Rincon Consultants, Inc.

7080 North Whitney Avenue
Suite 101
Fresno, California 93720

559 228 9925 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

March 1, 2024
Rincon Project No. 23-14550

Midway BESS LLC/Panoche BESS LLC
c/o Middle River Power
Jon Boyer, Director of Environmental, Health, and Safety
4350 Executive Drive, Suite 320
San Diego, CA 92121

Subject: Vehicle Miles Traveled (VMT) Technical Memorandum for the Midway and Panoche Battery Energy Storage System Projects in Fresno County, California

Rincon Consultants, Inc. (Rincon) is pleased to provide this vehicle miles traveled (VMT) technical memorandum for the Midway Battery Energy Storage System (BESS) Project and Panoche BESS Project (projects) in unincorporated Fresno County (County), California. The purpose of this memorandum is to analyze the potential for the projects to screen out of the requirement to prepare a detailed transportation VMT analysis, as determined by the applicable VMT screening criteria recommended by the Fresno Council of Governments (FCOG) in their *Fresno County SB 743 Implementation Regional Guidelines* (2021). This memorandum is intended to support Conditional Use Permits (CUPs) for the projects in addition to a full California Environmental Quality Act (CEQA) analysis, which will be independently prepared by Fresno County.

Project Description

The applicants propose to implement two separate battery energy storage systems at the 25-acre Midway-Panoche BESS Lease Area, located within a larger 91.33-acre parcel of primarily agricultural (vineyard) land in an unincorporated portion of northwestern Fresno County, California, on Assessor Parcel Number (APN) 027-060-91S. The usable area for BESS development within the BESS Midway-Panoche Lease Area excludes several existing transmission line rights-of-way that are not appropriate for BESS development.

Key components of the Midway BESS Project would include installation of containerized battery systems with internal heating ventilation and air conditioning and internal fire detection and fire suppression systems, battery management systems, power conversion systems (i.e., inverters), transformers, and electrical conductors. The project would also include overhead electrical conductor connection routes from the BESS switchyard to the existing transformer at the existing Midway Peaker Plant to the north, which would require an electrical conductor connection. The electrical conductor connection would require California Energy Commission (CEC) permitting for the portion of the connection on the Midway Peaker Plant property, and Fresno County permitting for the portion outside the CEC jurisdictional Midway Peaker Plant property. Site access to the Midway BESS Project site would involve the use and improvement of an existing access road that runs north -to-south from West Panoche Road on the eastern side of the existing Wellhead Electric Peaker plant and the BESS Lease Area. Minor improvements to this access road, such as paving, will be required.

Key components of the Panoche BESS Project would include installation of containerized battery systems with internal heating ventilation and air conditioning and internal fire detection and fire suppression systems, battery management systems, power conversion systems (i.e., inverters), transformers, and electrical conductors. The project would also include an interconnection at the Panoche Peaker Plant requiring an electrical conductor connection to connect to the existing CalPeak Panoche Peaker Plant switchyard. Site access to the Panoche BESS Project site would involve the use of an existing access road on the Panoche Peaker property. Minor improvements to the existing access road, including adding a short extension to the south to connect to the Panoche BESS area and paving, will be required.

The proposed BESS developments include separate stormwater detention areas, but a combined construction laydown area and internal access road system. The BESS Projects may be operated simultaneously with the adjacent peaker plants in accordance with the market-optimized dispatch instructions received from the California Independent System Operator (CAISO's) Automated Dispatching System ("ADS"), but the combined outputs will be control-limited to never exceed the limits of the respective Generator Interconnection Agreements. Both projects would be constructed in part to support California's current need for additional electrical supply capacity during peak load demand time periods.

Regulatory Setting

Senate Bill 743 (SB 743) was signed into law by Governor Jerry Brown in 2013 and tasked the State Office of Planning and Research (OPR) with establishing new criteria and metrics for identifying and mitigating transportation impacts under CEQA. SB 743 changed the way that public agencies evaluate transportation, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact. Under SB 743, the OPR established VMT as the preferred metric for measuring transportation impacts of most projects in place of vehicle level of service (LOS) or related measures of congestion as the primary metric. The use of VMT for determining significance of transportation impacts has become the CEQA requirement since July 1, 2020. CEQA Guidelines Section 15064.3 implements SB 743 and establishes VMT as the most appropriate measure of transportation impacts for environmental analysis. In response, many jurisdictions have adopted specific thresholds for the purposes of evaluating VMT impacts, while other jurisdictions have not formally adopted thresholds for evaluating VMT impacts. Instead, these jurisdictions rely on specific guidance provided by OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018).

In January 2021, FCOG published guidance for evaluating VMT impacts throughout Fresno County that closely follow the OPR recommendations. Specifically, FCOG's *Fresno County SB 743 Implementation Regional Guidelines* contains screening criteria for streamlined transportation analysis, significance thresholds for evaluating VMT impacts (13 percent below existing regional VMT per capita), methodologies for VMT analysis and induced travel demand analysis, and mitigation strategies for projects that are found to have a significant VMT impact. As Fresno County has not formally adopted VMT thresholds or screening criteria, the guidance provided in both OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA* and FCOG's *Fresno County SB 743 Implementation Regional Guidelines* were used for VMT analysis of the Midway and Panoche BESS projects.

VMT Screening Thresholds

Technical Advisory on Evaluating Transportation Impacts in CEQA

OPR's Technical Advisory suggests that lead agencies, such as Fresno County, may screen out VMT impacts using project size, maps, transit availability, and the provision of affordable housing. Specifically, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* recommends the following screening thresholds:

1. **Screening Threshold for Small Projects.** Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, and absent inconsistency with a Sustainable Communities Strategy/general plan, projects that generate fewer than 110 trips per day may be assumed to cause a less-than significant transportation impact.
2. **Map-Based Screening for Residential and Office Projects.** Residential and office projects located in areas with low VMT that incorporate similar features tend to exhibit similarly low VMT. Maps created with VMT data can illustrate areas that are currently below VMT thresholds. Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis.
3. **Presumption of Less Than Significant Impact Near Transit Stations.** Projects proposed within a half mile of an existing major transit stop, or an existing stop along a high-quality transit corridor, can be presumed to have a less-than-significant impact on VMT. This presumption would not apply if project-specific or location-specific information indicates that the project will still generate significant levels of VMT.
4. **Presumption of Less Than Significant Impact for Affordable Residential Development.** Adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. In areas where existing jobs-housing match is closer to optimal, low-income housing nevertheless generates less VMT than market-rate housing. Therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT.

Fresno County SB 743 Implementation Regional Guidelines

The FCOG Regional Guidelines suggest that lead agencies, such as Fresno County, may screen out VMT impacts based on certain conditions such as size, location, proximity to transit, and trip-making potential. Specifically, *Fresno County SB 743 Implementation Regional Guidelines* recommends the following screening thresholds (FCOG 2021a):

1. **Transit Priority Areas.** The project is within 0.5 mile of a transit priority area or a high-quality transit area unless the project is inconsistent with the Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), has a floor area ratio (FAR) less than 0.75, provides an excessive amount of parking, or reduces the number of affordable residential units.
2. **Locally Serving Retail.** The project involves local-serving retail space of less than 50,000 square feet.
3. **Affordable Housing.** The project has a high level of affordable-housing units.
4. **Small Project.** The project generates fewer than 500 average daily trips.

5. **Locally Serving Public Facility**. The project is an institutional, government, or public service use that support community health, safety, and welfare.
6. **Map-Based Screening.** The project is located in an area with low VMT that would incorporate similar features.

VMT Screening Analysis

During operation, the BESS projects would function individually as unmanned facilities that are controlled remotely from off-site locations. No daily operational trips would typically be generated by either project. Required maintenance of the BESS projects would be expected to include two maintenance worker trips to each site on one day of each week, resulting in approximately two round trips per week on average for each project during their operational lifespans.

Vehicle trips used for construction purposes would be temporary, and any generated VMT would generally be minor and limited to construction equipment and personnel and would not result in long-term trip generation (Caltrans 2020). Construction of both the Midway BESS Project and Panoche BESS Project is expected to generate a maximum of 50 trips per day for construction workers. In addition, the individual projects are expected to generate a maximum of 30 additional truck trips per day during the first three months of construction and five additional truck trips per day during the remainder of the construction period to facilitate incoming deliveries and offsite disposal of construction waste. Overall, each project is expected to generate a maximum of 80 round trips per day during their construction phases. The estimated number of construction-phase trips is based on the planned work activities, construction schedule, and applicant experience on similar projects.

As a result of the anticipated operational vehicle trips described above, the Midway and Panoche BESS projects can be presumed to cause a less-than-significant VMT impact without conducting a detailed traffic study based on FCOG’s recommendations for small projects that generate fewer than 500 average daily trips and OPR’s recommendations for small projects that generate fewer than 110 trips per day.

Conclusion

As described above, operation of the Midway and Panoche BESS projects would screen out of the requirement to prepare a detailed transportation VMT analysis under the small project screening criteria, as identified in FCOG’s *Fresno County SB 743 Implementation Regional Guidelines* and OPR’s *Technical Advisory on Evaluating Transportation Impacts in CEQA.* Therefore, it can be presumed that the projects would each have a less than significant VMT impact.

Sincerely,
Rincon Consultants, Inc.

Taylor Freeman, MEERM
Environmental Planner

Rich Daulton, MURP
Principal-in-Charge

References

California Department of Transportation (Caltrans). 2020. Transportation Analysis under CEQA, First Edition. *Evaluating Transportation Impacts of State Highway System Projects*. https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-10-1st-edition-tac-fnl-a11y.pdf (accessed November 2023).

Fresno Council of Governments (FCOG). 2021a. Fresno County SB 743 Implementations Regional Guidelines. https://2ave3l244ex63mgdyc1u2mfp-wpengine.netdna-ssl.com/wp-content/uploads/2021/01/Fresno-COG-VMT-Report_01-08-2021.pdf (accessed November 2023).

_____2021b. Fresno County Project Screening Map. https://gis1.lsa.net/FCOGVMT/ (accessed November 2023).

_____ 2021c. Fresno County SB 743 Implementation Technical Report. https://2ave3l244ex63mgdyc1u2mfp-wpengine.netdna-ssl.com/wp-content/uploads/2021/03/Fresno-COG_SB743_Technical-Document_03-29-2021.pdf (accessed November 2023).

State Office of Planning and Research (OPR). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (accessed November 2023).

Midway and Panoche Battery Energy Storage System (BESS) Projects

Air Quality and Greenhouse Gas Emissions Study

prepared for

Midway BESS LLC
Panoche BESS LLC
4350 Executive Drive, Ste. 320
San Diego, California 92121

prepared by

Rincon Consultants, Inc.
7080 North Whitney Avenue, Suite 101
Fresno, California 93720

March 2024

RINCON CONSULTANTS, INC. SINCE 1994

Table of Contents

Tables

Figures

Appendices

1 Project Description

1.1 Introduction

This study analyzes the air quality and greenhouse gas (GHG) emissions impacts of the proposed Midway Battery Energy Storage System (BESS) and Panoche BESS Projects (proposed Project) in unincorporated Fresno County, California. Rincon Consultants, Inc. (Rincon) prepared this study under contract to Midway BESS LLC, and Panoche BESS LLC (Applicant) for use in support of California Environmental Quality Act (CEQA) compliance for the Projects. The Applicant has applied for separate Unclassified Conditional Use Permits for each project. However, given the proximity of the projects and their shared facilities, the two projects are analyzed as one Project in this study. The purpose of this study is to analyze the proposed Project's air quality and GHG impacts related to both temporary construction activity and long-term operation of the proposed Project. Table 1 provides a summary of potential Project impacts.

Table 1 Summary of Impacts

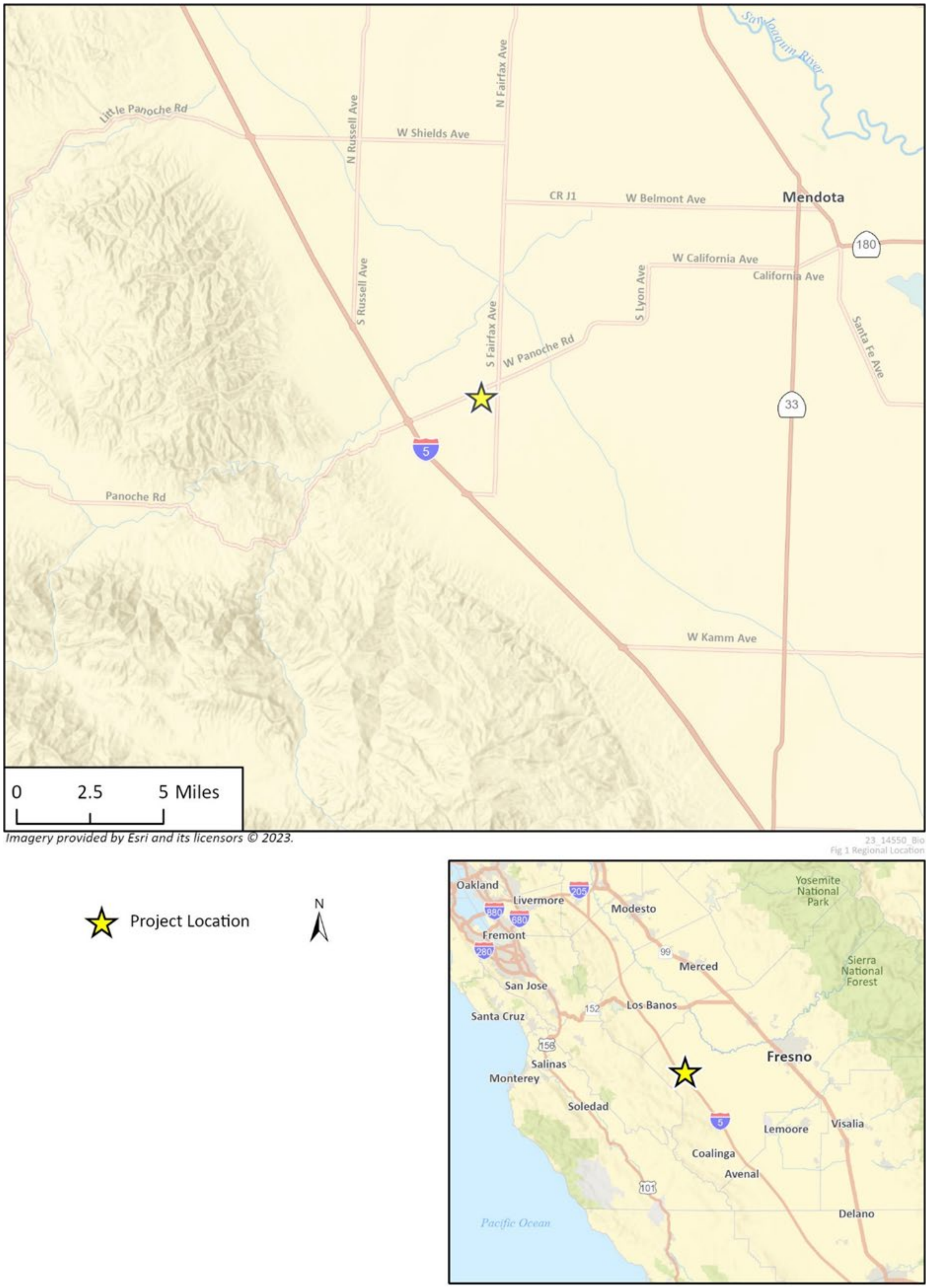
Impact Statement	Proposed Project's Level of Significance	Mitigation
Midway BESS		
Air Quality		
Conflict with or obstruct implementation of the applicable air quality plan?	Less than significant impact	None
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	Less than significant impact	None
Expose sensitive receptors to substantial pollutant concentrations?	Potentially significant impact	Less than Significant with Mitigation (AQ-1)
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant impact	None
Greenhouse Gas Emissions		
Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant impact	None
Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less than significant impact	None
Panoche BESS		
Air Quality		
Conflict with or obstruct implementation of the applicable air quality plan?	Less than significant impact	None
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	Less than significant impact	None
Expose sensitive receptors to substantial pollutant concentrations?	Potentially significant impact	Less than Significant with Mitigation (AQ-1)
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant impact	None

Greenhouse Gas Emissions		
Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant impact	None
Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less than significant impact	None
Combined Analysis		
Air Quality		
Conflict with or obstruct implementation of the applicable air quality plan?	Less than significant impact	None
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	Less than significant impact	None
Expose sensitive receptors to substantial pollutant concentrations?	Potentially significant impact	Less than Significant with Mitigation (AQ-1)
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant impact	None
Greenhouse Gas Emissions		
Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant impact	None
Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less than significant impact	None

1.2 Project Location

The proposed Midway and Panoche BESS Projects would be located generally northeast of Interstate 5 (I-5)/West Side Freeway, and just south of West Panoche Road in an unincorporated portion of northwestern Fresno County, California (Figure 1). The proposed Projects would comprise approximately 25-acre area (BESS Lease Area) for BESS development to be leased within a larger 91.33-acre parcel of primarily agricultural land on Assessor's Parcel Number (APN) 027-060-91S (Figure 2). The BESS Lease Area encompasses primarily irrigated agricultural land (vineyard) and is bound by industrial (electrical power related) land uses to the north and west, and agricultural land uses to the south and east.

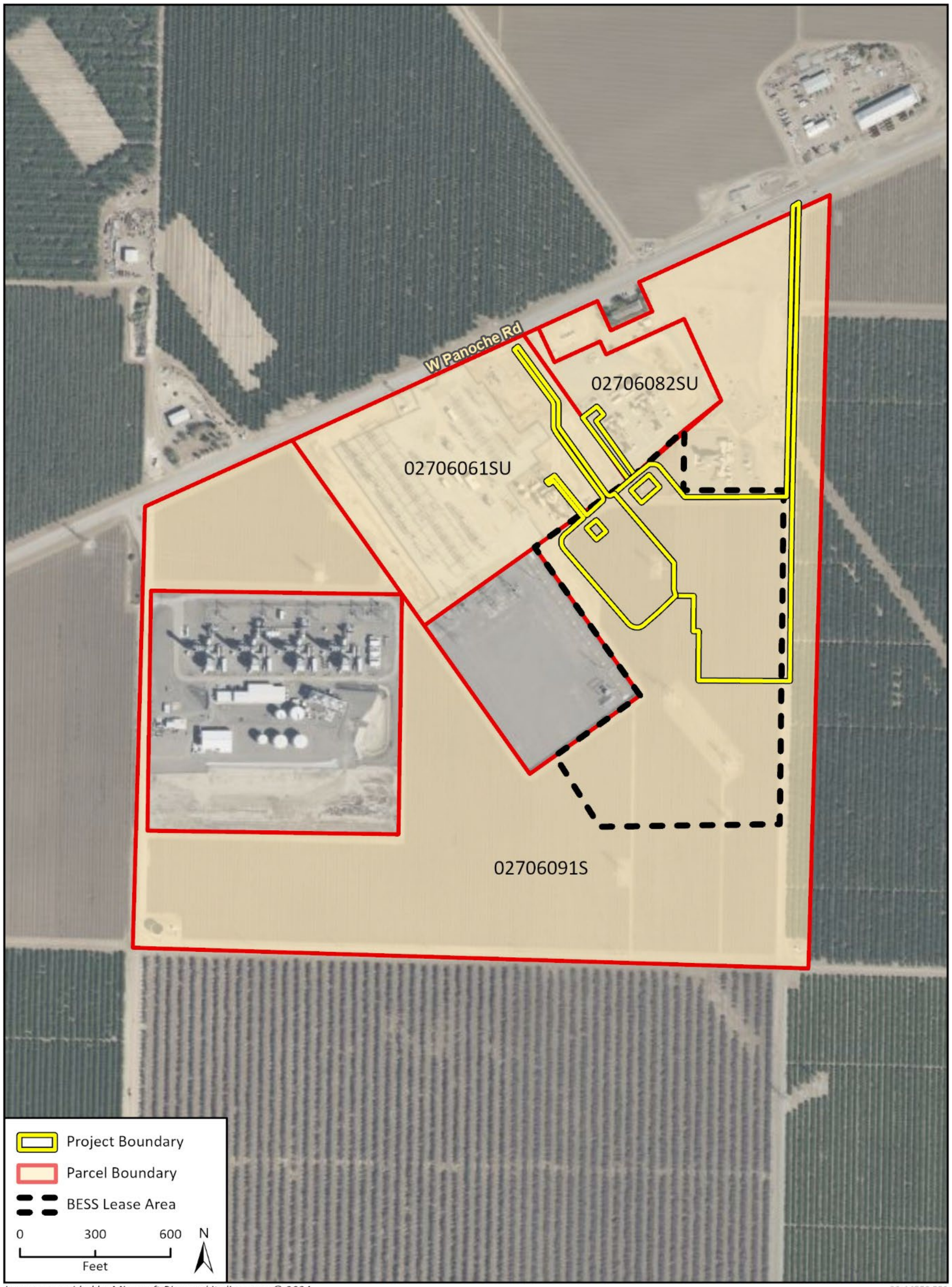
Figure 1 Regional Location



Imagery provided by Esri and its licensors © 2023.

23_14550_Bio
Fig 1 Regional Location

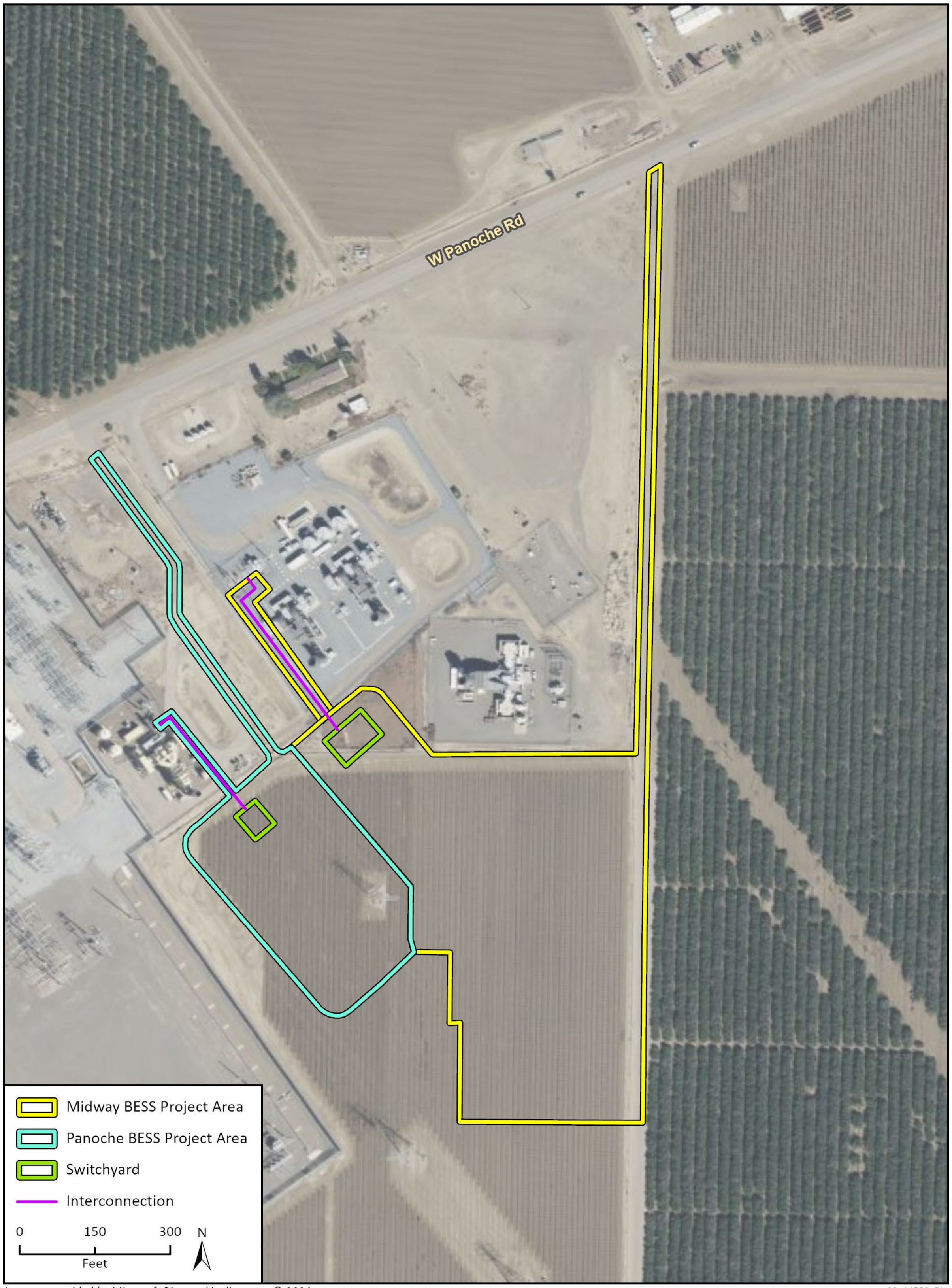
Figure 2 Study Area



Imagery provided by Microsoft Bing and its licensors © 2024.

