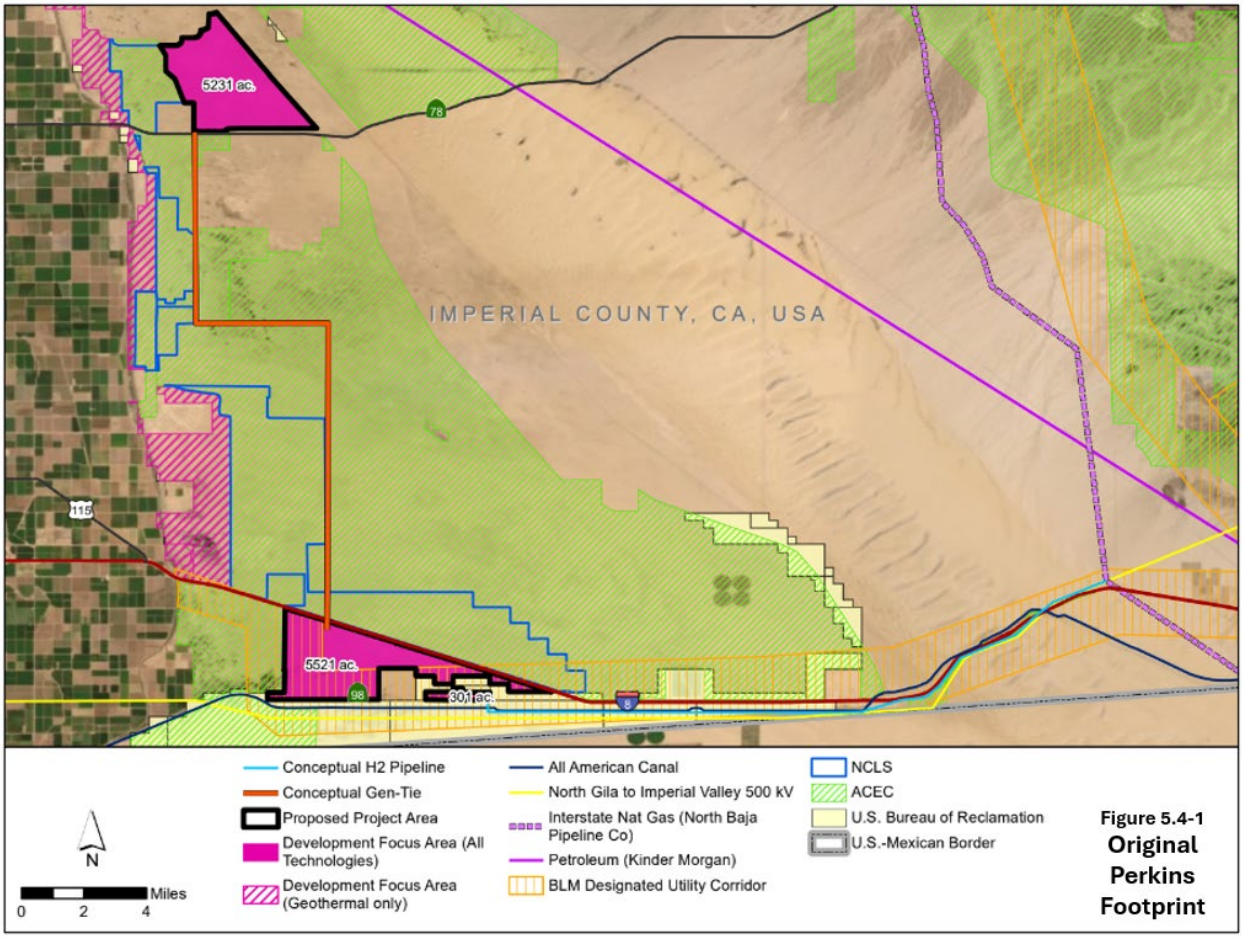
5.4.1 Other Solar DFAs

Additional BLM-administered DFA lands allowing solar development were also considered. The Applicant's initial application to the BLM for the project included the only other available solar DFA site in Imperial County, which is 5,231 acres in size and located about 20 miles north of the Project site (see Figure 5.4-1). This alternative would require an approximately 20-mile generation tie (gen-tie) line, which would traverse a BLM designated ACEC, to connect the northern and southern solar sites as shown in Figure 5.4-1. To avoid the ACEC, the gen-tie would have had to be routed through BLM-designated recreational areas and would be approximately 37 miles long.