23-14550 EPS
Fig X Parcels and BESS Lease Area

Figure 3 Defined Project Area



Imagery provided by Microsoft Bing and its licensors © 2024.

23_14550_Bio
Fig X Project Components

1.3 Project Description

The proposed Midway and Panoche BESS projects (proposed Projects) are located south of West Panoche Road in an unincorporated portion of northwestern Fresno County, California. The Midway BESS Project is proposed at up to a nominal 120 megawatt hours (MWh) and the Panoche BESS Project is proposed at up to 57 MWh. The proposed Projects are located within an approximately 25-acre area (BESS Lease Area) for BESS development to be leased within a larger 91.33-acre parcel of primarily agricultural land on APN 027-060-91S. The usable area for BESS development within the BESS Lease Area excludes several existing transmission line rights-of-way that are not appropriate for BESS development. The southern portion of the BESS Lease Area is not currently proposed to be developed with BESS facilities – i.e., will remain undeveloped under the currently proposed Projects. During site preparation, the proposed Project plans include removing the existing vineyards on the entire 25-acre BESS Lease Area, chipping the removed vegetation and spreading it as mulch on the southern area, and revegetating areas that will not be developed with BESS related facilities with native grasses to stabilize the soil surface. Figure 3 shows the detailed site plan for the proposed project.

The BESS Projects will be constructed in part to support California's current need for additional electrical supply capacity during peak load demand time periods. Midway BESS LLC will construct, own, and operate the Midway BESS Project, and will lease the overall BESS Lease Area. Panoche BESS LLC will construct, own, and operate the Panoche BESS Project and sublease land from Midway BESS LLC for the Panoche BESS portion of the lease.

The Midway BESS Project will interconnect to the electrical grid via a 13.8 kilovolt (kV) connection to the existing Midway Peaker plant to the north of the Midway BESS. The Panoche BESS Project will interconnect to the electrical grid via a 13.8 kV connection to the existing Panoche Peaker plant to the north of the Panoche BESS. The Midway and Panoche peaker plants are both connected to the existing Pacific Gas and Electric Company (PG&E) Panoche Substation at 115 kV.

The key components of the proposed Midway BESS Project are as follows:

- Containerized battery systems with internal heating ventilation and air conditioning (HVAC) and internal fire detection and fire suppression systems in each container, battery management systems (BMS), power conversion systems (PCS) (also called inverters), transformers, and electrical conductors to be installed. The proposed Midway BESS Project includes an overhead 13.8 kV gen-tie connection from the BESS switchyard to the low side of the existing 13.8 kV/115 kV generation step-up (GSU) transformer at the existing Midway Peaker Plant to the north. The interconnection at the Midway Peaker Plant will require an electrical conductor connection that will involve California Energy Commission (CEC) permitting for the portion of the connection on the Midway Peaker Plant property and County permitting for the portion of the proposed Project outside the CEC jurisdictional Midway Peaker Plant property. Site access to the Midway BESS defined project area would involve the use and improvement of an existing access road that runs north -to-south from West Panoche Road on the eastern side of the existing Wellhead Electric Peaker plant and the BESS Lease Area. Minor improvements to this access road, including paving will be required. The Midway BESS Project would have occasional need for battery upgrades or augmentation throughout the operational lifetime of the Project.

The key components of the proposed Panoche BESS Project are as follows:

- Containerized battery systems with internal heating ventilation and air conditioning (HVAC) and internal fire detection and fire suppression systems in each container, battery management systems (BMS), power conversion systems (PCS) (also called inverters), transformers, and electrical conductors to be installed. The interconnection at the Panoche Peaker Plant will require an electrical conductor connection to connect to the low side of the 13.8 kV/115 kV GSU transformer at the existing CalPeak Panoche Peaker Plant switchyard. Site access to the Panoche BESS defined project area would involve the use of an existing access road on the Panoche Peaker property. Minor improvements to the existing access road, including adding a short extension to the south to connect to the Panoche BESS area and paving will be required. The Panoche BESS Project would have occasional need for battery upgrades or augmentation throughout the operational lifetime of the project.

The proposed BESS developments include separate stormwater detention areas, but a combined construction laydown area and internal access road system. The BESS Projects may be operated simultaneously with the adjacent peaker plants in accordance with the market-optimized dispatch instructions received from the California Independent System Operator (CAISO's) Automated Dispatching System (ADS), but the combined outputs will be control-limited to never exceed the limits of the respective Generator Interconnection Agreements.

The Midway and Panoche BESS Projects will require discretionary permitting approvals involving individual Unclassified Conditional Use Permits and associated CEQA compliance with Fresno County. In addition, the portion of the Midway BESS Project 13.8 kV gen-tie connection line on the Midway Peaker Plant property will require approval of a Petition for Post Certification Amendment from the CEC (CEC Docket No. 06-AFC-10). The CEC's jurisdiction is limited to the portion of the Midway BESS Project gen-tie line on the Midway Peaker Plant property. This technical study focusses on the portion of the proposed Projects that are under Fresno County jurisdiction.

Fresno County permitting requirements are expected to include applicant commitments for decommissioning and removal of BESS facilities and reclamation of the BESS Lease Area to an agricultural ready condition at the end of the proposed Projects' lives. The proposed Projects' operational lives and associated land leases are anticipated to be up to 30-40 years.

2 Setting

2.1 Environmental Setting

2.1.1 Local Climate and Meteorology

The overall Study Area is located within an unincorporated, agricultural area of Fresno County that includes other agricultural land uses in the surrounding area as well as power plants and substations in the immediate vicinity. The Study Area is part of the San Joaquin Valley Air Basin (SJVAB). The SJVAB encompasses the southern half of the California Central Valley and is comprised of eight counties: San Joaquin, Stanislaus, Fresno, Merced, Madera, Kings, Tulare, and western Kern County. The SJVAB is approximately 250 miles long and 35 miles in width (on average) and is bordered by the Sierra Nevada Mountains in the east (8,000 to 14,500 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi Mountains in the south (6,000 to 8,000 feet in elevation).

The overall climate in the SJVAB is warm and semi-arid. The San Joaquin Valley is in a Mediterranean climate zone. Mediterranean climate zones occur on the west coast of continents at 30 to 40 degrees latitude and are influenced by a subtropical high-pressure area most of the year. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in the winter. There is only one wet season during the year and 90 percent of the precipitation falls during October through April. Snow in the San Joaquin Valley is infrequent and thunderstorms seldom occur. Summers are hot and dry. Summertime maximum temperatures often exceed 100 degrees Fahrenheit (°F) in the San Joaquin Valley. The SJVAB's topography has a dominating effect on wind patterns. Winds tend to blow somewhat parallel to the valley and mountain range orientation. In spring and early summer, thermal low-pressure systems develop over the interior basins east of the Sierra Nevada mountain range, and the Pacific High (a high-pressure system that develops over the central Pacific Ocean near the Hawaiian Islands) moves northward. These meteorological developments and the topography produce the high incidence of relatively strong northwesterly winds in the spring and early summer.

The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions in the San Joaquin Valley. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500 to 3,000 feet). Winter-time high-pressure events can often last many weeks with surface temperatures lowering to 30°F. During these events, fog can be present, and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet (San Joaquin Valley Air Pollution Control District [SJVAPCD] 2015a).

2.1.2 Air Pollutants of Concern

Criteria Air Pollutants

The USEPA has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare standards. Criteria pollutants that are a concern in the SJVAB are described below.

Ozone

Ozone is a highly oxidative unstable gas produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG)/volatile organic compounds (VOC).[1] ROG is composed of non-methane hydrocarbons (with specific exclusions), and NO_X is composed of different chemical combinations of nitrogen and oxygen, mainly nitric oxide and nitrogen dioxide (NO_2). NO_X is formed during the combustion of fuels, while ROG is formed during the combustion and evaporation of organic solvents. As a highly reactive molecule, ozone readily combines with many different atmosphere components. Consequently, high ozone levels tend to exist only while high ROG and NO_X levels are present to sustain the ozone formation process. Once the precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional rather than local scale, ozone is considered a regional pollutant. In addition, because ozone requires sunlight to form, it mainly occurs in concentrations considered serious between April and October. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors (USEPA 2021a). Depending on the level of exposure, ozone can cause coughing and a sore or scratchy throat; make it more difficult to breathe deeply and vigorously and cause pain when taking a deep breath; inflame and damage the airways; make the lungs more susceptible to infection; and aggravate lung diseases such as asthma, emphysema, and chronic bronchitis.

Nitrogen Dioxide

NO_2 is a by-product of fuel combustion. The primary sources are motor vehicles and industrial boilers, and furnaces. The principal form of NO_X produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2, commonly called NO_x. NO_2 is a reactive, oxidizing gas and an acute irritant capable of damaging cell linings in the respiratory tract. Breathing air with a high concentration of NO_2 can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases leading to respiratory symptoms (such as coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma and children and the elderly are generally at greater risk for the health effects of NO_2 (USEPA 2021a). NO_2 absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of ozone/smog and acid rain.

Sulfur Dioxide

Sulfur dioxide (SO_2) is included in a group of highly reactive gases known as “oxides of sulfur.” The largest sources of SO_2 emissions are from fossil fuel combustion at power plants (73 percent) and other industrial facilities (20 percent). Smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore and burning fuels with a high sulfur content by locomotives, large ships, and off-road equipment. Short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult. People with asthma, particularly children, are sensitive to these effects of SO_2 (USEPA 2021a).

---

[1] The California Air Resources Board defines VOC and ROG similarly as, “any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate,” (40 Code of Federal Regulations 51.100) with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term ROG is used in this document.

Carbon Monoxide

Carbon monoxide (CO) is a localized pollutant found in high concentrations only near its source. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic's incomplete combustion of petroleum fuels. Therefore, elevated concentrations are usually only found near areas of high traffic volumes. Other sources of CO include the incomplete combustion of petroleum fuels at power plants and fuel combustion from wood stoves and fireplaces during the winter. When CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. These people already have a reduced ability to get oxygenated blood to their hearts in situations where they need more oxygen than usual. As a result, they are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain, also known as angina (USEPA 2021a).

Particulate Matter

Particulates less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$) are comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. Both PM_{10} and $PM_{2.5}$ are emitted into the atmosphere as by-products of fuel combustion and wind erosion of soil and unpaved roads. The atmosphere, through chemical reactions, can form particulate matter. The characteristics, sources, and potential health effects of PM_{10} and $PM_{2.5}$ can be very different. PM_{10} is generally associated with dust mobilized by wind and vehicles. In contrast, $PM_{2.5}$ is generally associated with combustion processes and formation in the atmosphere as a secondary pollutant through chemical reactions. PM_{10} can cause increased respiratory disease, lung damage, cancer, premature death, reduced visibility, and surface soiling. For $PM_{2.5}$, short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases (California Air Resources Board [CARB] 2022a).

Lead

Lead (Pb) is a metal found naturally in the environment, as well as in manufacturing products. The major sources of Pb emissions historically have been mobile and industrial. However, due to the USEPA's regulatory efforts to remove lead from gasoline, atmospheric Pb concentrations have declined substantially over the past several decades. The most dramatic reductions in Pb emissions occurred before 1990 due to the removal of Pb from gasoline sold for most highway vehicles. Pb emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries at least partly due to national emissions standards for hazardous air pollutants (USEPA 2013). As a result of phasing out leaded gasoline, metal processing is currently the primary source of Pb emissions. The highest Pb level in the air is generally found near Pb smelters. Other stationary sources include waste incinerators, utilities, and Pb-acid battery manufacturers. Pb can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and cardiovascular system depending on exposure. Pb exposure also affects the oxygen-carrying capacity of the blood. The Pb effects most likely encountered in current populations are neurological in children. Infants and young children are susceptible to Pb exposures, contributing to behavioral problems, learning deficits, and lowered intelligence quotient (USEPA 2021a).

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TAC) are a diverse group of airborne substances that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engine exhaust that contains solid material known as diesel particulate matter (DPM). More than 90 percent of DPM is less than one micron in diameter (about 1/70th the diameter of a human hair) and thus is a subset of $PM_{2.5}$. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs (CARB 2022b). TACs are different than criteria pollutants because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., long duration) and acute (i.e., severe but of short duration) adverse effects on human health. People exposed to TACs at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include asthma, respiratory symptoms, and decreased lung function (CARB 2022b). The Fresno County Department of Public Health has not published health studies specific to potentially affected populations within six miles of the Study Area related to the health effects of TACs or respiratory illnesses, cancers, or related diseases (County of Fresno 2023).

Dust-related Concerns

Valley Fever

Valley Fever or coccidioidomycosis is caused locally by the microscopic fungus *Coccidioides immitis (C. immitis)*. The *Coccidioides* fungus resides in the soil in the southwestern United States (U.S.), northern Mexico, and parts of Central and South America. During drought years, the number of organisms competing with *C. immitis* decreases, and *the C. immitis* remains alive but dormant. When rain finally occurs, the fungal spores germinate and multiply more than usual because of fewer other competing organisms. Later, the soil dries out in the summer and fall, and the fungi can become airborne and potentially infectious (Kirkland and Fierey 1996).

Infection occurs when the spores of the fungus become airborne and are inhaled. The fungal spores become airborne when contaminated soil is disturbed by human activities, such as construction and agricultural activities, and natural phenomena, such as windstorms, dust storms, and earthquakes. About 60 percent of infected persons have no symptoms. The remainder develop flu-like symptoms that can last for a month and tiredness that can sometimes last for longer than a few weeks. Common symptoms include fatigue, cough, chest pain, fever, rashes on upper body or legs, headaches, muscle aches, night sweats, and unexplained weight loss (California Department of Public Health 2021). Without proper treatment, Valley Fever can lead to severe pneumonia, meningitis, and even death. Both humans and animals can become infected with Valley Fever, but the infection is not contagious and cannot spread from one person or animal to another (California Department of Public Health 2021).

Diagnosis of Valley Fever is conducted through a sample of blood, other body fluid, or biopsy of affected tissue. Valley Fever is treatable with anti-fungal medicines. Once recovered from the disease, the individual is protected against further infection. Persons at highest risk from exposure are those with compromised immune systems, such as those with human immunodeficiency virus and those with chronic pulmonary disease. Farmers, construction workers, and others who engage in activities that disturb the soil are at highest risk for Valley Fever. Infants, pregnant women, diabetics, people of African, Asian, Latino, or Filipino descent, and the elderly may be at increased risk for disseminated disease. Historically, people at risk for infection are individuals not already immune to the disease and whose jobs involve extensive contact with soil dust, such as construction or agricultural workers and archeologists (Los Angeles County Health Department 2013). Most cases of Valley Fever (over 65 percent) are diagnosed in people living in the Central Valley and Central Coast regions (California Department of Public Health 2021).

There is no vaccine to prevent Valley Fever. However, the California Department of Public Health recommends the following practical tips to reduce exposure (2021):

- Stay inside and keep windows and doors closed when it is windy outside and the air is dusty, especially during dust storms.
- Consider avoiding outdoor activities that involve close contact to dirt or dust, including yard work, gardening, and digging, especially if you are in one of the groups at higher risk for severe or disseminated Valley fever.
- Cover open dirt areas around your home with grass, plants, or other ground cover to help reduce dusty, open areas.
- While driving in these areas, keep car windows closed and use recirculating air, if available.
- Try to avoid dusty areas, like construction or excavation sites.
- If you cannot avoid these areas, or if you must be outdoors in dusty air, consider wearing an N95 respirator (a type of face mask) to help protect against breathing in dust that can cause Valley fever.

However, if in situations where digging dirt or stirring up dust will happen, then the following tips are recommended:

- Stay upwind of the area where dirt is being disturbed.
- Wet down soil before digging or disturbing dirt to reduce dust.
- Consider wearing an N95 respirator (mask).
- After returning indoors, change out of clothes if covered with dirt.
    - Be careful not to shake out clothing and breathe in the dust before washing. If someone else is washing your clothes, warn the person before they handle the clothes.

In 2022, approximately 448 cases of Valley Fever were reported in Fresno County. This is an increase of 43 cases compared to 2021 (405 cases) (California Department of Public Health 2023).

2.1.3 Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include preexisting health problems, proximity to emissions sources, or duration of exposure to air pollutants. Title 20, CCR, Section 1704, Appendix B defines a sensitive receptor as infants and children, the elderly, and the chronically ill, and any other member of the general population who is more susceptible to the effects of the exposure than the population at large. Schools, hospitals, and convalescent homes are considered relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. Ambient air quality standards were established to represent the levels of air quality considered sufficient, with a margin of safety, to protect public health and welfare. Standards are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases.

The nearest sensitive receiver includes the single-family residence located at the Vaquero Farms Inc. South Shop, approximately 1,730 feet to the north of the overall Study Area.

2.1.4 Greenhouse Gases

Gases that trap heat in the atmosphere are known as GHGs. GHGs allow sunlight to enter the atmosphere but trap a portion of the outward-bound infrared radiation that warms the air. The process is similar to the effect greenhouses have in raising the internal temperature of the structure. Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the Earth’s temperature, but emissions from human activities (such as fossil fuel-based electricity production and the use of motor vehicles) have elevated the concentration of GHGs in the atmosphere. Scientists agree that this accumulation of GHGs has contributed to an increase in the temperature of the Earth’s atmosphere and to global climate change. Global climate change is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most scientists agree there is a direct link between increased emissions of GHGs and long-term global temperature increases.

The gases widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere, and natural processes, such as oceanic evaporation, largely determine its atmospheric concentrations.

GHGs are emitted by natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are usually by-products of fossil fuel combustion, and CH_4 results from off-gassing associated with agricultural practices and landfills. Human-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6.

Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally 100 years) (USEPA 2021b). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as “carbon dioxide equivalent” (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 30, meaning its global warming effect is

30 times greater than CO_2 on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2021a).[2]

The use of SF_6 in electric utility systems and switchgear, including circuit breakers, poses a concern because this pollutant has an extremely high GWP (one pound of SF_6 is the equivalent warming potential of approximately 24,600 pounds of CO_2) (IPCC 2021b).[3] SF_6 is inert and non-toxic, and is encapsulated in circuit breaker assemblies. SF_6 is a GHG with substantial global warming potential because of its chemical nature and long residency time within the atmosphere. However, under normal conditions, it would be completely contained in the equipment and SF_6 would only be released in the unlikely event of a failure, leak, or crack in the circuit breaker housing. New circuit breaker designs have been developed over the past several years to minimize the potential for leakage, compared to that of past designs.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources though potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature (GMST) from 2015 to 2017 was approximately 1° Celsius (C) higher than the average GMST over the period from 1880 to 1900 (National Oceanic and Atmospheric Administration 2020). Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations jointly indicate that LSAT and sea surface temperatures have increased. Due to past and current activities, anthropogenic GHG emissions have increased global mean surface temperature at a rate of approximately 0.1°C per decade since 1900. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2023).

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 0.6 to 1.1°C higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include reduced water supply from snowpack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years (State of California 2018). In addition to statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the state and regionally-specific climate change case studies (State of California 2018). However, while there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. A summary follows of some of the potential effects that could be experienced in California as a result of climate change.

[2] The IPCC's (2021) *Sixth Assessment Report* determined that methane has a GWP of 30. However, the 2022 Climate Change Scoping Plan published by the CARB uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes the GWPs from the Fourth Assessment Report.

[3] A global warming potential of 23,900 was used to convert emissions to CO_2e. This value is based on the global warming potential in the USEPA Mandatory Reporting Program Regulations (40 Code of Federal Regulations Part 98, Subpart A), and deviates from the use of GWPs from the IPCC 6th Assessment Report which was used for the conversion of CH_4 and N_2O.

Air Quality

Scientists project that the annual average maximum daily temperatures in California could rise by 2.4 to 3.2°C in the next 50 years and by 3.1 to 4.9°C in the next century (State of California 2018). Higher temperatures are conducive to air pollution formation, and rising temperatures could therefore result in worsened air quality in California. As a result, climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. In addition, as temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and wildfires have occurred at higher elevations in the Sierra Nevada Mountains (State of California 2018). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality could worsen. Severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains could tend to temporarily clear the air of particulate pollution, which would effectively reduce the number of large wildfires and thereby ameliorate the pollution associated with them (California Natural Resources Agency 2009).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. Year-to-year variability in statewide precipitation levels has increased since 1980, meaning that wet and dry precipitation extremes have become more common (California Department of Water Resources 2018). This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The average early spring snowpack in the western U.S., including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 0.15 meter along the central and southern California coasts (State of California 2018). The Sierra snowpack provides the majority of California's water supply as snow that accumulates during wet winters is released slowly during the dry months of spring and summer. A warmer climate is predicted to reduce the fraction of precipitation that falls as snow and the amount of snowfall at lower elevations, thereby reducing the total snowpack (State of California 2018). Projections indicate that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (State of California 2018).

Hydrology and Sea Level Rise

Climate change could affect the intensity and frequency of storms and flooding (State of California 2018). Furthermore, climate change could induce substantial sea level rise in the coming century. Rising sea level increases the likelihood of and risk from flooding. The rate of increase of global mean sea levels between 2006 and 2018 is approximately 3.7 millimeters per year, approximately two times the average rate of sea level rise in the twentieth century (IPCC 2023). Global mean sea levels increased by 0.20 meters between 1901 and 2018 (IPCC 2023). Sea levels are rising faster now than in the previous two millennia, and the rise will probably accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea level rise of 0.28 to 0.55 meter by 2100 (IPCC 2021a). Between the years of 1901 and 2018, the global mean sea level increased by 0.20 meters with human influence as the likely driver of said increase since at least 1971 (IPCC 2021a). A rise in sea levels could erode 31 to 67 percent of southern California beaches and cause flooding of approximately 370 miles of coastal highways during 100-year storm events. This would also jeopardize California's water supply due to saltwater intrusion and induce groundwater flooding and/or exposure of buried infrastructure (State of California 2018). Furthermore, increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has an over $50 billion annual agricultural industry that produces over a third of the country's vegetables and two-thirds of the country's fruits and nuts (California Department of Food and Agriculture 2020). Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent, which would increase water demand as hotter conditions lead to the loss of soil moisture. In addition, crop yield could be threatened by water-induced stress and extreme heat waves, and plants may be susceptible to new and changing pest and disease outbreaks (State of California 2018). Temperature increases could also change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (California Climate Change Center 2006).

Ecosystems and Wildlife

Climate change and the potential resultant changes in weather patterns could have ecological effects on the global and local scales. Soil moisture is likely to decline in many regions as a result of higher temperatures, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: timing of ecological events; geographic distribution and range of species; species composition and the incidence of nonnative species within communities; and ecosystem processes, such as carbon cycling and storage (State of California 2018).

Emissions Inventories

Global Emissions Inventory

Worldwide anthropogenic GHG emissions totaled 47,000 million metric tons (MMT) of CO_2e in 2015, which is a 43 percent increase from 1990 GHG levels (USEPA 2023a). Specifically, 34,522 MMT of CO_2e of CO_2, 8,241 MMT of CO_2e of CH_4, 2,997 MMT of CO_2e of N_2O, and 1,001 MMT of CO_2e of fluorinated gases were emitted in 2015. The largest source of GHG emissions were energy production and fuel use from vehicles and buildings, which accounted for 75 percent of the global GHG emissions. Agriculture uses and industrial processes contributed 12 percent and six percent, respectively. Waste sources contributed three percent and international transportation sources contributed two percent. These sources account for approximately 98 percent because there was a net sink of two percent from land use change (including afforestation/reforestation and emissions removals by other land use activities) (USEPA 2023a).

United States Emissions Inventory

Total U.S. GHG emissions were estimated at 6,558 MMT of CO_2e in 2019. Emissions decreased by 1.7 percent from 2018 to 2019. Since 1990, total U.S. emissions have increased by an average annual rate of 0.06 percent for a total increase of 1.8 percent between 1990 and 2019. The decrease from 2018 to 2019 reflects the combined influences of several long-term trends, including population changes, economic growth, energy market shifts, technological changes such as improvements in energy efficiency, and decrease carbon intensity of energy fuel choices. In 2019, the industrial and transportation end-use sectors accounted for 30 percent and 29 percent, respectively, of nationwide GHG emissions; while the commercial and residential end-use sectors accounted for 16 percent and 15 percent of nationwide GHG emissions, respectively, with electricity emissions distributed among the various sectors (USEPA 2023b).

California Emissions Inventory

Based on the CARB California GHG Inventory for 2000-2019, California produced 418.2 MMT of CO_2e in 2019, which is 7.2 MMT of CO_2e lower than 2018 levels. The major source of GHG emissions in California is the transportation sector, which comprises 40 percent of the State's total GHG emissions. The industrial sector is the second largest source, comprising 21 percent of the State's GHG emissions, while electric power accounts for approximately 14 percent (CARB 2021). The magnitude of California's total GHG emissions is due in part to its large size and large population compared to other states. However, its relatively mild climate is a factor that reduces California's per capita fuel use and GHG emissions as compared to other states. In 2016, the State of California achieved its 2020 GHG emission reduction target of reducing emissions to 1990 levels, as emissions fell below 431 MMT of CO_2e (CARB 2021).

2.2 Regulatory Setting

2.2.1 Air Quality

Federal and State Criteria Air Pollutants

The federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) establish ambient air quality standards and establish regulatory authorities designed to attain those standards. As required by the CAA, the USEPA has identified criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and Pb.

Under the CCAA, California has adopted the California Ambient Air Quality Standards (CAAQS), which are more stringent than the NAAQS for certain pollutants and averaging periods. Table 2 presents the current federal and state standards for regulated pollutants and the SJVAB's attainment status for each standard. California has also established CAAQS for sulfates, hydrogen sulfide, and vinyl chloride.

As required by the federal CAA and the CCAA, air basins or portions thereof have been classified as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether the standards have been achieved. In some cases, an area's status is unable to be determined, in which case the area is designated "unclassified" (USEPA 2022). The air quality in an attainment area meets or is better than the NAAQS or CAAQS. A non-attainment area has air quality that is worse than the NAAQS or CAAQS. States are required to adopt enforceable plans, known as a State Implementation Plan (SIP), to achieve and maintain air quality meeting the NAAQS.

As shown in Table 2, the SJVAB currently is classified as nonattainment for the one-hour state ozone standard as well as for the federal and state eight-hour ozone standards. The SJVAB is also designated as nonattainment for the federal and state annual arithmetic mean and federal 24-hour $PM_{2.5}$ standards. Additionally, the SJVAB is classified as nonattainment for the state 24-hour and annual arithmetic mean PM_{10} standards. The SJVAB is unclassified or classified as attainment for all other pollutant standards (SJVAPCD 2024).

Table 2 Federal and State Ambient Air Quality Standards

		State Standard		National Standard	
Pollutant	Averaging Time	Concentration	SJVAB Attainment Status	Concentration	SJVAB Attainment Status
Ozone	8-Hour 1-Hour	0.070 ppm 0.090 ppm	Nonattainment/ Severe Nonattainment	0.070 ppm -	Nonattainment/ Extreme[1]
Carbon Monoxide (CO)	8-Hour 1-Hour	9.0 ppm 20 ppm	Attainment/ Unclassified	9.0 ppm 35 ppm	Attainment/ Unclassified
Nitrogen Dioxide (NO_2)	1-Hour Annual	0.180 ppm 0.030 ppm	Attainment	0.100 ppm 0.053 ppm	Attainment/ Unclassified
Sulfur Dioxide (SO_2)	1-Hour 3-Hour 24-Hour Annual	0.25 ppm - 0.04 ppm -	Attainment	0.075 ppm 0.5 ppm* 0.14 ppm 0.03 ppm	Attainment/ Unclassified
Respirable Particulate Matter (PM_{10})	24-Hour Annual	50 μg/m³ 20 μg/m³	Nonattainment	150 μg/m³ -	Attainment
Fine Particulate Matter ($PM_{2.5}$)	24-Hour Annual	- 12 μg/m³	Nonattainment	35 μg/m³ 9 μg/m³	Nonattainment
Lead (Pb)	30-Day Quarterly	1.5 μg/m³ -	Attainment	- 1.5 μg/m³	No Designation/ Classification

ppm = parts per million; ppb = parts per billion; μg/m³ = micrograms per cubic meter.

[1] Though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

Source: San Joaquin Valley Air Pollution Control District 2024.

Regional

San Joaquin Valley Air Pollution Control District

The Study Area is located within the jurisdiction of the SJVAPCD, which regulates air pollutant emissions throughout the SJVAB. The SJVAPCD enforces regulations and administers permits governing stationary sources. 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 air quality management district. In the absence of CEC jurisdiction, the following regional rules and regulations are related to the proposed Project:

- **Regulation VIII (Fugitive PM_{10} Prohibitions)** contains rules developed pursuant to USEPA guidance for "serious" PM_{10} nonattainment areas. Rules included under this regulation limit fugitive PM_{10} emissions from the following sources: construction, demolition, excavation, extraction, and other earth moving activities, bulk materials handling, carryout and track-out, open areas, paved and unpaved roads, unpaved vehicle/equipment traffic areas, and agricultural sources. Table 3 contains control measures that the Applicants would implement during Project construction activities pursuant to *Rule 8021, Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities*.
- **Rule 2201 (New and Modified Stationary Source Review Rule)** applies to all new stationary sources or modified existing stationary sources that are subject to the SJVAPCD permit requirements. The rule requires review of the new or modified stationary source to ensure that

the source does not interfere with the attainment or maintenance of ambient air quality standards.

- **Rule 4101 (Visibility)** limits the visible plume from any source to 20 percent opacity.
- **Rule 4102 (Nuisance)** prohibits the discharge of air contaminants or other materials in quantities that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such person or the public.
- **Rule 4601 (Architectural Coatings)** limits volatile organic compound (VOC) emissions from architectural coatings. This rule specifies architectural coatings storage, cleanup, and labeling requirements.
- **Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving, and Maintenance Operations)** limits VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations and applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.
- **Rule 9510 (Indirect Source Review)** requires certain development projects to mitigate exhaust emissions from construction equipment greater than 50 horsepower to 20 percent below statewide average NO_X emissions and 45 percent below statewide average PM_{10} exhaust emissions. This rule also requires applicants to reduce baseline emissions of NO_X and PM_{10} emissions associated with operations by 33.3 percent and 50 percent respectively over a period of 10 years (SJVAPCD 2017).

In addition to reducing a portion of the development project's impact on air quality through compliance with District Rule 9510, a developer can further reduce a project's impact on air quality by entering a "Voluntary Emission Reduction Agreement" (VERA) with the SJVAPCD to further mitigate project impacts under CEQA. Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the SJVAPCD, which then are used by the SJVAPCD to administer emission reduction projects (SJVAPCD 2015b).

Table 3 SJVAPCD Rule 8021 Measures Applicable to the Project

No.	Measure
A.1	Pre-water site sufficient to limit visible dust emissions (VDE) to 20 percent opacity.
A.2	Phase work to reduce the amount of disturbed surface area at any one time.
B.1	Apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20 percent opacity; or
B.2	Construct and maintain wind barriers sufficient to limit VDE to 20 percent opacity. If using wind barriers, control measure B1 above shall also be implemented.
B.3	Apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit VDE to 20 percent opacity and meet the conditions of a stabilized unpaved road surface.
C.1	Restrict vehicular access to the area.
C.2	Apply water or chemical/organic stabilizers/suppressants, sufficient to comply with the conditions of a stabilized surface. If an area having 0.5 acre or more of disturbed surface area remains unused for seven or more days, the area must comply with the conditions for a stabilized surface area as defined in section 3.58 of Rule 8011.
5.3.1	An owner/operator shall limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.
5.3.2	An owner/operator shall post speed limit signs that meet state and federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
5.4.1	Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever VDE exceeds 20 percent opacity. Indoor activities such as electrical, plumbing, dry wall installation, painting, and any other activity that does not cause any disturbances to the soil are not subject to this requirement.
5.4.2	Continue operation of water trucks/devices when outdoor construction excavation, extraction, and other earthmoving activities cease, unless unsafe to do so.
6.3.1	An owner/operator shall submit a Dust Control Plan to the Air Pollution Control Officer (APCO) prior to the start of any construction activity on any site that will include ten acres or more of disturbed surface area for residential developments, or five acres or more of disturbed surface area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days. Construction activities shall not commence until the APCO has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the APCO within 10 days prior to the commencement of earthmoving activities via fax or mail. The requirement to submit a dust control plan shall apply to all such activities conducted for residential and non-residential (e.g., commercial, industrial, or institutional) purposes or conducted by any governmental entity.
6.3.3	The Dust Control Plan shall describe all fugitive dust control measures to be implemented before, during, and after any dust generating activity.
6.3.4	A Dust Control Plan shall contain all the [administrative] information described in Section 6.3.6 of this rule. The APCO shall approve, disapprove, or conditionally approve the Dust Control Plan within 30 days of plan submittal. A Dust Control Plan is deemed automatically approved if, after 30 days following receipt by the District, the District does not provide any comments to the owner/operator regarding the Dust Control Plan.

Source: San Joaquin Valley Air Pollution Control District 2004.

Air Quality Management Plan

As required by the federal CAA and the CCAA, air basins or portions thereof have been classified as either “attainment” or “nonattainment” for each criteria air pollutant, based on if the standards have been achieved. Jurisdictions of nonattainment areas also are required to prepare an air quality management plan that includes strategies for achieving attainment. The SJVAPCD has approved management plans demonstrating how the SJVAB will reach attainment with the federal one-hour and eight-hour ozone and $PM_{2.5}$ standards.

OZONE ATTAINMENT PLANS

The *Extreme Ozone Attainment Demonstration Plan*, adopted by the SJVAPCD Governing Board October 8, 2004, sets forth measures and emission-reduction strategies designed to attain the federal one-hour ozone standard by November 15, 2010, as well as an emissions inventory, outreach, and rate of progress demonstration. This plan was approved by the USEPA on March 8, 2010; however, the USEPA’s approval was subsequently withdrawn effective November 26, 2012, in response to a decision issued by the U.S. Court of Appeals for the Ninth Circuit (*Sierra Club v. EPA*, 671 F.3d 955) remanding USEPA’s approval of these SIP revisions. Concurrent with the USEPA’s final rule, CARB withdrew the 2004 Plan. The SJVAPCD developed a new plan for the one-hour ozone standard, the *2013 Plan for the Revoked 1-Hour Ozone Standard*, which it adopted in September 2013.

The *2007 Ozone Plan*, approved by CARB on June 14, 2007, demonstrates how the SJVAB would meet the federal eight-hour ozone standard. The *2007 Ozone Plan* includes a comprehensive list of regulatory and incentive-based measures to reduce emissions of ozone and particulate matter precursors throughout the SJVAB. Additionally, this plan calls for major advancements in pollution control technologies for mobile and stationary sources of air pollution, and an increase in state and federal funding for incentive-based measures to create adequate reductions in emissions to bring the entire SJVAB into attainment with the federal eight-hour ozone standard (SJVAPCD 2007a).

On April 16, 2009, the SJVAPCD Governing Board adopted the *Reasonably Available Control Technology Demonstration for Ozone State Implementation Plans (2009 RACT SIP)* (SJVAPCD 2009a). In part, the *2009 RACT SIP* satisfied the commitment by the SJVAPCD for a new reasonably available control technology analysis for the one-hour ozone plan (see discussion of the USEPA withdrawal of approval in the *Extreme 1-Hour Ozone Attainment Demonstration Plan* summary above) and was intended to prevent all sanctions that could be imposed by USEPA for failure to submit a required SIP revision for the one-hour ozone standard. With respect to the 8-hour standard, the plan also assesses the SJVAPCD’s rules based on the adjusted major source definition of 10 tons per year (due to the SJVAB’s designation as an extreme subsequently nonattainment area), evaluates SJVAPCD rules against new *Control Techniques Guidelines* promulgated since August 2006, and reviews additional rules and amendments that had been adopted by the Governing Board since August 17, 2006, for reasonably available control technology consistency.

The *2013 Plan for the Revoked 1-Hour Ozone Standard* was approved by the Governing Board on September 19, 2013 (SJVAPCD 2013a). Based on implementation of the ongoing control measures, preliminary modeling indicates that the SJVAB will attain the 1-hour standard before the final attainment year of 2022 and without relying on long-term measures under the federal CAA Section 182(e)(5) (SJVAPCD 2013a).

On June 19, 2014, the Governing Board adopted the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan* (SJVAPCD 2014) that includes a demonstration that the SJVAPCD rules implement RACT. The plan reviews each of the NO_x reduction rules and concludes that they satisfy requirements for stringency, applicability, and enforceability, and meet or exceed RACT. The plan's analysis of further ROG reductions through modeling and technical analyses demonstrates that added ROG reductions will not advance the SJVAB's ozone attainment. Each ROG rule evaluated in the 2009 RACT SIP has been subsequently approved by the USEPA as meeting RACT within the last two years. The subsequent attainment strategy, therefore, focuses on further NO_X reductions.

SJVAPCD adopted the *2020 Reasonably Available Control Technology (RACT) Demonstration for the 2015 8-Hour Ozone Standard* in June 2020. This plan satisfies CAA requirements and ensures expeditious attainment of the 70 parts per billion eight-hour standard (SJVAPCD 2020).

SJVAPCD adopted the *2022 Plan for the 2015 8-Hour Ozone Standard* on December 15, 2022. This plan uses extensive science and research, state of the art air quality modeling, and the best available information in developing a strategy to attain the federal 2015 national ambient air quality standard (NAAQS) for ozone of 70 ppb as expeditiously as practicable. Building on decades of developing and implementing effective air pollution control strategies, this plan demonstrates that the reductions being achieved by the SJVAPCD and CARB strategy (72 percent reduction in NO_X emissions by 2037) ensures expeditious attainment of the 2015 8-hour ozone standard by the 2037 attainment deadline.

SJVAPCD adopted the *2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard* on June 15, 2023. This maintenance plan demonstrates SJVAPCD's consistency with all five criteria of Section 107(d)(3)(E) of the CAA to terminate all anti-backsliding provisions for the revoked 1-hour ozone standard, including Section 185 nonattainment fees. This Maintenance Plan also includes a demonstration that would ensure the area remains in attainment of the 1-hour ozone NAAQS through 2036. Therefore, SJVAPCD is requesting to be redesignated to attainment for the 1-hour ozone NAAQS and requesting termination of all anti-backsliding obligations.

PARTICULATE MATTER ATTAINMENT PLANS

In June 2007, the SJVAPCD Board adopted the *2007 PM_{10} Maintenance Plan and Request for Redesignation* (SJVAPCD 2007b). This plan demonstrates how PM_{10} attainment in the SJVAB will be maintained in the future. Effective November 12, 2008, USEPA redesignated the SJVAB to attainment for the PM_{10} NAAQS and approved the 2007 PM_{10} Maintenance Plan (USEPA 2008).

In April 2008, the SJVAB Board adopted the *2008 $PM_{2.5}$ Plan* and approved amendments to Chapter 6 of the *2008 $PM_{2.5}$ Plan* on June 17, 2010 (SJVAPCD 2008a). This plan was designed to addresses USEPA's annual $PM_{2.5}$ standard of 15 micrograms per cubic meter ($\mu g/m^3$), which was established by USEPA in 1997. In December of 2012, the SJVAPCD adopted the *2012 $PM_{2.5}$ Attainment Plan*, which addresses USEPA's 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$, which was established by USEPA in 2006 (SJVAPCD 2012). In April 2015, the SJVAPCD Board adopted the *2015 Plan for the 1997 $PM_{2.5}$ Standard* that addresses the USEPA's annual and 24-hour $PM_{2.5}$ standards established in 1997 after the SJVAB experienced higher $PM_{2.5}$ levels in winter 2013–2014 due to the extreme drought, stagnation, strong inversions, and historically dry conditions, and the SJVAPCD was unable to meet the initial attainment date of December 31, 2015 (SJVAPCD 2015c).

SJVAPCD adopted the *2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard* on September 15, 2016. This plan addresses the USEPA federal annual $PM_{2.5}$ standard of 12 $\mu g/m^3$, established in 2012. This plan includes an attainment impracticability demonstration and request for reclassification of the Valley from Moderate nonattainment to Serious nonattainment (SJVAPCD 2016).

SJVAPCD adopted the *2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards* in November 2018. This plan addresses the USEPA federal 1997 annual $PM_{2.5}$ standard of 15 $\mu g/m^3$ and the 24-hour $PM_{2.5}$

standard of 65 µg/m^3; the 2006 24-hour $PM_{2.5}$ standard of 35 µg/m^3; and the 2012 annual $PM_{2.5}$ standard of 12 µg/m^3. The plan demonstrates attainment of the federal $PM_{2.5}$ standards as expeditiously as practicable as required under the federal CAA (SJVAPCD 2018). The district is currently developing the 2023 Plan for the 2012 Annual $PM_{2.5}$ Standard.

Local

Fresno County

The Fresno County General Plan was adopted in October 2000. The Open Space Element contains air quality policies to reduce emissions from new developments (County of Fresno 2000). The following policies are applicable to the proposed Project:

- **Policy OS-G.13.** The County shall include fugitive dust control measures as a requirement for subdivision maps, site plans, and grading permits. This will assist in implementing the SJVAPCD's PM_{10} regulation (Regulation VIII). Enforcement actions can be coordinated with the Air District's Compliance Division.
- **Policy OS-G.14.** The County shall require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.

Existing Ambient Air Quality

The SJVAPCD operates 10 air quality monitoring stations in the SJVAB within Fresno County. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether ambient air quality meets the California and federal standards. The nearest monitoring station is the Tranquility-32650 West Adams Avenue monitoring station, located at 32650 West Adams Avenue in Fresno, approximately 11miles east of the Study Area. This monitoring station measures only ozone and $PM_{2.5}$. For PM_{10} and NO_2; therefore, additional data from the Fresno-Drummond Street monitoring station was used, which is located at 4706 East Drummond Street in Fresno, approximately 47 miles east of the Study Area. In addition, data from the Fresno-Garland monitoring station (3737 North First Street), approximately 46-miles northeast of the Study Area, is provided. Because monitoring is not generally conducted for pollutants for which the SJVAB is in attainment, there is no recent monitoring data available for CO or SO_2.

Table 4 indicates the number of days that each of the federal and state standards has been exceeded at monitoring stations near the Study Area in each of the last three years for which data is available. The federal and State 8-hour ozone standards were exceeded in 2020 and 2021 at the Tranquility monitoring station. The federal and State 8-hour ozone standards were exceeded at the Fresno-Drummond and Fresno-Garland monitoring stations. Additionally, the PM_{10} state standards were exceeded all 3 years at all three monitoring stations. The federal PM_{10} standards were exceeded in 2020 at all three monitoring stations, and 2021 at the Fresno-Garland monitoring stations. The $PM_{2.5}$ federal standards were exceeded in 2020 and 2021 at the Tranquility monitoring station at in 2020, 2021, and 2022 at the Fresno-Garland monitoring station. No other federal or state standards were exceeded at this monitoring station.