The alternative northern parcel also has federal lands administered by the Navy located directly to the north and south. Because of Navy operations, 2,384 acres of the northern parcel is subject to Navy-proposed Range Safety Zone (RSZ) B restrictions, which includes height limitations of 20 to 40 feet, which would affect on-site collector lines, the Project substation, and gen-tie facilities. Further, as proposed by the Navy, "special attention must be given toward eliminating ground activities which could be of a distracting or disorienting nature." The continuous array of solar panels and potential glare located in close proximity to Navy lands could be considered a distraction. Further, as the northern parcels are located in a similar area with in Imperial County as the Project, development of those parcels is likely to have similar environmental impacts, including impacts to air quality, biology, cultural resources, geological resources, hazardous materials, noise, paleontological resources, public health, soil, traffic and transportation, visual resources, waste management, water resources, wildfire, and worker safety. The increased length of the gen-tie may also result in more significant impacts than the Project in multiple areas. Only locations that would avoid or substantially lessen any of the significant effects of the Project must be considered for analysis pursuant to CEQA (CEQA Guidelines, section 15126.6(f)(2)(a)).

Given the elimination of developable lands within the northern parcel due to Navy-proposed restrictions and the impacts associated with construction and operation of a 37-mile gen-tie, this alternative was eliminated by the Applicant from further consideration.

Figure 5.4-1 Proposed Project With Other Solar DFA Land



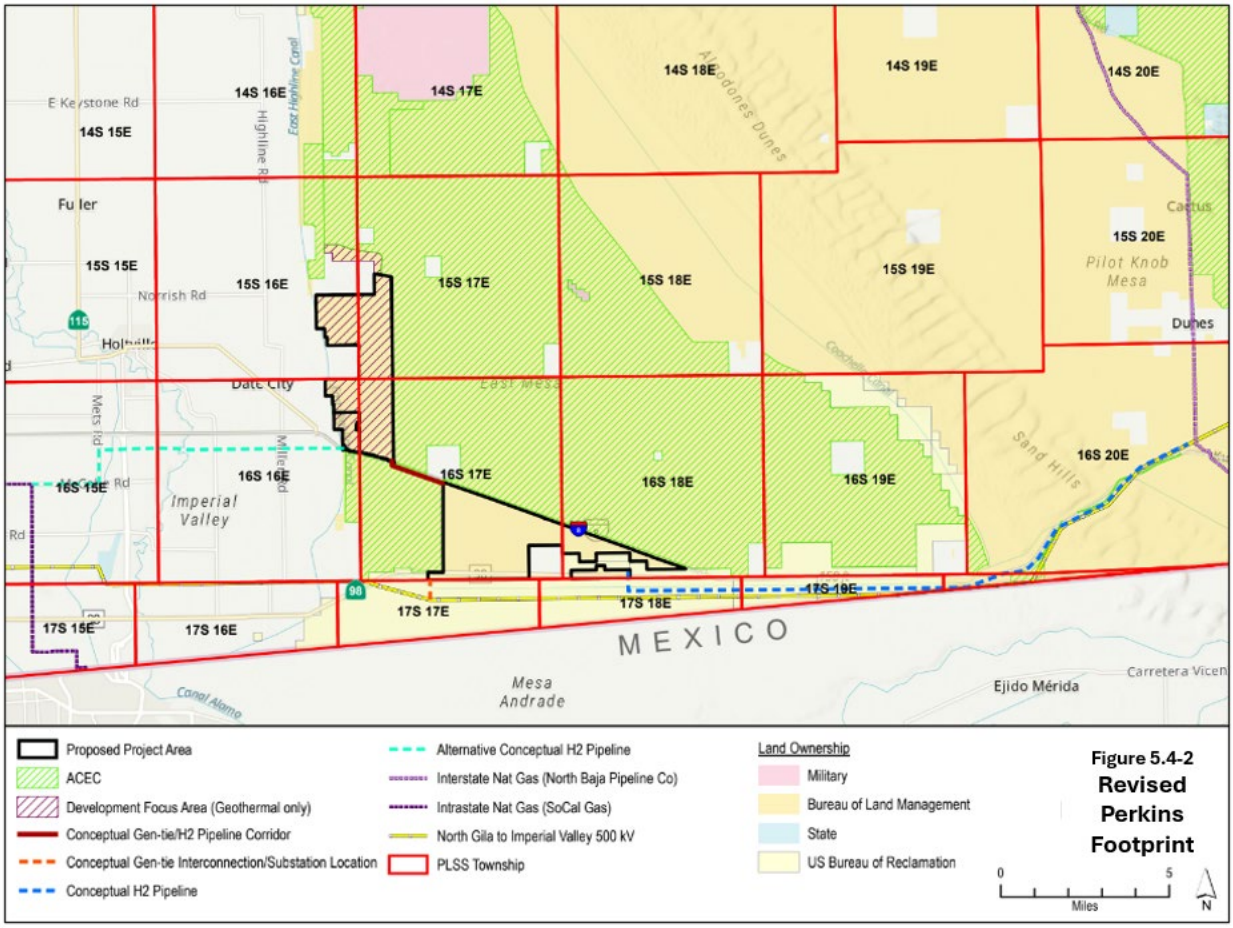
Source: (Intersect Power 2023a)