Table 4 Ambient Air Quality at the Monitoring Station

Pollutant	2020	2021	2022
Tranquility 32650 West Adams Avenue Monitoring Station			
Ozone			
8 Hour Ozone (ppm), 8-Hr Maximum	0.079	0.080	0.066
Number of Days of State exceedances (>0.070)	3	6	0
Number of days of Federal exceedances (>0.070)	3	5	0
Ozone (ppm), Worst Hour	0.087	0.088	0.074
Number of days above State standard (>0.09 ppm)	0	0	0
Respirable Particulate Matter, PM_{10}			
Particulate Matter 10 microns, $\mu g/m^3$, Worst 24 Hours	--	--	--
Number of days above State standard (>50 $\mu g/m^3$)	--	--	--
Number of days above Federal standard (>150 $\mu g/m^3$)	--	--	--
Fine Particulate Matter, $PM_{2.5}$			
Particulate Matter <2.5 microns, $\mu g/m^3$, Worst 24 Hours	146.2	65.3	33.1
Number of days above Federal standard (>35 $\mu g/m^3$)	21	7	0
Nitrogen Dioxide, NO_2			
Nitrogen Dioxide (ppb), Worst Hour	66.8	64.5	58.3
Number of days above State standard (>180 ppb)	0	0	0
Number of days above Federal standard (>100 ppb)	0	0	0
Fresno-Drummond Street Monitoring Station			
Ozone			
8 Hour Ozone (ppm), 8-Hr Maximum	0.091	0.099	0.089
Number of Days of State exceedances (>0.070)	27	41	8
Number of days of Federal exceedances (>0.070)	27	39	8
Ozone (ppm), Worst Hour	0.123	0.125	0.111
Number of days above State standard (>0.09 ppm)	11	9	3
Respirable Particulate Matter, PM_{10}			
Particulate Matter 10 microns, $\mu g/m^3$, Worst 24 Hours	350.4	151.8	73.4
Number of days above State standard (>50 $\mu g/m^3$)	25	20	133
Number of days above Federal standard (>150 $\mu g/m^3$)	1	0	0
Fine Particulate Matter, $PM_{2.5}$[1]			
Particulate Matter <2.5 microns, $\mu g/m^3$, Worst 24 Hours	--	--	--
Number of days above Federal standard (>35 $\mu g/m^3$)	--	--	--
Nitrogen Dioxide, NO_2			
Nitrogen Dioxide (ppb), Worst Hour	66.8	64.5	58.3
Number of days above State standard (>180 ppb)	0	0	0

Pollutant	2020	2021	2022
Number of days above Federal standard (>100 ppb)	0	0	0
Fresno-Garland Monitoring Station			
Ozone			
8 Hour Ozone (ppm), 8-Hr Maximum	0.099	0.093	0.083
Number of Days of State exceedances (>0.070)	24	22	10
Number of days of Federal exceedances (>0.070)	24	18	10
Ozone (ppm), Worst Hour	0.119	0.112	0.096
Number of days above State standard (>0.09 ppm)	10	6	2
Respirable Particulate Matter, PM_{10}			
Particulate Matter 10 microns, $\mu g/m^3$, Worst 24 Hours	296.4	281.0	116.1
Number of days above State standard (>50 $\mu g/m^3$)	99	91	73
Number of days above Federal standard (>150 $\mu g/m^3$)	14	1	0
Fine Particulate Matter, $PM_{2.5}$			
Particulate Matter <2.5 microns, $\mu g/m^3$, Worst 24 Hours	163.2	99.9	53.3
Number of days above Federal standard (>35 $\mu g/m^3$)	62	58	61
Nitrogen Dioxide, NO_2			
Nitrogen Dioxide (ppb), Worst Hour	47.5	56.3	54.7
Number of days above State standard (>180 ppb)	0	0	0
Number of days above Federal standard (>100 ppb)	0	0	0

$\mu g/m^3$ = micrograms per cubic meter; ppb = parts per billion.

[1] Air quality data for $PM_{2.5}$ is unavailable from the Fresno-Drummond Monitoring Station.

Source: California Air Resources Board 2023.

2.2.2 Greenhouse Gases

Federal Regulations

Federal Clean Air Act

The U.S. Supreme Court determined in *Massachusetts et al. v. Environmental Protection Agency et al.* ([2007] 549 U.S. 05-1120) that the USEPA has the authority to regulate motor vehicle GHG emissions under the federal CAA. The USEPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines and requires annual reporting of emissions. In 2012, the USEPA issued a Final Rule that established the GHG permitting thresholds that determine when CAA permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities.

In *Utility Air Regulatory Group v. Environmental Protection Agency* (134 Supreme Court 2427 [2014]), the U.S. Supreme Court held the USEPA may not treat GHGs as an air pollutant for purposes of determining whether a source can be considered a major source required to obtain a Prevention of

Significant Deterioration or Title V permit. The Court also held that Prevention of Significant Deterioration permits otherwise required based on emissions of other pollutants may continue to require limitations on GHG emissions based on the application of Best Available Control Technology.

Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026.

The USEPA finalized the federal GHG emissions standards for passenger cars and light trucks for model years 2023 through 2026 in February 2022. These standards will leverage current and future technologies to result in the avoidance of more than 3 billion tons of GHGs through 2050.

State Regulations

CARB is responsible for the coordination and oversight of state and local air pollution control programs in California. There are numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, the USEPA granted the waiver of CAA preemption to California for its GHG emission standards for motor vehicles, beginning with the 2009 model year, which allows California to implement more stringent vehicle emission standards than those promulgated by the USEPA. Pavley I regulates model years from 2009 to 2016 and Pavley II, now referred to as "LEV (Low Emission Vehicle) III GHG," regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the LEV, Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs and would provide major reductions in GHG emissions. By 2025, the rules will be fully implemented, and new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

Assembly Bill 1007 (State Alternative Fuels Plan)

AB 1007 (Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California. The CEC prepared the State Alternative Fuels Plan (SAF Plan) in partnership with CARB and in consultation with other federal, State, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-State production of biofuels without causing a significant degradation of public health and environmental quality. The SAF Plan provided a framework for subsequent legislation, including AB 118 (Chapter 750, Statutes of 2007), to be passed, which currently provides 690 million dollars in funding for medium- and heavy-duty battery-electric and hydrogen infrastructure, and 77 million dollars for hydrogen refueling infrastructure (CARB 2007, CEC 2021b).

California Global Warming Solutions Act of 2006 (Assembly Bill 32 and Senate Bill 32)

The "California Global Warming Solutions Act of 2006," (AB 32), outlines California's major legislative initiative for reducing GHG emissions. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHG emissions to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 target of 431 MMT of CO_2e, which was achieved in 2016. CARB approved the Scoping Plan on December 11, 2008, which included GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among others (CARB 2008). Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since the Scoping Plan's approval.

The CARB approved the 2013 Scoping Plan update in May 2014. The update defined the CARB's climate change priorities for the next five years, set the groundwork to reach post-2020 statewide goals, and highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the state's longer term GHG reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2014).

On September 8, 2016, the governor signed Senate Bill (SB) 32 into law, extending the California Global Warming Solutions Act of 2006 by requiring the state to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, and implementation of recently adopted policies and legislation, such as SB 1383 and SB 100. The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of 6 MT of CO_2e by 2030 and 2 MT of CO_2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, sub-regional, or regional level), but not for specific individual projects because they include all emissions sectors in the state.

CARB published the Final 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan Update) in November 2022, as the third update to the initial plan that was adopted in 2008. The 2022 Scoping Plan Update is the most comprehensive and far-reaching Scoping Plan developed to date. It identifies a technologically feasible, cost-effective, and equity-focused path to achieve new targets for carbon neutrality by 2045 and to reduce anthropogenic GHG emissions to at least 85 percent below 1990 levels, while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan (CARB 2022c). The 2030 target is an interim but important stepping-stone along the critical path to the broader goal of deep decarbonization by 2045. The relatively longer path assessed in the 2022 Scoping Plan Update incorporates, coordinates, and leverages many existing and ongoing efforts to reduce GHGs and air pollution, while identifying new clean technologies and energy. Given the focus on carbon neutrality, the 2022 Scoping Plan Update also includes discussion for the first time of the natural and working lands sectors as sources for both sequestration and carbon storage, and as sources of emissions as a result of wildfires.

The 2022 Scoping Plan Update reflects existing and recent direction in the Governor's Executive Orders and State Statutes, which identify policies, strategies, and regulations in support of and implementation of the Scoping Plan. Among these include Executive Order B-55-18 and AB 1279 (the California Climate

Crisis Act), which identify the carbon neutrality and GHG reduction targets for 2045 incorporated into the Scoping Plan.

Senate Bill 375

The Sustainable Communities and Climate Protection Act of 2008 (SB 375), signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations (MPO) are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the MPO's Regional Transportation Plan (RTP). Qualified projects consistent with an approved SCS or Alternative Planning Strategy (categorized as "transit priority projects") can receive incentives to streamline CEQA processing.

On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Fresno Council of Governments (FCOG) was assigned targets of a 6 percent reduction in per capita GHG emissions from passenger vehicles by 2020 and a 13 percent reduction in per capita GHG emissions from passenger vehicles by 2035 (CARB 2018a). The FCOG is the regional planning agency for Fresno County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. FCOG most recently prepared the *2018 Regional Transportation Plan and Sustainable Communities Strategy* (2018 RTP/SCS) for the region. The plan quantified a 5 percent reduction by 2020 and a 10 percent reduction by 2035 (FCOG 2018). In 2018, CARB accepted FCOG's quantification of GHG reductions and its determination the SCS, if implemented, would achieve FCOG targets. Project consistency with the 2018 RTP/SCS would therefore support AB 32 and SB 32 GHG reduction goals.

The 2022 RTP/SCS (2022 RTP) was approved by the Fresno COG on July 28, 2022. The 2022 RTP/SCS comprehensively assess all forms of transportation available in Fresno County as well as travel and goods movement needed through 2046. Implementation of the goals set forth in the 2022 RTP will help achieve the state health standards and climate goals associated with transportation impacts.

Senate Bill 1383

Adopted in September 2016, SB 1383 (Lara, Chapter 395, Statutes of 2016) requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. SB 1383 requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

SB 1383 also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard (RPS) Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18

On September 10, 2018, former Governor Brown issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

17 California Code of Regulations Section 95350 et seq.

In 2010, CARB adopted the *Regulation for Reducing Sulfur Hexafluoride Emissions From Gas Insulated Switchgear* (Section 17 CCR Section 95350 et seq.). The purpose of this regulation is to achieve GHG emission reductions by reducing SF_6 emissions from gas-insulated switchgear. Owners of such switchgear must not exceed maximum allowable annual emissions rates, reduced each year until 2020, after which annual emissions must not exceed 1 percent. Owners must regularly inventory gas-insulated switchgear equipment, measure quantities of SF_6, and maintain records of these for at least three years. Additionally, by June 1 each year, owners also must submit an annual report to CARB's Executive Officer for emissions that occurred during the previous calendar year.

In December 2021, CARB adopted amendments to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear, to update the phase out of SF_6 in gas-insulated switchgear. The new phase out schedule begins in January 2025 with all switchgear needing to be SF_6 free by January 2033. Under this resolution, CARB has developed a timeline for phasing out SF_6 equipment in California and created incentives to encourage owners to replace SF_6 equipment. The California Office of Administrative Law approved this rulemaking in December 2021 and the Resolution went into effect January 1, 2022.

California Advanced Clean Trucks Program

In March 2021, CARB approved the Advanced Clean Trucks regulation, which requires manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. In addition, the regulation requires company and fleet reporting for large employers and fleet owners with 50 or more trucks. By 2045, all new trucks sold in California must be zero-emission. Implementation of this regulation would reduce consumption of nonrenewable transportation fuels as trucks transition to alternative fuel sources.

California Advanced Clean Fleets Regulation

In April 2023, CARB approved the Advanced Clean Fleets (ACF) regulation. The ACF regulation is part of California's strategy to accelerate the adoption of medium- and heavy-duty zero-emission vehicles (ZEV). It complements the Advanced Clean Trucks ACT regulation and aims to achieve public health, air quality, and climate goals. The ACF regulation applies to fleets performing drayage operations, those owned by State, local, and federal government agencies, and high priority fleets. The ACF regulation includes components such as a manufacturer sales mandate, drayage fleet registrations, requirements for drayage fleets to transition to zero-emission vehicles, and mandates for high priority and government fleets to purchase increasing percentages of ZEVs over time. The regulation provides flexibility and exemptions for cases where zero-emission trucks are not yet available. The ACF regulation is expected to significantly increase the number of ZEVs on California roads, leading to emissions reductions and health benefits. The Advanced Clean Trucks and ACF regulations together are expected to result in about 510,000, 1,350,000 and 1,690,000 ZEVs in California in 2035, 2045, and 2050, respectively.

Executive Order B-48-18 (Zero-Emission Vehicles)

On January 26, 2018, Governor Brown signed Executive Order B-48-18 requiring all State entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 electric vehicle (EV) charging stations by 2025. It specifies that 10,000 of the EV charging stations should be direct current fast chargers. This order also requires all State entities to continue to partner with local and regional governments to streamline the installation of ZEV infrastructure. The Governor's Office of Business and Economic Development is required to publish a Plug-in Charging Station Design Guidebook and update the 2015 Hydrogen Station Permitting Guidebook to aid in these efforts. All State entities are required to participate in updating the 2016 Zero-Emissions Vehicle Action Plan, along with the 2018 ZEV Action Plan Priorities Update, which includes and extends the 2016 ZEV Action Plan (Governor's Interagency Working Group on Zero-Emission Vehicles 2016, 2018), to help expand private investment in ZEV infrastructure with a focus on serving low-income and disadvantaged communities.

Executive Order N-79-20 (Zero Emissions Vehicles Sales)

Governor Gavin Newsom signed Executive Order N-79-20 in September 2020, which sets a statewide goal that 100 percent of all new passenger car and truck sales in the state will be zero-emissions by 2035. It also sets a goal that 100 percent of statewide new sales of medium- and heavy-duty vehicles will be zero emissions by 2045, where feasible, and for all new sales of drayage trucks to be zero emissions by 2035. Additionally, the Executive Order targets 100 percent of new off-road vehicle sales in the state to be zero emission by 2035. CARB is responsible for implementing the new vehicle sales regulation.

Senate Bill 1020

SB 1020 signed into law on September 16, 2022, requires renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035, 95 percent by 2040, and 100 percent by 2045. All State agencies facilities must be served by 100 percent renewable and zero-carbon resources by 2030. SB 1020 also requires the California Public Utilities Commission, CEC, and CARB to issue a joint progress report outlining the reliability of the electrical grid with a focus on summer reliability and challenges and gaps. Additionally, SB 1020 requires the California Public Utilities Commission to define energy affordability and use energy affordability metrics to develop protections, incentives, discounts, or new programs for residential customers facing hardships due to energy or gas bills.

Local Regulations

Fresno Council of Governments

As discussed above, the FCOG developed the 2022 RTP/SCS as the region's strategy to fulfill the requirements of SB 375. The 2022 RTP/SCS establishes a development pattern for the region that, when integrated with the transportation network and other policies and measures, would reduce GHG emissions from transportation (excluding goods movement). Specifically, the 2020 RTP/SCS is a financially feasible plan that achieves health standards for clean air and addresses climate goals set by the state. The 2022 RTP/SCS does not require local general plans, specific plans, or zoning be consistent with it but provides incentives for consistency for governments and developers. As discussed above under SB 375, FCOG the 2022-2045 RTP for was approved on July 28, 2022.

San Joaquin Valley Air Pollution Control District

In August 2008, the SJVAPCD's Governing Board adopted the *Climate Change Action Plan* (SJVAPCD 2008b). The *Climate Change Action Plan* directed the SJVAPCD Air Pollution Control Officer to develop guidance to assist lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change.

In 2009, the SJVAPCD adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* and the *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The guidance and policy rely on the use of performance-based standards, otherwise known as Best Performance Standards (BPS), to assess significance of project-specific GHG emissions on global climate change during the environmental review process, as required by CEQA (SJVAPCD 2009b; 2009c).

Use of BPS was a method for CEQA streamlining, but they were not required measures. Projects implementing BPS could be determined to have a less than cumulatively significant GHG impact. Another option was to demonstrate a 29 percent reduction in GHG emissions from business-as-usual (BAU) conditions to determine that a project would have a less than cumulatively significant impact and be consistent with AB 32 2020 targets. The guidance does not limit a lead agency's authority in establishing its own thresholds for determining the significance of project-related GHG impacts (SJVAPCD 2009c). Since SJVAPCD's recommended BPS method and 29 percent below BAU method were designed with 2020 GHG reduction targets in mind, compliance with these BPS or demonstration of 29 percent below BAU are no longer applicable to determining the significance of GHG impacts for projects developed after 2020.

Fresno County General Plan

There are no specific policies related to GHG emissions or climate change in the Fresno County 2000 General Plan. The General Plan includes energy efficiency goals and policies applicable to new and existing housing. These would not apply to the proposed Project.

3 Methodology and Significance Criteria

This section presents the methodology and significance criteria used for the analysis of construction and operational emissions for the proposed Project. Criteria pollutant and GHG emissions for proposed Project construction and operation were calculated using the most recent version of the web-based California Emissions Estimator Model (CalEEMod)[4]. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The calculation methodology and input data used in CalEEMod can be found in the CalEEMod User's Guide Appendices A, D, and E (California Air Pollution Control Officers Association 2022). The input data and construction and operation emission estimates for the proposed Project are discussed below and provided in Appendix A. Emissions calculations made outside CalEEMod, such as determination of SF_6 consumption, are included in Appendix B. CalEEMod output files for the proposed Project are included in Appendix C. The estimated emissions were then compared to applicable significance criteria.

3.1 Methodology

Construction Emissions

Construction site mobilization is currently anticipated to begin in the first quarter of 2025. Construction emissions of criteria air pollutants and GHG include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as worker and vendor trips. CalEEMod estimates construction emissions by multiplying the amount of time equipment is in operation by emission factors.

There are two BESS facilities being constructed; therefore, each was modeled separately, and the associated emissions were analyzed both separately and combined. Construction of the proposed Project was modeled based on the Applicant-provided construction data for both the Midway BESS and the Panoche BESS. The analysis accounted for the worst-case construction overlapping schedules.

Construction equipment was provided by the Applicant and estimated to operate 8 hours per day and used the CalEEMod defaults for horsepower and load factor. The offroad construction equipment was assumed to meet Tier 4 emissions standards based on information provided by the Applicant. Air compressors were assumed to be electrified. Worker and haul trips schedules were provided by the Applicant and were implemented into CalEEMod such that the daily trip expectations would be captured.

This analysis assumes that the proposed Project would comply with all applicable regulatory standards. In particular, the proposed Project would comply with SJVACPD Rule 8021. Rule 8021 control measures for construction earthmoving activities were included in the model with the assumption that watering would occur twice a day.

[4] CalEEMod Version 2022.1.1.21 was the most recent version of the model available at the time of technical work commencement.

Detailed assumptions including schedule and phasing for each construction scenario is included in Appendix A.

Operational Emissions

In CalEEMod, operational sources of criteria pollutant and GHG emissions include area, energy, and mobile sources. Commercial operation is currently anticipated for the fourth quarter of 2025 with the first full year of operation was assumed to be 2026 based on the construction schedule. The facilities were modeled as refrigerated warehouses with square footage based on the size and number of containers to estimate the energy requirements for maintaining stable temperature for optimal battery effectiveness. CalEEMod defaults were used to estimate emissions from annual architectural coating and consumer products use for the project. Water usage was estimated at 750 gallons per day per facility for the first two operational years. There is no solid waste generation assumed as there is no manned facility. The project assumes that mobile source emissions will occur from travel by 2 workers up to twice per week for each facility. The project does not include stacks, cooling towers, fuels and materials handling processes or delivery and storage systems. Augmentation and upgrading of the BESS systems would not occur concurrently on the Midway BESS and Panoche BESS Project sites.

Project Decommissioning

At the end of the projects' useful life (anticipated to be 30-40 years), the BESS facilities would be decommissioned. Activities required for deconstruction of the on-site facilities would require similar types and levels of equipment as those used during the construction phase. Equipment is likely to have lower emissions due to cleaner equipment fleets available at the time of decommissioning. Therefore, decommissioning was not modeled separately and is conservatively assumed to be consistent with construction emissions estimates.

Methodology for Determining Health Risks

Health impacts associated with TACs are generally from long-term exposure. Typical sources of TACs include industrial processes such as petroleum refining operations, commercial operations such as gasoline stations and dry cleaners, and diesel exhaust. Health impacts from TAC emissions during the operational phase of the proposed Project could result from the use of on-site diesel equipment during proposed Project operation. In addition, the use of large-scale off-road diesel equipment during proposed Project construction may result in a short-term increase of TAC emissions. DPM would be the TAC emitted in the largest quantity during construction and is the primary contaminant of concern for the proposed Project.

However, emissions are relatively small in magnitude, temporary in nature (a combined project schedule of approximately one year) and are not expected to contribute to health risk. Additionally, the proposed Project is assumed to apply Tier 4 emission controls on offroad equipment or implement alternative fueled equipment where feasible, further reducing emissions of TACs.

CARB's Air Quality and Land Use Handbook: A Community Health Perspective (April 2005) recommends against siting sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day, and within 1,000 feet of industrial land uses such as warehouses and distribution centers with more than 100 truck trips per day. While these siting distances are not particular to construction activities, the primary source of TAC emissions from both freeways and construction equipment is DPM. Therefore, for this analysis it is assumed that projects within 1,000 feet of sensitive receptors have the potential to result in a significant impact.

No significant source of TAC emissions are expected during long-term operation of the proposed Project because there are not any expected stationary sources of TACs nor any routine haul truck trips. The nearest sensitive receptor is approximately 1,730 feet away. Dispersion of air pollutants to this distance would be expected to dissipate greatly, minimizing potential exposure to potential health risks. Thus, health risks were assessed qualitatively.

3.2 Significance Criteria

The significance criteria used to evaluate the proposed Project impacts to air quality are based on the recommendations provided in Appendix G of the *CEQA Guidelines* (14 CCR 15000 et seq.). For the purposes of this air quality analysis, a significant impact would occur if the proposed Project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the proposed Project region is nonattainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Annual Criteria Air Pollutant Emissions

Appendix G of the *CEQA Guidelines* (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to determine whether a project would have a significant impact on air quality. The SJVAPCD recommends the use of quantitative thresholds to determine the significance of temporary construction-related pollutant emissions and long-term operational-related pollutant emissions. These thresholds are shown in Table 5.

Table 5 SJVAPCD Air Quality Significance Thresholds

Pollutant	Operation Thresholds (Tons per Year)	Construction Thresholds (Tons Per Year)
NO_X	10	10
ROG[1]	10	10
PM_{10}	15	15
$PM_{2.5}$	15	15
SO_X	27	27
CO	100	100

[1] ROG are formed during combustion and evaporation of organic solvents. ROG are also referred to as VOC.
Source: San Joaquin Valley Air Pollution Control District 2015.a

Daily Criteria Air Pollutant Emissions

In addition to the annual SJVAPCD thresholds outlined above, SJVAPCD has published the *Ambient Air Quality Analysis Project Daily Emissions Assessment* guidance, which is summarized in Section 8.4.2, *Ambient Air Quality Screening Tools*, of the SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI)*, adopted in March 2015.

SJVAPCD recommends comparing project attributes with the following screening criteria as a first step to evaluating whether the project would result in the generation of CO concentrations that could substantially contribute to an exceedance of the significance thresholds. The project could result in a significant impact to localized CO concentrations if (SJVAPCD 2015a):

1. A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F
2. A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets at more one or more intersections in the project vicinity.

In addition to the criteria pollutant thresholds outlined above, SJVAPCD has published the *Ambient Air Quality Analysis Project Daily Emissions Assessment* guidance, which is summarized in Section 8.4.2, *Ambient Air Quality Screening Tools*, of the GAMAQI. The GAMAQI provides a screening threshold of 100 pounds per day of any of the following pollutants: NO_X, ROG, PM_{10}, $PM_{2.5}$, sulfur oxide (SO_X), and CO. The screening threshold was used to evaluate localized construction activities and operational activities separately. Per SJVAPCD's GAMAQI and Rule 9510 – Indirect Source Review, when assessing the significance of project-related impacts on local air quality, the impacts *may* be significant if on-site emissions from construction or operational activities exceed the 100 pounds per day screening level after implementation of all enforceable mitigation measures. The proposed Project would be subject to Rule 9510 because it would develop more than 9,000 square feet, which is the ambient air quality analysis screening level threshold for unconventional land use developments not identified as residential, commercial, or industrial (e.g., a solar facility).