5.4.2 Other Energy DFAs

Additional BLM-administered DFA lands designated for geothermal development were also considered. Because geothermal development primarily requires the construction of subsurface infrastructure, whereas solar development requires surface occupancy, the Applicant's secondary application to the BLM proposed inclusion of nearby geothermal DFA lands in the project (Figure 5.4-2). Under this alternative, the project would coordinate with the BLM to designate "set asides" in the project footprint to facilitate the future co-location of geothermal infrastructure on the proposed solar project site. This alternative would allow for up to 5,434 acres to be added to the project footprint and would require an approximately 2-mile gen-tie line to connect the geothermal DFA lands to the Project solar DFA lands.

In Applicant coordination with the BLM, it was determined that the geothermal DFAs in this area were designated as not permitting surface occupancy due to high potential for cultural resource conflicts associated with Ancient Lake Cahuilla. Given the potential for high cultural resource conflicts, the Applicant eliminated this alternative from further consideration.

Figure 5.4-2 Proposed Project With Other Energy DFA Land



Source: (Intersect Power 2023a)

5.4.3 Green Hydrogen

With the initial BLM filing, the Applicant had included a green hydrogen component to the project. This scenario would have included the installation of hydrogen electrolyzers on the Project site as well as a water treatment plant (WTP). The electrolyzers would break down water into hydrogen and oxygen. The resultant hydrogen would also have required the construction of a pipeline so that it could be transported to an existing regional natural gas pipeline for comingling. The hydrogen electrolyzer facility and WTP would have required up to 25 acres within the Project site, and the maximum daily average production would be approximately 49,109 pounds hydrogen/day, requiring 0.23 acre-feet/day of raw water (84 acre-feet/year). The electrolyzers would have been powered by the solar energy produced on site. Because of the water demand and limited water resources in Imperial County, and because this alternative would be unlikely to avoid or substantially lessen any potential environmental effects of the Project, the green hydrogen component of the Project was eliminated.