If the screening criteria is exceeded for any pollutant, an ambient air quality assessment (AAQA) can be conducted following District Rule 2201 *AAQA Modeling*. An AAQA uses air dispersion modeling to determine if emission increases from a project's construction or operational activities would cause or contribute to a violation of the ambient air quality standards. If modeled concentrations combined with background concentrations would result in an exceedance of a NAAQS or CAAQS, then SJVAPCD Rule 2201 requires that the maximum modeled concentration of each pollutant be compared to its corresponding Significant Impact Level (SIL). If modeled concentrations do not exceed the SIL, then the project would not result in a violation of ambient air quality standards and mitigation for that pollutant is not required.

Health Risk

The SJVAPCD has also established thresholds for health effects from carcinogenic and non-carcinogenic air toxics. The SJVAPCD recommends a carcinogenic (cancer) risk threshold of 20 in a million. The Chronic Hazard Index (HIC) is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. The SJVAPCD recommends a HIC significance threshold of 1.0 and an acute hazard index (HIA) of 1.0. No short-term, acute relative exposure values are established and regulated for DPM.

Greenhouse Gases

The significance criteria used to evaluate the proposed Project impacts to GHG emissions are based on the recommendations provided in Appendix G of the *CEQA Guidelines* (14 CCR 15000 et seq.). For the purposes of the GHG analysis, a significant impact would occur if the proposed Project would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (*CEQA Guidelines*, Section 15064[h][1]).

Project-Level Significance Threshold

For future projects, the significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, consistency with a regional GHG reduction plan, or consistency with statewide regulations adopted to reduce GHG emissions. A project may be found to have a less than significant impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (14 CCR Section 15064[h][3]). According to the *CEQA Guidelines*, projects can tier from a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in that plan. The Association of Environmental Professionals considers this approach in its white paper, "Beyond Newhall and 2020," to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions (Association of Environmental Professionals 2016). However, the SJVAPCD's current GHG reduction strategy presented in the 2008 *Climate Change Action Plan* is based on AB 32 2020 emissions targets and does not address the SB 32 2030 emissions targets or AB 1279 2045 emissions targets. Because the GHG reduction plan does not specifically address the 2030 or 2045 targets and the project would become operational after 2020, tiering from the regional 2008 *Climate Change Action Plan* is not applicable.

Instead, the potential for the proposed Project to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHG was assessed by examining the proposed Project's consistency with the GHG reduction measures detailed in CARB's 2022 Climate Change Scoping Plan. Under the SJVAPCD's CEQA guidance for GHG, a project would not have a significant GHG impact if it is consistent with an applicable plan to reduce GHG emissions, and a CEQA compliant analysis was completed for the GHG reduction plan (SJVAPCD 2009b, 2015a). Project GHG emissions are quantified for informational purposes.

4 Impact Analysis

4.1 Project-Level Air Quality Impacts

Threshold 1:	Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Impact AQ-1 THE PROJECT WOULD NOT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE 2020 REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) DEMONSTRATION FOR THE 2015 8-HOUR OZONE STANDARD AND THE 2013 PLAN FOR THE REVOKED 1-HOUR OZONE STANDARD, 2007 PM_{10} MAINTENANCE PLAN AND REQUEST FOR RE-DESIGNATION, 2012 $PM_{2.5}$ PLAN, AND 2015 PLAN FOR THE 1997 $PM_{2.5}$ STANDARD WITH THE IMPLEMENTATION OF MITIGATION MEASURE AQ-1. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Air Quality Management Plan Consistency

Construction and operation of the proposed Project would result in emissions of criteria pollutants including ozone precursors (such as ROG and NO_X) and PM. The SJVAPCD has prepared several air quality attainment plans to achieve ozone and particulate matter standards, the most recent of which include the *2020 Reasonably Available Control Technology (RACT) Demonstration for the 2015 8-Hour Ozone Standard* and the *2013 Plan for the Revoked 1-Hour Ozone Standard, 2007 PM_{10} Maintenance Plan and Request for Re-designation, 2012 $PM_{2.5}$ Plan,* and *2015 Plan for the 1997 $PM_{2.5}$ Standard*. The SJVAB is in attainment for CO, SO_2, and Pb, and there are no attainment plans for those pollutants.

Per Section 7.12 of the *GAMAQI*, the SJVAPCD has determined that projects with emissions above the thresholds of significance for criteria pollutants would conflict with/obstruct implementation of the SJVAPCD's air quality plans (SJVAPCD 2015a). As discussed under Impact AQ-2, project construction and operation would not have significant impacts. Therefore, project emissions would not conflict with implementation of existing air quality plans at a local level. Impacts would be less than significant.

Threshold 2	Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

Impact AQ-2 PROJECT CONSTRUCTION AND OPERATION WOULD NOT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF A CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS IN NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction Impacts

Annual Criteria Air Pollutant Emissions

Construction of the proposed Project would require approximately 8 to 9 total months of construction activity for the Midway and Panoche BESS projects. Construction would involve several overlapping phases. Construction of the proposed Project would generate air pollutant emissions from entrained dust, off-road equipment uses, vehicle emissions, and architectural coatings. Off-site emissions would be generated by construction worker daily commute trips and heavy-duty diesel haul and vendor truck trips. Construction emissions would vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Table 6 shows the estimated annual construction emissions by construction phase and by year. Most PM emissions are fugitive emissions. As shown, construction emissions from both the Midway and Panoche BESS projects (individually and combined) would be less than the thresholds. Impacts would be less than significant.

Table 6 Annual Construction Emissions

Phase	Emissions (tons per year by phase)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Midway BESS						
2025	<1	1	5	<1	<1	<1
Panoche BESS						
2025	<1	1	6	<1	<1	<1
Total						
2025	<1	3	11	<1	<1	<1
Threshold	10	10	100	27	15	15
Exceed Threshold?	No	No	No	No	No	No

NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less.

Notes: Rounded values shown; columns may not total exactly. See Appendix B for calculations. Bold numbers indicate an exceedance of applicable thresholds.

The proposed Project would comply with SJVAPCD Rule 9510, Indirect Source Review, which requires large development projects to reduce exhaust emissions from construction equipment by 20 percent for NO_X and 45 percent for PM_{10} compared to the statewide average or demonstrate use of a clean fleet (such US EPA Tier 4 equipment). Because the proposed Project would use US EPA Tier 4 (or better) equipment, the project is consistent with Rule 9510, Indirect Source Review. Compliance with SJVAPCD Rule 9510 does not result in additional emissions reductions quantification for this environmental analysis because the proposed Project would use US EPA Tier 4 equipment, which is accounted for in this air quality modeling. Further, in addition to the Rule 9510 requirement, the proposed Project would comply with dust mitigation per Rule 8021 which would reduce dust emissions. Requirements of Rule 8021 are detailed in the Regional Setting above; the proposed Project's fugitive dust control plan would comply with all applicable measures required by SJVAPCD in Rule 8021.

Daily Criteria Air Pollutant Emissions

The SJVAB is a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. The current air quality in the SJVAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. proposed Projects that emit these pollutants or their precursors (i.e., ROG and NO_X for ozone) potentially contribute to poor air quality. Construction activities would exceed the SJVAPCD's recommended 100 pounds per day screening threshold during construction for CO, as shown in Table 7. The daily construction emissions calculations include maximum daily values from overlapping construction phases from both the Midway and Panoche BESS facilities.

Because daily emissions from proposed Project construction could exceed significance thresholds for CO, the proposed Project may contribute cumulatively to a net increase in criteria pollutants without mitigation. Impacts would be potentially significant. However, the NAAQS and CAAQS for CO, as presented above, are so much less than the regional background concentration of CO that the project would not contribute to an exceedance of the ambient air quality standards.[5] Therefore, the project would contribute to less than significant impacts with respect to daily emissions.

Table 7 Maximum Daily Construction Emissions

	Emissions (lbs/day) by year					
	ROG	NO_X	CO	SO_X	PM_{10}[1]	$PM_{2.5}$[1]
Midway BESS						
1. Access Road	<1	2	15	<1	<1	<1
2. Grading	1	10	47	<1	5	2
3. Install Foundations	1	11	39	<1	2	1
4. Set Modules, Inverters, Switchgear	1	11	33	<1	2	1
5. Electrical Wire Installation / Finish Grading	1	3	22	<1	1	<1
6. Commissioning & Testing	4	2	17	<1	1	<1
Panoche BESS						
7. Access Road	1	7	18	<1	1	0
8. Grading	1	9	41	<1	2	1
9. Install Foundations	1	12	45	<1	2	1
10. Set Modules, Inverters, Switchgear	1	12	45	<1	2	1
11. Electrical Wire Installation / Finish Grading	1	4	31	<1	1	<1
12. Commissioning & Testing	4	2	17	<1	1	<1
Overlapping Construction Activities						
Activities: 1,2,7,8	3	28	120	<1	9	3
Activities:2,3,8,9	5	43	171	<1	11	4
Activities:3,4,9,10	5	47	162	<1	7	3
Activities:4,5,10,11	4	30	131	<1	5	1
Activities:5,6,11,12	9	12	87	<1	3	0
Maximum Emissions						
Maximum Daily Emissions	9	47	171	<1	11	4
Threshold	100	100	100	100	100	100
Exceed Threshold?	No	No	**Yes**	No	No	No

[1]Includes compliance with Rule 8021 dust control measures, which accounts for watering.

Bold values indicate where thresholds are exceeded.

Lbs/day = pounds per day; NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less.

[5] According to US EPA monitoring data from the Fresno-Foundry monitoring site location, the maximum recorded 1-hour CO concentration was 3.48 ppm and the maximum recorded 8-hour CO concentration was 2.5 ppm. This is approximately 10% of the NAAQS as demonstrated in Table 2, so the Project would not produce enough emissions to cause an exceedance of the standards.

Operational Impacts

Annual and Daily Criteria Air Pollutants

The proposed Project is expected to only have two workers travel to the facility up to two times per week. The project assumes operational emissions associated with a light industrial land use type assuming CalEEMod defaults. The project would have occasional need for battery upgrades or augmentation. These emissions would be similar to the “Set Modules, Inverters, and Switchgear” construction phase. As a surrogate for battery augmentation and upgrades, these emissions were added to the operational emissions as a conservative estimate of emissions. Annual emissions are based on a 20 day or approximately ¼ of the initial construction schedule for each site. As shown in Table 8, operational emissions from the proposed Project would not exceed SJVAPCD annual thresholds for any criteria pollutant. Table 9 demonstrates that daily SJCAPCD would exceed CO thresholds with battery augmentation and upgrades occurring on both sites simultaneously. No diesel generators or other non-electric equipment would be used that result in emissions of criteria air pollutants. With simultaneous augmentation and upgrading of batteries occurring on both sites, Impacts would be less than significant.

Table 8 Estimated Annual Operational Emissions

	Emissions (tons/year)					
Source	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Midway BESS						
Area[1]	<1	<1	<1	<1	<1	<1
Energy	0	0	0	0	0	0
Mobile	<1	<1	<1	<1	<1	<1
Battery Augmentation & Upgrades	<1	<1	1	<1	<1	<1
Midway Total	<1	<1	2	<1	<1	<1
Panoche BESS						
Area[1]	<1	<1	<1	<1	<1	<1
Energy	0	0	0	0	0	0
Mobile	<1	<1	<1	<1	<1	<1
Battery Augmentation & Upgrades	<1	0	2	<1	<1	<1
Panoche Total	<1	0	2	<1	<1	<1
Total Midway + Panoche	<1	1	4	<1	<1	<1
Threshold	10	10	27	100	15	15
Exceed Threshold?	No	No	No	No	No	No

NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less; lbs/day = pounds per day.

[1]. Area source emissions are associated with emissions of consumer products used for cleaning and landscaping emissions, And are conservatively included for this analysis.

Totals may not add up due to rounding vehicles. See Appendix B for calculations.

Table 9 Estimated Daily Operational Emissions

Source	Emissions (lbs/day) ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Combined Total Daily Operations	3	23	80	<1	4	1
SJVAPCD Operational Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Exceed Threshold?	No	No	No	No	No	No

NO_X= Nitrous Oxides; ROG = Reactive Organic Gases; PM_{10} = Particulate matter with a diameter of 10 microns or less; $PM_{1.5}$ = Particulate Matter with a diameter of 2.5 microns or less; lbs/day = pounds per day.

Totals may not add up due to rounding vehicles. See Appendix B for calculations. Bold numbers indicate an exceedance of applicable thresholds.

Furthermore, energy storage systems, such as the proposed BESS, assist utilities like PG&E and the State of California in achieving criteria air pollutant emission reductions by providing the means of storing excess electricity (e.g., renewable solar energy) generated during off-peak hours for use during peak hours as an alternative to operating resources such as the peaker plant, which generates air quality emissions from fossil fuel combustion.[6] By expanding PG&E's access to energy storage systems, the project would be expected to increase the stability and reliability of the existing electrical grid, thereby reducing the need for additional electricity to be generated by fossil fuel power plants during peak hours. The energy conservation achieved by the project would reduce fossil fuel consumption, thereby reducing criteria air pollutant emissions from the electricity sector. Impacts would be less than significant.

Threshold 3:	Would the Project expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-3 CONSTRUCTION AND OPERATION OF THE PROJECT WOULD NOT RESULT IN EMISSIONS OF TACS SUFFICIENT TO EXCEED APPLICABLE HEALTH RISK CRITERIA. THE PROJECT WOULD NOT INCREASE CARBON MONOXIDE CONCENTRATIONS SUCH THAT IT WOULD CREATE CARBON MONOXIDE HOTSPOTS. HOWEVER, THE PROJECT MAY EXPOSE WORKERS AND NEARBY RECEPTORS TO VALLEY FEVER WITHOUT MITIGATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH IMPLEMENTATION OF MITIGATION.

Toxic Air Containments

Construction Health Risk Assessment

As described in Section 1.3, *Project Description*, proposed Project components would be constructed over a period of approximately 8 to 9 months. Construction of the proposed Project would require the use of heavy-duty construction equipment and diesel trucks which would emit DPM. However, the use of US EPA Tier 4 equipment would drastically reduce the emissions of DPM, a known carcinogen. CARB's Air Quality and Land Use Handbook: A Community Health Perspective (April 2005) recommends against siting sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day, and within 1,000 feet of industrial land uses such as warehouses and distribution centers with more than 100 truck trips per day. While these siting distances are not particular to construction activities, the primary source of TAC emissions from both

[6] Peaker plants are power plants that are operated only when demand for electricity is high (i.e., during times of peak demand). The Midway and Panoche peaker plants are powered by natural gas.

freeways and construction equipment is DPM. Therefore, for this analysis it is assumed that projects within 1,000 feet of sensitive receptors have a potential to result in a significant impact. The nearest sensitive receptor is approximately 1,730 feet away. Concentrations of air pollutants from construction emission sources to this distance would drop off rapidly as air dispersion occurs, minimizing potential exposure to potential health risks. The use of the Tier 4 equipment, the short-term nature of construction activities, and the relatively far distance of sensitive receptors would result in less than significant impacts.

Operation

As previously discussed, health impacts due to DPM are largely related to construction equipment exhaust. The two BESS projects are not a land use typically associated with high health risk. Operational activities throughout the defined project site are not expected to use diesel-fueled off-road equipment. There are not any stationary sources of TACs expected nor any routinely expected haul truck trips. Operational activities would, therefore, be less than significant.

CO Hotspots

A CO hotspot is a localized concentration of CO that is above a CO ambient air quality standard. Localized CO hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal one-hour standard of 35.0 parts per million (ppm) or the federal and state eight-hour standard of 9.0 ppm (SJVAPCD 2024).

The entire SJVAB is in conformance with state and federal carbon monoxide standards and no air quality monitoring stations report carbon monoxide levels in the SJVAPCD jurisdiction. Additionally, CARB no longer reports carbon monoxide concentrations anywhere in California. Based on the low background level of carbon monoxide in the SJVAB (indicated by the lack of monitoring at state or local levels), the low and the ever-improving emissions standards for new sources in accordance with state and federal regulations, and the fact that the project would result in approximately two worker visits up to twice per week, as estimated by the Applicant during operational and maintenance activities. The proposed Project would not cause the LOS on affected roadways to be reduced to LOS E or F and would not substantially worsen an existing LOS F roadway. Therefore, the project would not create new carbon monoxide hotspots. Additionally, as demonstrated under Impact AQ-2, CO emissions during construction and operation for the overall project, including mobile sources, would not exceed ambient air quality standards. Therefore, the project would not expose sensitive receptors to substantial carbon monoxide concentrations, and localized air quality impacts related to carbon monoxide hot spots would be less than significant.

Valley Fever

Construction activities that include ground disturbance can result in fugitive dust, which can cause fungus *Coccidioides* spores to become airborne if they are present in the soil. These spores can cause Valley Fever. Workers who disturb soil where fungal spores are found, whether by digging, operating earthmoving equipment, driving vehicles, or by working in dusty, wind-blown areas, are more likely to breathe in spores and become infected. It is not a contagious disease and secondary infections are rare. The eastern portion of the Study Area is located in western Fresno County where the risk is higher compared to other parts of the County (Fresno County 2023). Construction activities associated with the proposed Project would include ground-disturbing activities that could result in an increased potential for exposure of nearby residents and on-site workers to airborne spores, if they are present.

Compliance with dust control measured required by SJVAPCD Rule 8021 (as detailed in Table 3) would minimize personnel and public exposure to Valley Fever and reduce the potential risk of nearby resident and on-site worker exposure to Valley Fever. However, without additional controls, the impacts resulting from the proposed Project would still be potentially significant. Mitigation Measure AQ-1 is provided to ensure that personnel and public exposure to Valley Fever is minimized to the greatest extent feasible. Therefore, impacts would be less than significant with implementation of Mitigation Measures AQ-2.

Mitigation

AQ-1 Minimize Personnel and Public Exposure to Valley Fever

Prior to site preparation, grading activities, or ground disturbance, the Applicant shall prepare a Fugitive Dust Control Plan for the proposed Project. The Fugitive Dust Control Plan shall include the following at a minimum:

- Equipment, vehicles, and other items shall be cleaned thoroughly of dust before they are moved off-site to other work locations.
- Wherever possible, grading, and trenching work shall be phased so that earth-moving equipment works well ahead or down-wind of workers on the ground.
- The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.
- If a water truck runs out of water before dust is dampened sufficiently, ground workers exposed to dust are to leave the area until a full truck resumes water spraying.
- All heavy-duty earth-moving vehicles shall be closed-cab and equipped with a High Efficiency Particulate Arrestance (HEPA) filtered air system.
- N95 respirators shall be provided to onsite workers for the duration of the construction period.
- Workers shall receive training to recognize the symptoms of Valley Fever and shall be instructed to promptly report suspected symptoms of work-related Valley Fever to a supervisor. Evidence of training shall be provided to the Fresno County Planning and Community Development Department within 24 hours of the training session.
- A Valley Fever informational handout shall be provided to all on-site construction personnel. The handout shall provide, at a minimum, information regarding the symptoms, health effects, preventative measures, and treatment.

Significance After Mitigation.

Mitigation Measure AQ-1 would ensure that personnel and public exposure to Valley Fever is minimized to the greatest extent possible; therefore, impacts would be less than significant with mitigation.

Threshold 4:	Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impact AQ-4 THE PROJECT WOULD NOT GENERATE ODORS ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE DURING CONSTRUCTION OR OPERATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The State of California Health and Safety Code Sections 41700 and 41705 and SJVAPCD Rule 4102 prohibit emissions from any source whatsoever in such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to the public health or damage to property. An unreasonable odor discernible at the property line of the defined project area would be considered a significant odor impact. The proposed Project would generate oil and diesel fuel odors during construction from equipment use as well as odors related to asphalt paving. The odors would be limited to the construction period and would be intermittent and temporary. Furthermore, these odors would dissipate rapidly with distance from in-use construction equipment. With respect to operation, CARB's Air Quality and Land Use Handbook: A Community Health Perspective (2005) provides recommendations regarding the siting of new sensitive land uses near potential sources of odors (e.g., sewage treatment plants, landfills, recycling facilities, biomass operations, autobody shops, fiberglass manufacturing, and livestock operations). BESS site operations are not identified on this list and would not have odor sources during normal operations. Therefore, the proposed project would not generate objectionable odors affecting a substantial number of people, and impacts would be less than significant.

4.2 Cumulative Air Quality Impacts

The geographic scope for the cumulative air quality impact analysis is the SJVAB. Because the SJVAB is designated as non-attainment for the ozone, PM_{10}, and $PM_{2.5}$ NAAQS and CAAQS, there is an existing adverse cumulative effect in the SJVAB relative to these pollutants.

Based on SJVAPCD thresholds in the GAMAQI, a project would have a significant cumulative impact if it is inconsistent with the applicable adopted federal and state air quality plans. As discussed under Impacts AQ-1 and Impact AQ-2, the proposed Project could exceed SJVAPCD thresholds for NO_X and CO. Implementation of Mitigation Measure AQ-1 would reduce NO_X emission to below regulatory thresholds. Although CO hourly emissions exceed regional emissions thresholds, if concentrations were modeled they would not exceed the ambient air quality standards. So, CO impacts would be less than significant. Therefore, as discussed above under Impact AQ-1, the proposed Project would not conflict with or obstruct implementation of the SJVAPCD's air quality plan with mitigation, and the proposed Project's contribution to cumulative air quality impacts would be less than significant.

The SJVAPCD considers TAC emissions to be a localized issue. In general, TAC concentrations are typically highest near the emissions sources and decline with increased distance. CARB recommends distances that should be incorporated when siting new sources or sensitive receptors near a source of TACs. This generally ranges from 500 to 1,000 feet depending on the source category (CARB 2005). Therefore, in the absence of any specific guidance from the SJVAPCD, the potential cumulative impacts from TACs were analyzed based on a radius of 1,000 feet measured from the Study Area boundary. The proposed Project is not located within 1,000 feet of any existing or planned projects that would generate TACs affecting a substantial number of people. Therefore, cumulative health risk impacts would be less than significant, as demonstrated in Impact AQ-3.

As discussed under Impact AQ-3, construction and operation-related traffic is not anticipated to create a CO hotspot, as construction would be short-term and the nearest intersection is far from any sensitive receptor. Therefore, the proposed Project's contribution to cumulative impacts related to CO hotspots would be less than significant.

4.3 Project-Level Greenhouse Gas Impacts

Threshold 1:	Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
Threshold 2:	Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact GHG-1 CONSTRUCTION AND OPERATION OF THE PROJECTS WOULD DIRECTLY AND INDIRECTLY GENERATE GHG EMISSIONS. CONSTRUCTION AND OPERATION OF THE PROJECTS WOULD BE CONSISTENT WITH APPLICABLE PLANS, POLICIES, AND REGULATIONS ADOPTED FOR THE PURPOSE OF REDUCING GHG EMISSIONS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Emissions Quantifications

Construction and Decommissioning Emissions

Project-related construction emissions are confined to a relatively short period in relation to the overall life of the proposed Project; GHG emissions were quantified for informational purposes. Table 10 shows that proposed Project construction would result in a total of approximately 2,626 MT CO_2e for the 8-Month construction period. Emissions were then amortized over the lifetime of the proposed Project (i.e., 40 years). It is assumed that decommissioning GHG emissions would be similar to construction GHG emissions. In actuality, decommissioning emissions would be lower than construction emissions due to the reduced earthwork required and cleaner equipment available during decommissioning of the BESS. As shown in Table 10, amortized construction emissions would be 66 MT CO_2e per year.

Table 10 Estimated Construction GHG Emissions

Construction Phase	Project Emissions (MT CO_2e)
Midway BESS	
2025	1,217
Panoche BESS	
2025	1,408
Subtotal	**2,626**
Amortized (40 years)	**66**

MT = metric tons.

CO_2e = carbon dioxide equivalents.

Source: Appendix B.

Operational Emissions

The proposed Project would generate GHG emissions during operation from minimal area source, energy consumption and mobile emissions.[7] Operation-related GHG emissions were quantified for informational purposes and are shown in Table 11. As shown, the proposed Project would generate approximately 341 MT of CO_2e per year from operation of the BESS projects.

[7] Area sources for this project refer to consumer products (such as aerosol cleaners), and architectural coating (maintenance re-coating activities for battery storage).

Table 11 Annual GHG Emissions

Project Operations	Project Emissions (MT CO_2e)
Midway BESS	
Area	0.19
Energy	15
Mobile	7
Water	39
Waste	0
Refrig.	58
Battery Upgrade and Augmentation	119
Panoche BESS	
Mobile	0.10
Area	15
Energy	7
Water	39
Waste	0
Refrig.	30
Battery Upgrade and Augmentation	91
Subtotal	**210**
Amortized Construction	66
Amortized Deconstruction	66
Total	**341**

Note: Parenthetical notation represents negative numbers.

SF_6 = Sulphur hexafluoride; MT = Metric Tons; CO_2e = carbon dioxide equivalent.

Source: Appendix B.

The proposed Project would help address the limitations of the electric grid and the increasing demand for renewable energy by increasing storage capability which improves the reliability of the grid and makes it more resilient to disturbances and peaks in energy demand. As the use of renewable energy increases, the need for battery storage to maintain electrical supply during both peak demand and when the renewable systems are not generating electricity also increases. It is anticipated that the reduction in GHG emissions from non-renewable electricity generating facilities would more than offset the annual GHG emissions anticipated from the proposed Project, as more renewable energy facilities come online and non-renewable electricity generating facilities are taken offline. It is unknown how much growth in future demand would require the continuation of the use of the existing fossil fuel generation system even with the operation of energy storage systems. However, the project would eliminate the need to create new non-renewable energy generation sources to accommodate future energy demand. Therefore, the project is anticipated to result in a net benefit and overall reduction with respect to GHG emissions.

Plan Consistency

2022 Scoping Plan

The principal state GHG reduction plans and policies are AB 32, the California Global Warming Solutions Act of 2006, and the subsequent legislation, SB 32 and AB 1279. The goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. In 2022, the State passed AB 1279, which declares the State would achieve net-zero GHG emissions by 2045 and would reduce GHG emissions by 85 percent below 1990 levels by 2045. The latest iteration of the Scoping Plan is the 2022 Scoping Plan, which focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the state’s long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities. The 2022 Scoping Plan's strategies that apply to the proposed project include the following:

- Reducing fossil fuel use, energy demand and vehicle miles traveled (VMT);
- Building decarbonization; and
- Maximizing recycling and diversion from landfills

The proposed project would be consistent with these goals through the expected reduction of fossil fuel use by the implementation of the BESS storage facility that would store electrical energy for additional grid support during peak demand. In addition, the proposed building structures would not incorporate natural gas or propane, and the majority of the electrical needs would be offset by the project’s operations. The proposed project would be served by and work with PG&E to provide additional renewable energy through the BESS system installed onsite and would supplement PG&E’s requirement to increase its renewable energy procurement in accordance with SB 100 targets. Therefore, the proposed project would not conflict with the 2022 Scoping Plan and GHG impacts would be less than significant.

4.4 Cumulative Greenhouse Gas Impacts

The geographic scope for related projects considered in the cumulative impact analysis for GHG emissions is global because impacts of climate change are experienced on a global scale regardless of the location of GHG emission sources. As discussed in Section 8.9.1 of the *GAMAQI*, GHG emissions and climate change are, by definition, cumulative impacts. Thus, the issue of climate change involves an analysis of whether a project’s contribution towards an impact is cumulatively considerable. As discussed under Impact GHG-1, proposed Project impacts related to GHG emissions would be less than significant since the proposed Project would be consistent with the state plans for reducing GHG emissions. Therefore, the proposed Project’s contribution to cumulative GHG impacts would be less than significant.

5 References

California Air Pollution Control Officers Association. 2022. California Emissions Estimator Model User Guide: Version 2022.1. Prepared by ICF in collaboration with Sacramento Metropolitan Air Quality Management District, Fehr & Peers, STI, and Ramboll. April 2022. https://www.caleemod.com/documents/user-guide/CalEEMod_User_Guide_v2022.1.pdf (accessed January 2023).

California Air Resources Board (CARB). 2005. Air Quality and Land Use Handbook: A Community Health Perspective. http://www.aqmd.gov/docs/default-source/ceqa/handbook/california-air-resources-board-air-quality-and-land-use-handbook-a-community-health-perspective.pdf (accessed September 2023).

______. 2007. Resolution No. 07-103106. October 31, 2007.

______. 2008. Climate Change Scoping Plan. https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/document/adopted_scoping_plan.pdf (accessed September 2023).

______. 2014. First Update to the Climate Change Scoping Plan. May. https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf (accessed July 2021).

______. 2017. California's 2017 Climate Change Scoping Plan. December 14, 2017. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf (accessed July 2021).

______. 2018a. SB 375 Regional Plan Climate Targets. https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets (accessed September 2023).

______. 2018b. 2020 Business-as-Usual (BAU) Emissions Projection – 2014 Edition. Last modified: June 22, 2018. www.arb.ca.gov/cc/inventory/data/bau.htm (accessed October 2018).

______. 2022a. Inhalable Particulate Matter and Health (PM2.5 and PM10). https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health (accessed September 2023).

______. 2022b. Overview: Diesel Exhaust & Health. https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health (accessed September 2023).

______. 2022c. 2022 Scoping Plan for Achieving Carbon Neutrality. November 16, 2022. https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf (accessed September 2023).

______. 2023. iADAM: Air Quality Data Statistics Top 4 Summary. N.d. https://www.arb.ca.gov/adam/topfour/topfour1.php (accessed September 2023).

California Climate Change Center (CCCC). 2006. Climate Scenarios for California.

California Department of Public Health. 2021. Valley Fever Fact Sheet. Last Updated June 2021. https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ValleyFeverFactSheet.pdf (accessed June 2023).

______. 2023. Coccidioidomycosis in California Provisional Monthly Report January-April 2023. April. https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciinCAProvisionalMonthlyReport.pdf (accessed June 2023).

California Department of Food and Agriculture. 2020. "California Agricultural Production Statistics." https://www.cdfa.ca.gov/statistics/ (accessed July 2021).

California Department of Water Resources. 2018. Indicators of Climate Change in California. May 2018. https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf (accessed August 2021).

California Natural Resources Agency. 2009. 2009 California Climate Adaptation Strategy. March 2009. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf (accessed July 2021).

Fresno, County of. 2000. Fresno County General Plan Policy Document. October 3, 2000. https://www.fresnocountyca.gov/files/sharedassets/county/v/1/vision-files/files/18117-2000-general-plan-policy-document.pdf (accessed September 2023).

______. 2012. *County of Fresno Government Operations Greenhouse Gas Emissions Inventory, 2010 Baseline Year Narrative Report*. December 2012.

______. 2023. Public Health. https://www.fresnocountyca.gov/Departments/Public-Health (accessed September 2023).

Fresno Council of Governments (FCOG). 2018. Regional Transportation Plan Sustainable Communities Strategy 2018-2042. https://fresnocog.wpenginepowered.com/wp-content/uploads/2017/02/2018-RTP-Cover-Intro-table-of-contents-etc.Final-Draft.pdf (accessed September 2023).

Intergovernmental Panel on Climate Change (IPCC). 2018. Summary for Policymakers. In: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. https://www.ipcc.ch/sr15/ (accessed July 2021).

______. 2021a. Climate Change 2021 The Physical Science Basis. August. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf (accessed August 2021).

______. 2021b. The Earth's Energy Budget, Climate Feedbacks and Climate Sensitivity Supplementary Material. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07_SM.pdf (accessed September 2023).

______. 2023. Climate Change 2023 Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Core Writing Team, H. Lee and J. Romero (eds.), Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf (accessed September 2023).

Kirkland and Fierey. 1996. Coccidioidomycosis: A Reemerging Infectious Disease. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2626789/ (accessed June 2023).

Los Angeles County Health Department. 2013. Preventing Work-Related Coccidioidomycosis (Valley Fever). June. http://publichealth.lacounty.gov/acd/docs/ValleyFeverPreventionforWorkFlyer.pdf (accessed June 2023).

National Oceanic and Atmospheric Administration. 2020. "Global Climate Report for Annual 2019." State of the Climate. January 2020. https://www.ncdc.noaa.gov/sotc/global/201813 (accessed September 2023).

Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines - The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February. https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf (accessed August 2021).

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2004. Rule 8021 Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities. Adopted November 15, 2001, Amended August 19, 2004. www.valleyair.org/rules/currntrules/r8021.pdf (accessed July 2021).

______. 2007a. 2007 Ozone Plan. Adopted June 14, 2007. http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/2007_8HourOzone_CompletePlan.pdf (accessed July 2021).

______. 2007b. 2007 PM_{10} Maintenance Plan and Request for Redesignation. September. http://www.valleyair.org/Air_Quality_Plans/docs/Maintenance%20Plan10-25-07.pdf (accessed July 2021).

______. 2008a. 2018 $PM_{2.5}$ Plan. April. http://www.valleyair.org/Air_Quality_Plans/AQ_Final_Adopted_PM25_2008.htm (accessed July 2021).

______.2008b. Climate Change Action Plan. https://www.valleyair.org/Programs/CCAP/CAPP%20Staff%20Report%202008Nov12.pdf (accessed November 2008).

______. 2009a. 2009 Reasonably Available Control Technology (RACT) Demonstration for Ozone State Implementation Plans (SIP). April 16, 2009. http://valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf (accessed July 2021).

______. 2009b. Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA. December. http://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf (accessed July 2021).

______.2009c. Final Staff Report Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act. December. https://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf (accessed July 2021).

______. Procedure for Determining NO2 Monitor Background Values (Design Values) for use in Calculating NAAQS Compliance. http://www.valleyair.org/busind/pto/tox_resources/airqualitymonitoring.htm#modeling_guidance (accessed September 2023).

______. 2012. 2012 $PM_{2.5}$ Plan. Adopted December 20, 2012. http://www.valleyair.org/Air_Quality_Plans/PM25Plan2012/CompletedPlanbookmarked.pdf (accessed July 2021).

______. 2013a. 2013 Plan for the Revoked 1-Hour Ozone Standard. September 19, 2013. http://valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/AdoptedPlan.pdf (accessed July 2021).

______. 2013b. Rule 4702 Internal Combustion Engine. Adopted August 21, 2003, Amended November 14, 2013. https://www.valleyair.org/rules/currntrules/R4702_Clean.pdf (accessed August 2021).

______. 2014. 2014 Reasonably Available Control Technology (RACT) Demonstration for the 8-Hour Ozone State Implementation Plan (SIP). June 19, 2014. http://valleyair.org/Air_Quality_Plans/docs/2014-RACT-SIP.PDF (accessed July 2021).

______. 2015a. *Guide for Assessing and Mitigating Air Quality Impacts*, March 19, 2015. www.valleyair.org/transportation/GAMAQI_3-19-15.pdf (accessed July 2021).

______. 2015b. San Joaquin Valley Air Pollution Control District 2015 Annual Report, Indirect Source Review Program, Reporting Period: July 1, 2014 to June 30, 2015. December 17, 2015. www.valleyair.org/isr/Documents/2015-ISR-Annual-Report.pdf (accessed July 2021).

______. 2015c. 2015 Plan for the 1997 $PM_{2.5}$ Standard. Adopted April 2015. www.valleyair.org/Air_Quality_Plans/docs/PM25-2015/2015-PM2.5-Plan_Bookmarked.pdf (accessed July 2021).

______. 2015d. Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document Final Staff Report. http://valleyair.org/busind/pto/staff-report-5-28-15.pdf (accessed September 2023).

______. 2016. 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard. Adopted September 15, 2016. www.valleyair.org/Air_Quality_Plans/docs/PM25-2016/2016-Plan.pdf (accessed July 2021).

______. 2017. Rule 9510 (Indirect Source Review). December 15, 2005. Amended December 21, 2017, but not in effect until March 21, 2018. www.valleyair.org/rules/currntrules/r9510.pdf (accessed July 2021).

______. 2018. 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards. Adopted November 15, 2018. http://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/2018-Plan-for-the-1997-2006-and-2012-PM2.5-Standards.pdf (accessed July 2021).

______. 2019. PR 1924 Policy for District Rule 2201 AAQA Modeling. http://www.valleyair.org/policies_per/Policies/APR-1925.pdf (accessed September 2023).

______. 2020. 2020 Reasonably Available Control Technology (RACT) Demonstration for the 2015 8-Hour Ozone Standard. Adopted June 18, 2020. http://valleyair.org/Air_Quality_Plans/docs/2020-RACT-Demonstration.pdf (accessed July 2021).

______. 2022a. 2022 Plan for the 2015 8-Hour Ozone Standard. December 15, 2022. https://ww2.valleyair.org/media/q55posm0/0000-2022-plan-for-the-2015-8-hour-ozone-standard.pdf (accessed September 2023).

______. 2022b. Guidance for Air Dispersion Modeling. September 2022. http://www.valleyair.org/busind/pto/tox_resources/Modeling_Guidance.pdf (accessed September 2023).

______. 2023. Proposed 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard. May 16, 2023. https://www.valleyair.org/Workshops/postings/2023/06-15-23/maintenance-plan.pdf (accessed September 2023).

______. 2024. Ambient Air Quality Standards & Valley Attainment Status. https://ww2.valleyair.org/air-quality-information/ambient-air-quality-standards-valley-attainmnet-status/ (accessed January 2024).

Sierra Club v. EPA, 671 F.3d 955 *Sierra Club v. United States Environmental Protection Agency*, 671 F.3d 955 (9th Cir. 2012) https://www.courtlistener.com/opinion/621235/sierra-club-v-usepa/? (accessed September 2023).

United States Environmental Protection Agency (USEPA). 2008. Redesignation of the San Joaquin Valley SJVAB PM-10 Nonattainment Area to Attainment. Federal Register. November 12, 2008. www.federalregister.gov/documents/2008/11/12/E8-26500/approval-and-promulgation-of-implementation-plans-designation-of-areas-for-air-quality-planning (accessed September 2023).

______. 2013. Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, External Review Draft. https://www3.epa.gov/ttn/naaqs/standards/pb/data/010913_pb-draft-pa.pdf (accessed July 2021).

______. 2017. Revisions to the Guideline on Air Quality Models: Enhancements to the AERMOD Dispersion Modeling System and Incorporation of Approaches to Address Ozone and Fine Particulate Matter. January 2017. Vol. 82, No. 10. https://www.federalregister.gov/documents/2017/01/17/2016-31747/revisions-to-the-guideline-on-air-quality-models-enhancements-to-the-aermod-dispersion-modeling (accessed September 2023).

______. 2021a. “Criteria Air Pollutants.” https://www.epa.gov/criteria-air-pollutants (accessed July 2021).

______.2021b. Climate Change Indicators: Global Greenhouse Gas Emissions. https://www.epa.gov/climate-indicators/climate-change-indicators-global-greenhosue-gas-emissions (accessed July 2022).______. 2022. NAAQS Designations Process. https://www.epa.gov/criteria-air-pollutants/naaqs-designations-process#:~:text=If%20the%20air%20quality%20in%20a%20geographic%20area,meet%20the%20national%20standard%20are%20called%20nonattainment%20areas (accessed September 2023).

______. 2023a. “Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019.” Last updated: January 25, 2023. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019 (accessed September 2023).

______. 2023b. “Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act.” Last updated: April 4, 2023. https://www.epa.gov/climate-change/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a (accessed September 2023).

Appendix A

Assumptions

Midway BESS

Construction Assumptions

1. General Information

Land Use Scale	Project
Construction Start Date	1/1/2025
Operational Year	2026
Project Location	
CEC Zone	
County	Fresno
City	Unincorporated
TAZ	2529
Locational Context	Rural
Air Basin	San Joaquin Valley
Air District	San Joaquin Valley APCD
Gas Utility	Pacific Gas & Electric
Electric Utility	Pacific Gas & Electric

2. Land Use

Component	CalEEMod Type	Size	Size Units	Notes
BESS	Refrigerated Warehouse - No Rail	13.12	1000 sq ft	25 acres (clearing all vineyards for both projects modeled at 12.5 acres per project)
landscaping				9.515 acres

Container size	8	feet
	20	feet
	41	battery
	41	conversion
	160	sqft per container
	13,120	squre feet of building space

3. Construction Schedule

Est: Jan 2025 to Sept 2025 (data request)

Phase Name	CalEEMod Phase Type	Start Date	End Date	Days/Week	Total Days
Access Road	paving	1/1/2025	1/31/2025	6	27
Grading	Grading	1/1/2025	2/28/2025	6	51
Install Foundations	Building Construction	2/1/2025	3/31/2025	6	50
Set Modules, Inverters, Switchgear	Building Construction	3/1/2025	5/31/2025	6	79
Electrical Wire Installation / Finish Grading	Building Construction	4/1/2025	6/30/2025	6	78
Commissioning & Testing	Building Construction	6/1/2025	8/31/2025	6	78

Note: Project construction will begin in the first quarter of 2025 and end in the fourth quarter of 2025, with eight months of construction activities occurring in up to 9 months due to weather or other unintended delays.
The analysis uses the January 1, 2025 start date as a conservative emissions estimate.

Midway BESS

Construction Assumptions

4. Vehicle Trips

Phase	# of Workers	Worker Trips	Vendor Trips	Haul Trips
Source:	*CalEEMod Default*		*CalEEmod Defaults*	
Access Road		20		64
Grading		100		64
Install Foundations		100		60
Set Modules, Inverters, Switchgear		100		60
Electrical Wire Installation / Finish Grading		100		10
Commissioning & Testing		100		10

Notes:

All trips are expressed as total 1-way trips

All trips based on data request

Assuming CalEEMod defaults for vendors

5. Offroad Equipment

Refer to tab, *Offroad Equipment*

6. Haul Trip Calculations - ***Provided in data request***

7. Mitigation Measures

Activity	Frequency
Dust Control / Water Exposed Area	2

8. Import/Export

Import - aggregate and rock	4,000	cubic yeards
Export - soil (spread on lease area)	4,000	cubic yards

Panoche BESS

Construction Assumptions

1. General Information

Land Use Scale	Project
Construction Start Date	1/1/2025
Operational Year	2026
Project Location	Panoche Road
CEC Zone	5
County	Fresno
City	Unincorporated
TAZ	2529
Locational Context	Rural
Air Basin	San Joaquin Valley
Air District	San Joaquin Valley APCD
Gas Utility	Pacific Gas & Electric
Electric Utility	Pacific Gas & Electric

zz

2. Land Use

Component	CalEEMod Type	Size	Size Units	Notes
BESS	Refrigerated Warehouse - No Rail	6.72	1000 sq ft	25 acres (clearing all vineyards for both projects modeled at 12.5 acres per project)
				9.515 acres

Container size	8	feet
	20	feet
	21	battery
	21	conversion
	160	sqft per container
	6,720	squre feet of building space

3. Construction Schedule *Est: October 2024 to June 2025 (data request)*

Phase Name	CalEEMod Phase Type	Start Date	End Date	Days/Week	Total Days
Access Road	paving	1/1/2025	1/31/2025	6	27
Grading	Grading	1/1/2025	2/28/2025	6	51
Install Foundations	Building Construction	2/1/2025	3/31/2025	6	50
Set Modules, Inverters, Switchgear	Building Construction	3/1/2025	5/31/2025	6	79
Electrical Wire Installation / Finish Grading	Building Construction	4/1/2025	6/30/2025	6	78
Commissioning & Testing	Building Construction	6/1/2025	8/31/2025	6	78

Note: Project construction will begin in the first quarter of 2025 and end in the fourth quarter of 2025, with eight months of construction activities occurring in up to 9 months due to weather or other unintended delays. The analysis uses the January 1, 2025 start date as a conservative emissions estimate.

Panoche BESS

Construction Assumptions

4. Vehicle Trips

Phase	# of Workers	Worker Trips	Vendor Trips	Haul Trips
Source:	*CalEEMod Default*		*CalEEMod Default*	
Access Road		20		64
Grading		100		64
Install Foundations		100		60
Set Modules, Inverters, Switchgear		100		60
Electrical Wire Installation / Finish Grading		100		10
Commissioning & Testing		100		10

Notes:

All trips are expressed as total 1-way trips

All trips based on data request

Assuming CalEEMod defaults for vendors

5. Offroad Equipment

Refer to tab, *Offroad Equipment*

6. Haul Trip Calculations - ***Provided in data request***

7. Mitigation Measures

Activity	Frequency
Dust Control / Water Exposed Area	2
VOC Content?	

8. Import/Export

Import - aggregate and rock	0	cubic yeards
Export - soil (spread on lease area)	1,800	cubic yards

MIDWAY BESS

Equipment	Offsite Access Road Improvements (M 1)	Site Preparation/ Grading (with Detention Basin) (M 1-2)	Install Foundations & Equipment (M 2-3)	Set Modules, Inverters & Switchgear (M3-5)	Elec. Wire Install/Finish Grading (M 4-6)	Commissioning/Testing (M 6-8)
Aerial Lifts						
Backhoes	1 (2hrs)	1		1 (4hrs)	1 (1hr)	
Loader/Backhoe, Case 580, 95hp		1 (4hrs)	1 (4hrs)	1 (4hrs)	1 (2hrs)	
Bore/Drill Rigs			2			
Cement and Mortar Mixers						
Concrete/Industrial Saws						
Compactors	1 (4hrs)	1 (4hrs)	1		1 (2hrs)	1
Hand Vib Plate or Impact, 5hp		1	2	2	1 (2hrs)	
Air Compressors			1	1	1 (4hrs)	
Cranes, 100 ton				1		
Cranes, rubber tired, 20 ton, 125hp		1 (2hrs)	1	1	1 (4hrs)	
Crawler Tractors						
Crushing/Processing Equipment						
Dozers		1	1 (4hrs)			
Dumpers/Tenders						
Excavators						
Forklifts						
Generators						
Loaders, Front End						
Loaders, Rubber Tired		1	1 (4hrs)			
Motor Graders	1	2			1	
Off-Highway Tractors						
Off-Highway Trucks	1 (4hrs)	1	1	1	1 (4hrs)	1
Pavers						
Paving Equipment		1 (2hrs)				
Pickup Trucks	1	2	1	1	1	1
Pile Drivers						
Portable Elec Generators			1	1		
Pressure Washers						
Pumps						
Rollers						
Rough Terrain Forklifts, Grove Rt58D, 125hp			1	1 (4hrs)	1 (4hrs)	
Scraper						
Signal Boards						
Skid Steer Loaders						
Surfacing Equipment						
Sweepers/Scrubbers	1 (2hrs)	1 (2hrs)	1 (2hrs)	1 (2hrs)		
Tractors						
Welders			2	2	1	1 (2hrs)
Worker Trips (R/T, Peak)	10/day	50/day	50/day	50/day	50/day	50/day
Haul Truck Trips (R/T) Water** Fill Import	2/day	30/day 2/day	30/day	30/day	5/day	5/day

*Pile driver only needed if pile foundation option is selected instead of concrete pad foundation.