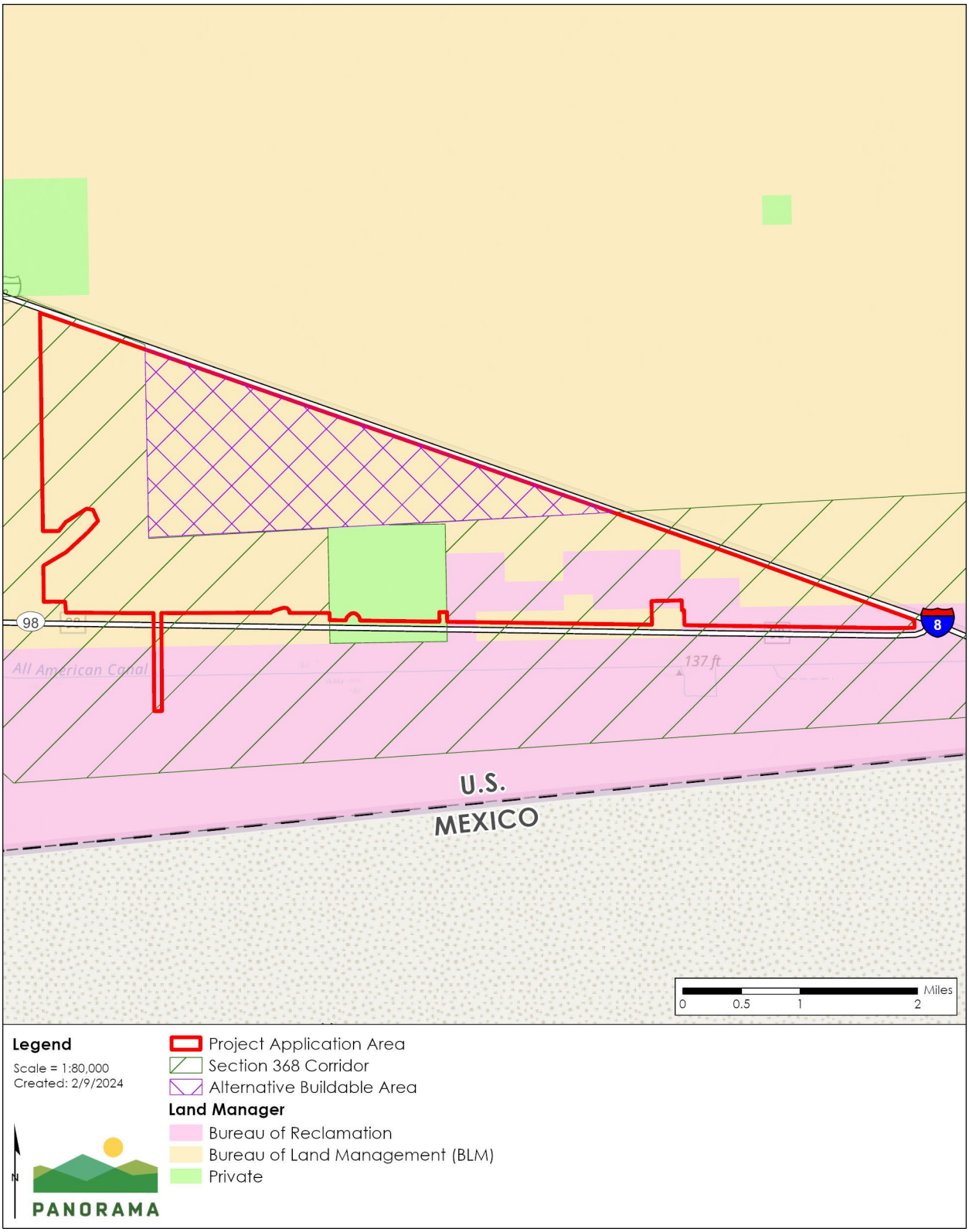
5.4.4 Utility Corridor Avoidance Alternative

As shown in Figure 5.4-3, the federal utility corridor overlays sizeable portions of the southern and western boundaries of the Project site, leaving approximately 2,000 acres of the approximate 5,800-acre site available for solar development. This limited development footprint does not achieve the Applicant's objective of delivering 1,150 MW of affordable, wholesale renewable energy to California ratepayers. Further, a 500 kV utility-scale interconnection with SDG&E's existing 500 kV transmission line would be required. Given that the 2,000-acre area would result in a much lower project capacity, it would not be able to bear the costs for the 500 kV interconnection. This alternative also would meet many of the basic Project Objectives. The lower capacity would mean that it would not assist California in meeting its GHG emissions reduction goals and renewable energy objectives to the same extent as the Project. This alternative also would reduce tax revenues for the County, employment and wage benefits, and other community benefits. Additionally, the BLM does not consider the Project as designed a conflict with the existing corridor because the BLM and Applicant worked on the Project boundaries to ensure the function of the existing corridor remained while maximizing the amount of energy the Project could produce. This alternative was therefore eliminated because it is economically infeasible and would not meet the basic Project Objectives.