** Trucks at 30/day for Months 1-3, 5/day thereafter

***Assume use large capacity water trucks and fill onsite storage tanks to support average daily use of 5,000 gallons during construction as per

PANOCHE BESS

Equipment	Offsite Access Road Improvement (M 1)	Site Preparation Grading (with Detention Basin) (M 1-2)	Install Foundations & Equipment (M 2-3)	Set Modules, Inverters & Switchgear (M3-5)	Elec. Wire Install/Finish Grading (M 4-6)	Commissioning/Testing (M 6-8)
Aerial Lifts						
Backhoes	1	1	1		1	
Loader/Backhoe, Case 580, 95hp		1 (4hrs)	1 (4hrs)	1 (4hrs)	1 (2hrs)	
Bore/Drill Rigs			2			
Cement and Mortar Mixers						
Concrete/Industrial Saws						
Compactors	1	1	1			1
Hand Vib Plate or Impact, 5hp		1	2	2	1 (2hrs)	
Aie Compressors			1	1	1 (4hrs)	
Cranes				1 (6hrs)		
Cranes, rubber tired, 20 ton, 125hp		1 (2hrs)	1	1	1 (4hrs)	
Crawler Tractors						
Crushing/Processing Equipment						
Dozers			1	2	1	
Dumpers/Tenders						
Excavators						
Forklifts						
Generators						
Loaders, Front End						
Loaders, Rubber Tired		1	1 (4hrs)			
Motor Graders	1	2			1	
Off-Highway Tractors						
Off-Highway Trucks	1 (4hrs)	1	1	1	1 (4hrs)	1
Pavers						
Paving Equipment		1 (4hrs)				
Pickup Trucks	1	2	1	1	1	1
Pile Drivers						
Portable Elec Generators			1	1		
Pressure Washers						
Pumps						
Rollers						
Rough Terrain Forklifts, Grove Rt58D, 125hp			1	1 (4hrs)	1 (4hrs)	
Scraper						
Signal Boards						
Skid Steer Loaders						
Surfacing Equipment						
Sweepers/Scrubbers		1 (2hrs)	1 (2hrs)	1 (2hrs)		
Tractors						
Trenchers						
Welders			2	2	1	1 (2hrs)
Worker Trips (R/T, Peak)	10/day	50/day	50/day	50/day	50/day	50/day
Vendor Trips						
Haul Truck Trips (R/T) Water** Fill Import	30/day 2/day	30/day 2/day	30/day	30/day	5/day	5/day

*Pile driver only needed if pile foundation option is selected instead of concrete pad foundation.

** Trucks at 30/day for Months 1-3, 5/day thereafter

***Assume use large capacity water trucks and fill onsite storage tanks to support average daily use of 5,000 gallons during construction as per

Midway and Panoche BESS Project

Operational Assumptions

1. Mobile Sources

Vehicle Trips:	ADT		Trip Gen	
From data request: Assume 2 workers up to twice per week (i.e., negligible emissions)				
		4	trips per day	Medium duty trucks
		416	trips per year	
		40	miles per trip	based on CalEEMod defaults
		160	miles per day	
		16640	miles per year	
Vehicle Emissions:	Uses CalEEMod Defaults			
Vehicle Fleet Mix:	Uses CalEEMod Defaults			
Road Dust:	Uses CalEEMod Defaults		100% paved	

2. Area Sources

Hearths:	N/A
Consumer Products:	N/A
Architectural Coating:	SJVAPCD Rule 4601
Landscape Equipment:	CalEEMod default

3. Energy Use

No natural gas.

Default Kwh	Default kBTU	New Kwh	New kBTU
Default	0.00	0.00	0

Midway and Panoche BESS Project

Operational Assumptions

4. Water/Wastewater

Water:	750 gallons per day for 2 years	273750	gallons/year
Wastewater:	Uses CalEEMod Defaults		

Landscaping water needs conservatively estimated at up to 750 gallons per day for 2 years until landscaping is established. Actual needs will be determined once landscaping plan is prepared in accordance with forthcoming Solano County requirements based on CEQA analysis and Use Permit conditions.

5. Solid Waste

None

6. Off-Road Equiment

None Anticipated due to residential land use development.

7. Stationary Sources

Type	**Amount**	**Size (kW)**	EF
n/a			

8. Vegetation

None

9. SF_6

Midway:	No SF_6		
Panoche:	1 breaker	95	lbs of SF_6

Appendix B

Calculations

Midway BESS
Air Quality Emissions

Estimated Construction Air Pollutant Emissions (Midway) - Annual

	Estimated Construction Emissions (tons/year)					
	ROG	NOx	CO	SOx	PM10	PM2.5
1. Access Road	0.01	0.03	0.21	0.01	0.01	0.01
2. Grading	0.03	0.25	1.19	0.01	0.12	0.02
3. Install Foundations	0.03	0.28	0.98	0.01	0.05	0.02
4. Set Modules, Inverters, Switchgear	0.05	0.44	1.30	0.01	0.08	0.03
5. Electrical Wire Installation / Finish Grading	0.03	0.12	0.84	0.01	0.04	0.01
6. Commissioning & Testing	0.15	0.09	0.64	0.01	0.04	0.01
Total Annual	0.30	1.21	5.16	0.06	0.32	0.09
SJVAPCD Screening Thresholds	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Estimated Construction Air Pollutant Emissions (Midway) - Annual

	Estimated Construction Emissions (tons/year)					
	ROG	NOx	CO	SOx	PM10	PM2.5
1. Access Road	<1	<1	<1	<1	<1	<1
2. Grading	<1	<1	1	<1	<1	<1
3. Install Foundations	<1	<1	1	<1	<1	<1
4. Set Modules, Inverters, Switchgear	<1	<1	1	<1	<1	<1
5. Electrical Wire Installation / Finish Grading	<1	<1	1	<1	<1	<1
6. Commissioning & Testing	<1	<1	1	<1	<1	<1
Total Annual	<1	1	5	<1	<1	<1
SJVAPCD Screening Thresholds	10	10	100	27	15	15
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Estimated Construction Air Pollutant Emissions (for Report)

	Estimated Construction Emissions (tons/year)					
	ROG	NOx	CO	SOx	PM10	PM2.5
Midway 2025	<1	1	5	<1	<1	<1
Ponache 2025	<1	1	6	<1	<1	<1
Total 2025	<1	3	11	<1	<1	<1
SJVAPCD Screening Thresholds	10	10	100	27	15	15
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Panoche BESS
Air Quality Emissions

Estimated Construction Air Pollutant Emissions (Panoche) - Annual

	Estimated Construction Emissions (tons/year)					
	ROG	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
7. Access Road	0.01	0.10	0.24	0.01	0.03	0.02
8. Grading	0.03	0.23	1.03	0.01	0.05	0.02
9. Install Foundations	0.03	0.30	1.12	0.01	0.05	0.02
10. Set Modules, Inverters, Switchgear	0.06	0.48	1.74	0.01	0.08	0.03
11. Electrical Wire Installation / Finish Grading	0.04	0.15	1.17	0.01	0.04	0.01
12. Commissioning & Testing	0.15	0.09	0.64	0.01	0.04	0.01
Total Annual	0.32	1.35	5.94	0.06	0.27	0.10
SJVAPCD Screening Thresholds	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Estimated Construction Air Pollutant Emissions (Panoche) - Annual

	Estimated Construction Emissions (tons/year)					
	ROG	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
7. Access Road	<1	<1	<1	<1	<1	<1
8. Grading	<1	<1	1	<1	<1	<1
9. Install Foundations	<1	<1	1	<1	<1	<1
10. Set Modules, Inverters, Switchgear	<1	0	2	<1	<1	<1
11. Electrical Wire Installation / Finish Grading	<1	<1	1	<1	<1	<1
12. Commissioning & Testing	<1	<1	1	<1	<1	<1
Total Annual	<1	1	6	<1	<1	<1
SJVAPCD Screening Thresholds	10	10	100	27	15	15
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Midway BESS
Air Quality Emissions

Estimated Unmitigated Construction Air Pollutant Emissions (Midway) -Daily

	Estimated Construction Emissions (lbs/day)					
	ROG	NOx	CO	SOx	PM10	PM2.5
1. Access Road	0.35	1.98	15.38	0.03	0.24	0.11
2. Grading	1.31	9.94	46.76	0.10	4.92	2.04
3. Install Foundations	1.18	11.42	38.98	0.08	1.84	0.62
4. Set Modules, Inverters, Switchgear	1.16	11.10	33.45	0.07	1.83	0.61
5. Electrical Wire Installation / Finish Grading	0.79	3.17	22.13	0.04	0.80	0.25
6. Commissioning & Testing	3.70	2.38	17.03	0.03	0.79	0.24
Max Daily	3.70	11.42	46.76	0.10	4.92	2.04
SJVAPCD Screening Thresholds	100	100	100	100	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Panoche BESS
Air Quality Emissions

Estimated Unmitigated Construction Air Pollutant Emissions (Panoche) - Daily

	Estimated Construction Emissions (lbs/day)					
	ROG	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
7. Access Road	0.52	7.18	17.74	0.06	1.43	0.49
8. Grading	1.18	9.31	40.56	0.09	2.34	0.70
9. Install Foundations	1.27	11.91	44.58	0.09	1.86	0.64
10. Set Modules, Inverters, Switchgear	1.38	12.25	44.65	0.10	1.87	0.65
11. Electrical Wire Installation / Finish Grading	0.94	3.96	30.63	0.05	0.83	0.28
12. Commissioning & Testing	3.70	2.38	17.03	0.03	0.79	0.24
Max Daily	3.70	12.25	44.65	0.10	2.34	0.70
SJVAPCD Screening Thresholds	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Midway BESS
Air Quality Emissions

Estimated Unmitigated Construction Air Pollutant Emissions (for Report)

	Estimated Construction Emissions (lbs/day)					
	ROG	NOx	CO	SOx	PM10	PM2.5
Midway						
1. Access Road	<1	2	15	<1	<1	<1
2. Grading	1	10	47	<1	5	2
3. Install Foundations	1	11	39	<1	2	1
4. Set Modules, Inverters, Switchgear	1	11	33	<1	2	1
5. Electrical Wire Installation / Finish Grading	1	3	22	<1	1	<1
6. Commissioning & Testing	4	2	17	<1	1	<1
Panoche						
7. Access Road	1	7	18	<1	1	0
8. Grading	1	9	41	<1	2	1
9. Install Foundations	1	12	45	<1	2	1
10. Set Modules, Inverters, Switchgear	1	12	45	<1	2	1
11. Electrical Wire Installation / Finish Grading	1	4	31	<1	1	<1
12. Commissioning & Testing	4	2	17	<1	1	<1
Overlaps by Phase						
1,2,7,8	3	28	120	<1	9	3
2,3,8,9	5	43	171	<1	11	4
3,4,9,10	5	47	162	<1	7	3
4,5,10,11	4	30	131	<1	5	1
5,6,11,12	9	12	87	<1	3	0
Max Daily	9	47	171	<1	11	4
SJVAPCD Screening Thresholds	100	100	100	100	100	100
Threshold Exceeded?	**No**	**No**	**Yes**	**No**	**No**	**No**

Midway BESS
Air Quality Emissions

Estimated Operational Air Pollutant Emissions (Midway) - Annual

	Estimated Operational Emissions (tons/year)					
	ROG	NOx	CO	SOx	PM10	PM2.5
Area	0.06	0.01	0.28	0.01	0.01	0.01
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.01	0.01	0.10	0.01	0.03	0.01
Battery Augmentation & Upgrades	0.05	0.44	1.30	0.01	0.08	0.03
Total	**0.12**	**0.46**	**1.68**	**0.02**	**0.11**	**0.04**
SJVAPCD Screening Thresholds	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Estimated Operational Air Pollutant Emissions (For Report)

	Estimated Operational Emissions (tons/year)					
	ROG	NOx	CO	SOx	PM10	PM2.5
	Midway					
Area	<1	<1	<1	<1	<1	<1
Energy	0	0	0	0	0	0
Mobile	<1	<1	<1	<1	<1	<1
Battery Augmentation & Upgrades	<1	<1	1	<1	<1	<1
Total	<1	<1	2	<1	<1	<1
	Panoche					
Area	<1	<1	<1	<1	<1	<1
Energy	0	0	0	0	0	0
Mobile	<1	<1	<1	<1	<1	<1
Battery Augmentation & Upgrades	<1	0	2	<1	<1	<1
Total	<1	0	2	<1	<1	<1
Total Midway + Panoche	0.21	0.95	3.66	0.04	0.23	0.09
Total Midway + Panoche	<1	1	4	<1	<1	<1
SJVAPCD Screening Thresholds	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Panoche BESS
Air Quality Emissions

Estimated Operational Air Pollutant Emissions (Panoche) - Annual

	Estimated Operational Emissions					
	ROG	NOx	CO	SOx	PM10	PM2.5
Area	0.03	0.01	0.14	0.01	0.01	0.01
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.01	0.01	0.10	0.01	0.03	0.01
Battery Augmentation & Upgrades	0.06	0.48	1.74	0.01	0.08	0.03
Total	**0.10**	**0.50**	**1.98**	**0.02**	**0.12**	**0.05**
SJVAPCD Screening Thresholds	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Midway BESS
Air Quality Emissions

Estimated Operational Air Pollutant Emissions (Midway) - Daily

	Estimated Operational Emissions (lbs/day)					
	ROG	NOx	CO	SOx	PM10	PM2.5
Area	0.39	0.01	0.57	0.01	0.01	0.01
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.02	0.03	0.49	0.01	0.11	0.03
Battery Augmentation & Upgrades	1.16	11.10	33.45	0.07	1.83	0.61
Total	**1.57**	**11.14**	**34.51**	**0.08**	**1.95**	**0.65**
SJVAPCD Screening Thresholds	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Estimated Operational Air Pollutant Emissions (For Report)

	Estimated Operational Emissions (lbs/day)					
	ROG	NOx	CO	SOx	PM10	PM2.5
Combined Total Daily Operations	3.17	23.42	79.94	0.19	3.93	1.33
Combined Total Daily Operations	3	23	80	<1	4	1
SJVAPCD Screening Thresholds	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Panoche BESS
Air Quality Emissions

Estimated Operational Air Pollutant Emissions (Panoche) - Daily

	Estimated Operational Emissions (lbs/day)					
	ROG	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Area	0.20	0.01	0.29	0.01	0.01	0.01
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.02	0.03	0.49	0.01	0.11	0.03
Battery Augmentation & Upgrades	1.38	12.25	44.65	0.10	1.87	0.65
Total	**1.60**	**12.29**	**45.43**	**0.11**	**1.99**	**0.69**
SJVAPCD Screening Thresholds	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Midway Panoche BESS
Air Quality Emissions

Estimated Construction Air Pollutant Emissions (Midway) - Annual

Emission Source	Annual Emissions (MT CO_2e)	
	Midway	Panoche
Access Road	38	94
Grading	301	270
Install Foundations	237	260
Set Modules, Inverters, Switchgear	345	430
Electrical Wire Installation / Finish Grading	156	214
Commissioning & Testing	141	141
Total	1,217	1,408
Amortized Emissions		
40 years	30	35
Total	2,626	
Estimated Construction Air Pollutant Emis	66	

Operational Emissions

Emission Source	Annual Emissions (MT CO_2e)	
	Midway	Panoche
Area	0.19	0.10
Energy	15	15
Mobile	7	7
Water	39	39
Waste	0	0
Refrig (Non-SF6)	58	30
Total	119	91
Amortized Construction	30	35
Amortized Decommissioning	30	35
Total Operational Emissions Per Site	180	161
Total Operational Emissions	341	

Appendix C

CalEEMod Output

Midway BESS Custom Report

Table of Contents

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Midway BESS
Construction Start Date	1/1/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	21.4
Location	36.651171405601545, -120.57937881660182
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2525
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Refrigerated Warehouse-No Rail	13.1	1000sqft	12.5	13,120	10.0	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-1-A	Use Electric or Hybrid Powered Equipment

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.07	4.50	17.4	60.3	0.11	0.26	2.39	2.65	0.26	0.61	0.87	—	13,905	13,905	0.46	0.88	16.4	14,194
Mit.	1.95	4.42	13.9	55.6	0.10	0.25	2.39	2.64	0.25	0.61	0.86	—	13,852	13,852	0.46	0.88	16.4	14,140
% Reduced	6%	2%	20%	8%	—	5%	—	< 0.5%	5%	—	1%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.59	2.33	27.9	90.1	0.18	0.43	6.36	6.79	0.43	2.24	2.68	—	23,123	23,123	0.78	1.51	0.66	23,593
Mit.	2.49	2.23	22.5	85.7	0.18	0.42	6.36	6.78	0.42	2.24	2.66	—	22,891	22,891	0.77	1.51	0.66	23,360
% Reduced	4%	5%	19%	5%	2%	3%	—	< 0.5%	3%	—	< 0.5%	—	1%	1%	1%	< 0.5%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.97	1.52	8.16	30.3	0.06	0.14	1.55	1.69	0.14	0.48	0.62	—	7,304	7,304	0.25	0.44	3.46	7,444

Mit.	0.92	1.47	6.64	28.2	0.06	0.13	1.55	1.68	0.13	0.48	0.61	—	7,207	7,207	0.25	0.44	3.46	7,347
% Reduced	5%	3%	19%	7%	3%	4%	—	< 0.5%	4%	—	1%	—	1%	1%	2%	—	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.28	1.49	5.52	0.01	0.02	0.28	0.31	0.02	0.09	0.11	—	1,209	1,209	0.04	0.07	0.57	1,232
Mit.	0.17	0.27	1.21	5.15	0.01	0.02	0.28	0.31	0.02	0.09	0.11	—	1,193	1,193	0.04	0.07	0.57	1,216
% Reduced	5%	3%	19%	7%	3%	4%	—	< 0.5%	4%	—	1%	—	1%	1%	2%	< 0.5%	—	1%

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.07	4.50	17.4	60.3	0.11	0.26	2.39	2.65	0.26	0.61	0.87	—	13,905	13,905	0.46	0.88	16.4	14,194
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.59	2.33	27.9	90.1	0.18	0.43	6.36	6.79	0.43	2.24	2.68	—	23,123	23,123	0.78	1.51	0.66	23,593
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.97	1.52	8.16	30.3	0.06	0.14	1.55	1.69	0.14	0.48	0.62	—	7,304	7,304	0.25	0.44	3.46	7,444
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.18	0.28	1.49	5.52	0.01	0.02	0.28	0.31	0.02	0.09	0.11	—	1,209	1,209	0.04	0.07	0.57	1,232

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.95	4.42	13.9	55.6	0.10	0.25	2.39	2.64	0.25	0.61	0.86	—	13,852	13,852	0.46	0.88	16.4	14,140
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.49	2.23	22.5	85.7	0.18	0.42	6.36	6.78	0.42	2.24	2.66	—	22,891	22,891	0.77	1.51	0.66	23,360
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.92	1.47	6.64	28.2	0.06	0.13	1.55	1.68	0.13	0.48	0.61	—	7,207	7,207	0.25	0.44	3.46	7,347
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.17	0.27	1.21	5.15	0.01	0.02	0.28	0.31	0.02	0.09	0.11	—	1,193	1,193	0.04	0.07	0.57	1,216

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.12	0.41	0.03	1.07	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	0.00	482	482	0.05	0.01	350	836
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.02	0.31	0.04	0.32	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	0.00	466	466	0.05	0.01	350	819
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.35	0.01	0.38	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	0.00	366	366	0.05	0.01	350	719
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.06	< 0.005	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	60.6	60.6	0.01	< 0.005	57.9	119

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.03	0.49	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	157	157	< 0.005	< 0.005	0.45	158
Area	0.10	0.39	< 0.005	0.57	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.35
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	0.12	0.41	0.03	1.07	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	0.00	482	482	0.05	0.01	350	836
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.04	0.32	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	143	143	< 0.005	< 0.005	0.01	144
Area	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	0.02	0.31	0.04	0.32	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	0.00	466	466	0.05	0.01	350	819
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	< 0.005	0.01	0.10	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	41.8	41.8	< 0.005	< 0.005	0.06	42.1
Area	0.05	0.34	< 0.005	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.16	1.16	< 0.005	< 0.005	—	1.16
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233

Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	0.06	0.35	0.01	0.38	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	0.00	366	366	0.05	0.01	350	719
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	6.92	6.92	< 0.005	< 0.005	0.01	6.98
Area	0.01	0.06	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57.9	57.9
Total	0.01	0.06	< 0.005	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	60.6	60.6	0.01	< 0.005	57.9	119

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.03	0.49	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	157	157	< 0.005	< 0.005	0.45	158
Area	0.10	0.39	< 0.005	0.57	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.35
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	0.12	0.41	0.03	1.07	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	0.00	482	482	0.05	0.01	350	836
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.04	0.32	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	143	143	< 0.005	< 0.005	0.01	144

Area	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	0.02	0.31	0.04	0.32	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	0.00	466	466	0.05	0.01	350	819
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	< 0.005	0.01	0.10	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	41.8	41.8	< 0.005	< 0.005	0.06	42.1
Area	0.05	0.34	< 0.005	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.16	1.16	< 0.005	< 0.005	—	1.16
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	0.06	0.35	0.01	0.38	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	0.00	366	366	0.05	0.01	350	719
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	6.92	6.92	< 0.005	< 0.005	0.01	6.98
Area	0.01	0.06	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57.9	57.9
Total	0.01	0.06	< 0.005	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	60.6	60.6	0.01	< 0.005	57.9	119

3. Construction Emissions Details

3.1. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	0.73	3.94	42.4	0.07	0.14	—	0.14	0.14	—	0.14	—	7,711	7,711	0.31	0.06	—	7,738
Dust From Material Movement	—	—	—	—	—	—	2.97	2.97	—	1.36	1.36	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.10	0.55	5.92	0.01	0.02	—	0.02	0.02	—	0.02	—	1,077	1,077	0.04	0.01	—	1,081
Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.10	1.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	178	178	0.01	< 0.005	—	179
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	0.07	5.73	1.34	0.03	0.08	1.19	1.27	0.08	0.32	0.41	—	4,478	4,478	0.10	0.70	0.28	4,688
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.43	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	77.9	77.9	< 0.005	< 0.005	0.14	79.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.78	0.19	< 0.005	0.01	0.16	0.18	0.01	0.04	0.06	—	626	626	0.01	0.10	0.65	655
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.02	13.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.14	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	< 0.005	0.02	0.11	109