5.4.5 Loop-in Transmission Line Corridor Alternative

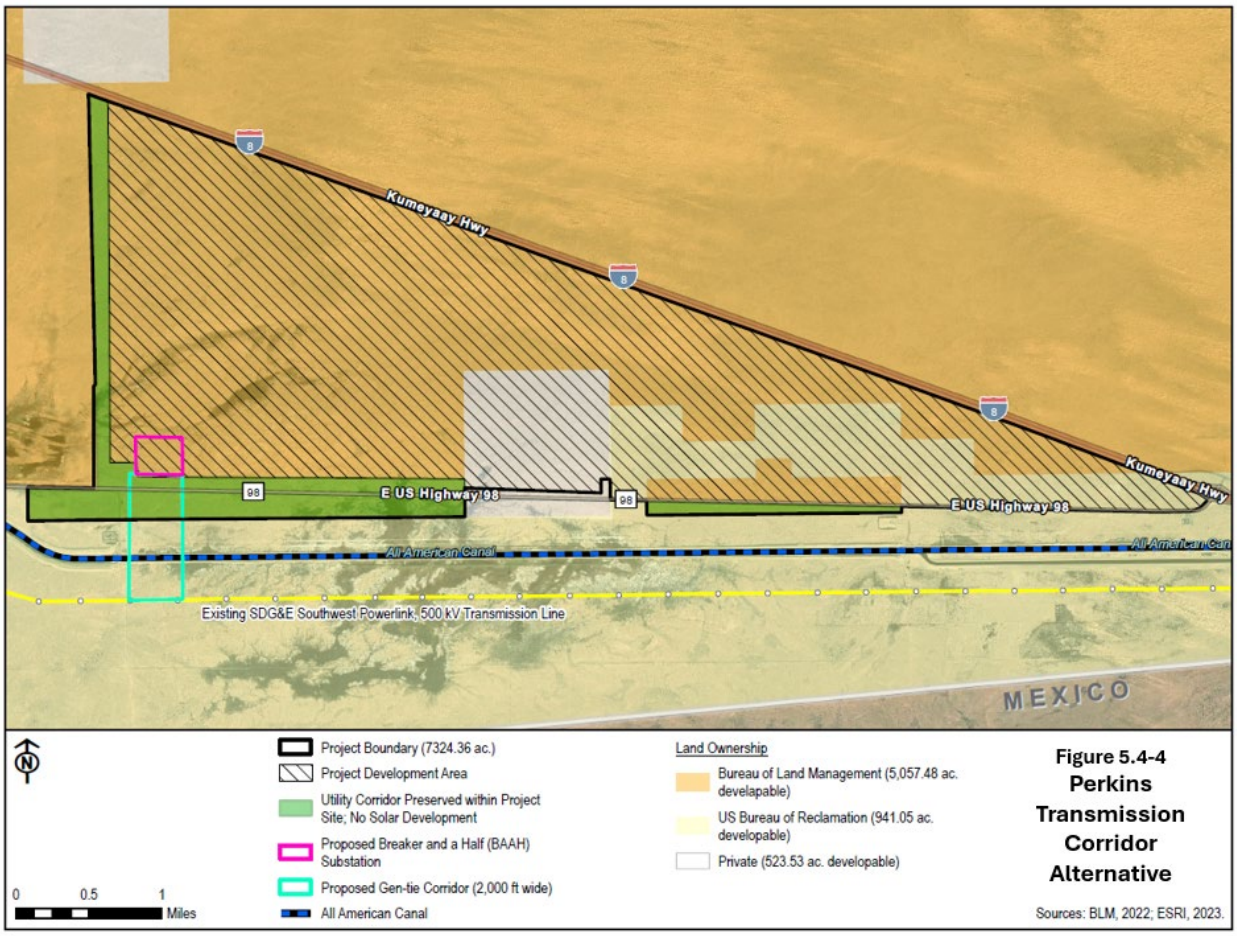
The Project would include two 500 kV loop-in transmission lines located within a 2,000-foot corridor to connect the Project to the SDG&E SWPL 500 kV transmission line. The entire corridor crosses BLM- and BOR-administered lands, including the BLM designated utility corridor. The exact location of the two 500 kV loop-in transmission lines within this 2,000-foot corridor will be determined based on resource survey results and engineering, BOR, and SDG&E requirements. Under the Loop-in Transmission Line Corridor Alternative, a second 2,000-foot corridor was considered for siting of the two 500 kV loop-in transmission lines. The Corridor Alternative is located to the west of the proposed Project corridor (see Figure 5.4-4) and aligns with existing IID power lines. This Corridor Alternative was developed in response to resource agency comments at the second preapplication meeting in August 2023. As shown in Figure 5.4-4, the southern portion of the Loop-in Transmission Line Corridor Alternative would traverse Area D of the Lake Cahuilla ACEC, which includes wetland vegetation associated with seepage from the All-American Canal. Because of increased potential for biological impacts within the ACEC and seepage vegetation this alternative was eliminated from further consideration.

Figure 5.4-3 Utility Corridor Avoidance Alternative



Source: (Intersect Power 2023) (BLM 2022)

Figure 5.4-4 Loop-in Transmission Line Corridor Alternative



Source: (Intersect Power 2023a)