3.2. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	0.73	3.94	42.4	0.07	0.14	—	0.14	0.14	—	0.14	—	7,694	7,694	0.31	0.06	—	7,721
Dust From Material Movement	—	—	—	—	—	—	2.97	2.97	—	1.36	1.36	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.10	0.55	5.92	0.01	0.02	—	0.02	0.02	—	0.02	—	1,075	1,075	0.04	0.01	—	1,079
Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.10	1.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	178	178	0.01	< 0.005	—	179
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	0.07	5.73	1.34	0.03	0.08	1.19	1.27	0.08	0.32	0.41	—	4,478	4,478	0.10	0.70	0.28	4,688
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.43	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	77.9	77.9	< 0.005	< 0.005	0.14	79.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.78	0.19	< 0.005	0.01	0.16	0.18	0.01	0.04	0.06	—	626	626	0.01	0.10	0.65	655
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.02	13.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.14	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	< 0.005	0.02	0.11	109

3.3. Commissioning & Testing (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.30	2.62	14.9	0.03	0.06	—	0.06	0.06	—	0.06	—	2,880	2,880	0.12	0.02	—	2,889
Architectural Coatings	—	2.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	0.56	3.18	0.01	0.01	—	0.01	0.01	—	0.01	—	615	615	0.02	< 0.005	—	617
Architectural Coatings	—	0.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	102	102	< 0.005	< 0.005	—	102
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.84	0.21	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	699	699	0.02	0.11	1.70	734
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	119	119	< 0.005	0.01	0.21	121

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.16	157
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.7	19.7	< 0.005	< 0.005	0.03	20.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.7	24.7	< 0.005	< 0.005	0.03	25.9

3.4. Commissioning & Testing (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.25	1.31	13.1	0.02	0.05	—	0.05	0.05	—	0.05	—	2,664	2,664	0.11	0.02	—	2,673
Architectural Coatings	—	2.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.28	2.80	0.01	0.01	—	0.01	0.01	—	0.01	—	569	569	0.02	< 0.005	—	571
Architectural Coatings	—	0.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.51	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	94.3	94.3	< 0.005	< 0.005	—	94.6
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.84	0.21	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	699	699	0.02	0.11	1.70	734
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	119	119	< 0.005	0.01	0.21	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.16	157
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.7	19.7	< 0.005	< 0.005	0.03	20.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.7	24.7	< 0.005	< 0.005	0.03	25.9

3.5. Installation of Foundations & Equipment (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	0.71	8.99	39.0	0.05	0.12	—	0.12	0.12	—	0.12	—	5,659	5,659	0.23	0.05	—	5,678
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.10	1.23	5.35	0.01	0.02	—	0.02	0.02	—	0.02	—	775	775	0.03	0.01	—	778
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.22	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	128	128	0.01	< 0.005	—	129
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.16	0.07	5.37	1.26	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,198	4,198	0.09	0.65	0.26	4,395
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.42	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	76.3	76.3	< 0.005	< 0.005	0.13	77.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.72	0.17	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	575	575	0.01	0.09	0.60	602
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.13	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	95.2	95.2	< 0.005	0.01	0.10	99.7

3.6. Installation of Foundations & Equipment (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.61	5.78	34.7	0.05	0.11	—	0.11	0.11	—	0.11	—	5,443	5,443	0.22	0.04	—	5,462
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.79	4.75	0.01	0.02	—	0.02	0.02	—	0.02	—	746	746	0.03	0.01	—	748
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.14	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	124
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.16	0.07	5.37	1.26	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,198	4,198	0.09	0.65	0.26	4,395
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.42	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	76.3	76.3	< 0.005	< 0.005	0.13	77.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.72	0.17	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	575	575	0.01	0.09	0.60	602
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.13	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	95.2	95.2	< 0.005	0.01	0.10	99.7

3.7. Set Modules, Inverters, Switchgear (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.61	7.63	31.4	0.04	0.11	—	0.11	0.11	—	0.11	—	4,652	4,652	0.19	0.04	—	4,668
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.61	7.63	31.4	0.04	0.11	—	0.11	0.11	—	0.11	—	4,652	4,652	0.19	0.04	—	4,668
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.13	1.65	6.80	0.01	0.02	—	0.02	0.02	—	0.02	—	1,007	1,007	0.04	0.01	—	1,010
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.30	1.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	167	167	0.01	< 0.005	—	167
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	0.07	5.02	1.23	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,196	4,196	0.09	0.65	10.2	4,403

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.16	0.07	5.37	1.26	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,198	4,198	0.09	0.65	0.26	4,395
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	121	121	< 0.005	0.01	0.21	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.14	0.27	0.01	0.02	0.24	0.26	0.02	0.07	0.08	—	908	908	0.02	0.14	0.95	952
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.0	20.0	< 0.005	< 0.005	0.04	20.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.02	—	150	150	< 0.005	0.02	0.16	158

3.8. Set Modules, Inverters, Switchgear (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.54	5.46	28.5	0.04	0.10	—	0.10	0.10	—	0.10	—	4,652	4,652	0.19	0.04	—	4,668
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.54	0.54	5.46	28.5	0.04	0.10	—	0.10	0.10	—	0.10	—	4,652	4,652	0.19	0.04	—	4,668
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.12	1.18	6.17	0.01	0.02	—	0.02	0.02	—	0.02	—	1,007	1,007	0.04	0.01	—	1,010
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.22	1.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	167	167	0.01	< 0.005	—	167
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	0.07	5.02	1.23	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,196	4,196	0.09	0.65	10.2	4,403
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.16	0.07	5.37	1.26	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,198	4,198	0.09	0.65	0.26	4,395
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	121	121	< 0.005	0.01	0.21	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.04	0.02	1.14	0.27	0.01	0.02	0.24	0.26	0.02	0.07	0.08	—	908	908	0.02	0.14	0.95	952
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.0	20.0	< 0.005	< 0.005	0.04	20.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.02	—	150	150	< 0.005	0.02	0.16	158

3.9. Electrical Wire Installation / Finish Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.35	3.44	20.0	0.03	0.07	—	0.07	0.07	—	0.07	—	3,145	3,145	0.13	0.03	—	3,156
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.74	4.28	0.01	0.01	—	0.01	0.01	—	0.01	—	672	672	0.03	0.01	—	674
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.13	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	111	111	< 0.005	< 0.005	—	112
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.84	0.21	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	699	699	0.02	0.11	1.70	734
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	119	119	< 0.005	0.01	0.21	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.16	157
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.7	19.7	< 0.005	< 0.005	0.03	20.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.7	24.7	< 0.005	< 0.005	0.03	25.9

3.10. Electrical Wire Installation / Finish Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.31	2.10	18.2	0.03	0.06	—	0.06	0.06	—	0.06	—	3,091	3,091	0.13	0.03	—	3,102

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.07	0.45	3.89	0.01	0.01	—	0.01	0.01	—	0.01	—	661	661	0.03	0.01	—	663
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	109	109	< 0.005	< 0.005	—	110
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.84	0.21	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	699	699	0.02	0.11	1.70	734
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	119	119	< 0.005	0.01	0.21	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.16	157
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.7	19.7	< 0.005	< 0.005	0.03	20.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.7	24.7	< 0.005	< 0.005	0.03	25.9

3.11. Access Road (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.28	2.09	15.4	0.03	0.05	—	0.05	0.05	—	0.05	—	2,800	2,800	0.11	0.02	—	2,810
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	1.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	207	207	0.01	< 0.005	—	208
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	34.4
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.60	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	108	108	< 0.005	0.01	0.01	109
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.36	0.08	< 0.005	0.01	0.07	0.08	0.01	0.02	0.03	—	280	280	0.01	0.04	0.02	293
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.25	8.25	< 0.005	< 0.005	0.01	8.38
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.7	20.7	< 0.005	< 0.005	0.02	21.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.37	1.37	< 0.005	< 0.005	< 0.005	1.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.43	3.43	< 0.005	< 0.005	< 0.005	3.59

3.12. Access Road (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.26	1.57	14.7	0.02	0.05	—	0.05	0.05	—	0.05	—	2,692	2,692	0.11	0.02	—	2,702
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.12	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	199	199	0.01	< 0.005	—	200
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.0	33.0	< 0.005	< 0.005	—	33.1
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.60	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	108	108	< 0.005	0.01	0.01	109
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.36	0.08	< 0.005	0.01	0.07	0.08	0.01	0.02	0.03	—	280	280	0.01	0.04	0.02	293
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.25	8.25	< 0.005	< 0.005	0.01	8.38
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.7	20.7	< 0.005	< 0.005	0.02	21.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.37	1.37	< 0.005	< 0.005	< 0.005	1.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.43	3.43	< 0.005	< 0.005	< 0.005	3.59

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1

Total	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.4

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.10	0.09	< 0.005	0.57	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.35
Total	0.10	0.39	< 0.005	0.57	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.35
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Total	0.01	0.06	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.10	0.09	< 0.005	0.57	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.35
Total	0.10	0.39	< 0.005	0.57	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.35
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consum Products	—	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Total	0.01	0.06	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigera ted Warehou Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigera ted Warehou se-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigera ted Warehou se-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigera Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57.9	57.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57.9	57.9

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	350	350
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57.9	57.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57.9	57.9

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/1/2025	2/28/2025	6.00	51.0	—
Commissioning & Testing	Building Construction	6/1/2025	8/31/2025	6.00	78.0	—
Installation of Foundations & Equipment	Building Construction	2/1/2025	3/31/2025	6.00	50.0	—
Set Modules, Inverters, Switchgear	Building Construction	3/1/2025	5/31/2025	6.00	79.0	—
Electrical Wire Installation / Finish Grading	Building Construction	4/1/2025	6/30/2025	6.00	78.0	—
Access Road	Paving	1/1/2025	1/31/2025	6.00	27.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Plate Compactors	Diesel	Tier 4 Final	1.00	4.00	8.00	0.43
Grading	Graders	Diesel	Tier 4 Final	2.00	8.00	148	0.41
Grading	Off-Highway Trucks	Diesel	Tier 4 Final	3.00	8.00	376	0.38
Grading	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	36.0	0.46
Grading	Scrapers	Diesel	Average	0.00	8.00	423	0.48
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	95.0	0.36
Grading	Cranes	Diesel	Tier 4 Final	1.00	2.00	125	0.29
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	150	0.36
Grading	Paving Equipment	Diesel	Tier 4 Final	1.00	2.00	89.0	0.36
Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.00	8.00	5.00	0.43

Commissioning & Testing	Plate Compactors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.43
Commissioning & Testing	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Commissioning & Testing	Welders	Diesel	Tier 4 Final	1.00	2.00	50.0	0.45
Installation of Foundations & Equipment	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	95.0	0.37
Installation of Foundations & Equipment	Plate Compactors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.43
Installation of Foundations & Equipment	Cranes	Diesel	Tier 4 Final	1.00	8.00	125	0.29
Installation of Foundations & Equipment	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	4.00	367	0.40
Installation of Foundations & Equipment	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Installation of Foundations & Equipment	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	50.0	0.74
Installation of Foundations & Equipment	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	8.00	125	0.40
Installation of Foundations & Equipment	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	36.0	0.46
Installation of Foundations & Equipment	Welders	Diesel	Tier 4 Final	2.00	8.00	50.0	0.45
Installation of Foundations & Equipment	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.48

Installation of Foundations & Equipment	Other Construction Equipment	Diesel	Tier 4 Final	0.00	8.00	82.0	0.42
Installation of Foundations & Equipment	Bore/Drill Rigs	Diesel	Tier 4 Final	2.00	8.00	83.0	0.50
Installation of Foundations & Equipment	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	150	0.36
Installation of Foundations & Equipment	Other Construction Equipment	Diesel	Tier 4 Final	2.00	8.00	5.00	0.43
Set Modules, Inverters, Switchgear	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Set Modules, Inverters, Switchgear	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Set Modules, Inverters, Switchgear	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	50.0	0.74
Set Modules, Inverters, Switchgear	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	4.00	125	0.40
Set Modules, Inverters, Switchgear	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	50.0	0.46
Set Modules, Inverters, Switchgear	Welders	Diesel	Tier 4 Final	2.00	8.00	50.0	0.45
Set Modules, Inverters, Switchgear	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.48
Set Modules, Inverters, Switchgear	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	84.0	0.37
Set Modules, Inverters, Switchgear	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	95.0	0.37
Set Modules, Inverters, Switchgear	Cranes	Diesel	Tier 4 Final	1.00	8.00	125	0.29
Set Modules, Inverters, Switchgear	Other Construction Equipment	Diesel	Tier 4 Final	2.00	8.00	5.00	0.43

Electrical Wire Installation / Finish Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	1.00	84.0	0.37
Electrical Wire Installation / Finish Grading	Cranes	Diesel	Tier 4 Final	1.00	4.00	125	0.29
Electrical Wire Installation / Finish Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Electrical Wire Installation / Finish Grading	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	6.00	376	0.38
Electrical Wire Installation / Finish Grading	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	4.00	125	0.40
Electrical Wire Installation / Finish Grading	Welders	Diesel	Tier 4 Final	1.00	8.00	50.0	0.45
Electrical Wire Installation / Finish Grading	Air Compressors	Diesel	Tier 4 Final	1.00	4.00	50.0	0.48
Electrical Wire Installation / Finish Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	2.00	95.0	0.36
Electrical Wire Installation / Finish Grading	Plate Compactors	Diesel	Tier 4 Final	1.00	2.00	50.0	0.43
Electrical Wire Installation / Finish Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.00	2.00	5.00	0.43
Access Road	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	2.00	84.0	0.37
Access Road	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Access Road	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	6.00	376	0.38
Access Road	Plate Compactors	Diesel	Tier 4 Final	1.00	4.00	50.0	0.43

Access Road	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	50.0	0.46

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Plate Compactors	Electric	Average	1.00	4.00	8.00	0.43
Grading	Graders	Diesel	Tier 4 Final	2.00	8.00	148	0.41
Grading	Off-Highway Trucks	Diesel	Tier 4 Final	3.00	8.00	376	0.38
Grading	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	36.0	0.46
Grading	Scrapers	Diesel	Average	0.00	8.00	423	0.48
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	95.0	0.36
Grading	Cranes	Diesel	Tier 4 Final	1.00	2.00	125	0.29
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	150	0.36
Grading	Paving Equipment	Diesel	Tier 4 Final	1.00	2.00	89.0	0.36
Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.00	8.00	5.00	0.43
Commissioning & Testing	Plate Compactors	Electric	Average	1.00	8.00	50.0	0.43
Commissioning & Testing	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Commissioning & Testing	Welders	Electric	Average	1.00	2.00	50.0	0.45
Installation of Foundations & Equipment	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	95.0	0.37
Installation of Foundations & Equipment	Plate Compactors	Electric	Average	1.00	8.00	50.0	0.43

Installation of Foundations & Equipment	Cranes	Diesel	Tier 4 Final	1.00	8.00	125	0.29
Installation of Foundations & Equipment	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	4.00	367	0.40
Installation of Foundations & Equipment	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Installation of Foundations & Equipment	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	50.0	0.74
Installation of Foundations & Equipment	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	8.00	125	0.40
Installation of Foundations & Equipment	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	36.0	0.46
Installation of Foundations & Equipment	Welders	Electric	Average	2.00	8.00	50.0	0.45
Installation of Foundations & Equipment	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.48
Installation of Foundations & Equipment	Other Construction Equipment	Diesel	Tier 4 Final	0.00	8.00	82.0	0.42
Installation of Foundations & Equipment	Bore/Drill Rigs	Diesel	Tier 4 Final	2.00	8.00	83.0	0.50
Installation of Foundations & Equipment	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	150	0.36
Installation of Foundations & Equipment	Other Construction Equipment	Diesel	Tier 4 Final	2.00	8.00	5.00	0.43

Set Modules, Inverters, Switchgear	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Set Modules, Inverters, Switchgear	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Set Modules, Inverters, Switchgear	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	50.0	0.74
Set Modules, Inverters, Switchgear	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	4.00	125	0.40
Set Modules, Inverters, Switchgear	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	50.0	0.46
Set Modules, Inverters, Switchgear	Welders	Electric	Average	2.00	8.00	50.0	0.45
Set Modules, Inverters, Switchgear	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.48
Set Modules, Inverters, Switchgear	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	84.0	0.37
Set Modules, Inverters, Switchgear	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	95.0	0.37
Set Modules, Inverters, Switchgear	Cranes	Diesel	Tier 4 Final	1.00	8.00	125	0.29
Set Modules, Inverters, Switchgear	Other Construction Equipment	Diesel	Tier 4 Final	2.00	8.00	5.00	0.43
Electrical Wire Installation / Finish Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	1.00	84.0	0.37
Electrical Wire Installation / Finish Grading	Cranes	Diesel	Tier 4 Final	1.00	4.00	125	0.29
Electrical Wire Installation / Finish Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Electrical Wire Installation / Finish Grading	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	6.00	376	0.38

Electrical Wire Installation / Finish Grading	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	4.00	125	0.40
Electrical Wire Installation / Finish Grading	Welders	Electric	Average	1.00	8.00	50.0	0.45
Electrical Wire Installation / Finish Grading	Air Compressors	Diesel	Tier 4 Final	1.00	4.00	50.0	0.48
Electrical Wire Installation / Finish Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	2.00	95.0	0.36
Electrical Wire Installation / Finish Grading	Plate Compactors	Electric	Average	1.00	2.00	50.0	0.43
Electrical Wire Installation / Finish Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.00	2.00	5.00	0.43
Access Road	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	2.00	84.0	0.37
Access Road	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Access Road	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	6.00	376	0.38
Access Road	Plate Compactors	Electric	Average	1.00	4.00	50.0	0.43
Access Road	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	50.0	0.46

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	100	7.70	LDA,LDT1,LDT2
Grading	Vendor	0.00	4.00	HHDT,MHDT

Grading	Hauling	64.0	20.0	HHDT
Grading	Onsite truck	0.00	—	HHDT
Installation of Foundations & Equipment	—	—	—	—
Installation of Foundations & Equipment	Worker	100	7.70	LDA,LDT1,LDT2
Installation of Foundations & Equipment	Vendor	0.00	4.00	HHDT,MHDT
Installation of Foundations & Equipment	Hauling	60.0	20.0	HHDT
Installation of Foundations & Equipment	Onsite truck	0.00	—	HHDT
Set Modules, Inverters, Switchgear	—	—	—	—
Set Modules, Inverters, Switchgear	Worker	100	7.70	LDA,LDT1,LDT2
Set Modules, Inverters, Switchgear	Vendor	0.00	4.00	HHDT,MHDT
Set Modules, Inverters, Switchgear	Hauling	60.0	20.0	HHDT
Set Modules, Inverters, Switchgear	Onsite truck	0.00	—	HHDT
Electrical Wire Installation / Finish Grading	—	—	—	—
Electrical Wire Installation / Finish Grading	Worker	100	7.70	LDA,LDT1,LDT2
Electrical Wire Installation / Finish Grading	Vendor	0.00	4.00	HHDT,MHDT
Electrical Wire Installation / Finish Grading	Hauling	10.0	20.0	HHDT
Electrical Wire Installation / Finish Grading	Onsite truck	0.00	—	HHDT
Commissioning & Testing	—	—	—	—
Commissioning & Testing	Worker	100	7.70	LDA,LDT1,LDT2
Commissioning & Testing	Vendor	0.00	4.00	HHDT,MHDT
Commissioning & Testing	Hauling	10.0	20.0	HHDT

Commissioning & Testing	Onsite truck	0.00	—	HHDT
Access Road	—	—	—	—
Access Road	Worker	20.0	7.70	LDA,LDT1,LDT2
Access Road	Vendor	0.00	4.00	HHDT,MHDT
Access Road	Hauling	4.00	20.0	HHDT
Access Road	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	100	7.70	LDA,LDT1,LDT2
Grading	Vendor	0.00	4.00	HHDT,MHDT
Grading	Hauling	64.0	20.0	HHDT
Grading	Onsite truck	0.00	—	HHDT
Installation of Foundations & Equipment	—	—	—	—
Installation of Foundations & Equipment	Worker	100	7.70	LDA,LDT1,LDT2
Installation of Foundations & Equipment	Vendor	0.00	4.00	HHDT,MHDT
Installation of Foundations & Equipment	Hauling	60.0	20.0	HHDT
Installation of Foundations & Equipment	Onsite truck	0.00	—	HHDT
Set Modules, Inverters, Switchgear	—	—	—	—
Set Modules, Inverters, Switchgear	Worker	100	7.70	LDA,LDT1,LDT2
Set Modules, Inverters, Switchgear	Vendor	0.00	4.00	HHDT,MHDT
Set Modules, Inverters, Switchgear	Hauling	60.0	20.0	HHDT
Set Modules, Inverters, Switchgear	Onsite truck	0.00	—	HHDT

Electrical Wire Installation / Finish Grading	—	—	—	—
Electrical Wire Installation / Finish Grading	Worker	100	7.70	LDA,LDT1,LDT2
Electrical Wire Installation / Finish Grading	Vendor	0.00	4.00	HHDT,MHDT
Electrical Wire Installation / Finish Grading	Hauling	10.0	20.0	HHDT
Electrical Wire Installation / Finish Grading	Onsite truck	0.00	—	HHDT
Commissioning & Testing	—	—	—	—
Commissioning & Testing	Worker	100	7.70	LDA,LDT1,LDT2
Commissioning & Testing	Vendor	0.00	4.00	HHDT,MHDT
Commissioning & Testing	Hauling	10.0	20.0	HHDT
Commissioning & Testing	Onsite truck	0.00	—	HHDT
Access Road	—	—	—	—
Access Road	Worker	20.0	7.70	LDA,LDT1,LDT2
Access Road	Vendor	0.00	4.00	HHDT,MHDT
Access Road	Hauling	4.00	20.0	HHDT
Access Road	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Commissioning & Testing	0.00	0.00	75,000	25,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	4,000	4,000	25.5	0.00	—
Access Road	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Refrigerated Warehouse-No Rail	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	4.00	0.00	0.00	416	160	0.00	0.00	16,640

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	4.00	0.00	0.00	416	160	0.00	0.00	16,640

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	19,680	6,560	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	165,044	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	165,044	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	0.00	273,750

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	0.00	273,750

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)

Refrigerated Warehouse-No Rail	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

8. User Changes to Default Data

Screen	Justification
Land Use	Based on site plan and data request
Construction: Construction Phases	Provided in data request.
Construction: Off-Road Equipment	Provided in data request to Rincon.
Operations: Vehicle Data	Assuming 2 workers up to twice per week for operational vehicle trips.
Construction: Dust From Material Movement	Based on Provided information
Construction: Trips and VMT	Based on provided information
Operations: Fleet Mix	Based on provided information
Operations: Energy Use	Based on provided information for NG, defaults for electricity
Operations: Water and Waste Water	based on provided information, no indoor water use, landscaping use 750 gallons per day for 2 years
Operations: Solid Waste	no solid waste generation based on provided information

Panoche BESS Custom Report

Table of Contents

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Panoche BESS
Construction Start Date	1/1/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	21.4
Location	36.651171405601545, -120.57937881660182
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2525
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Refrigerated Warehouse-No Rail	6.72	1000sqft	12.5	6,720	10.0	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-1-A	Use Electric or Hybrid Powered Equipment

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	2.33	4.57	15.8	75.3	0.14	0.33	2.39	2.71	0.33	0.61	0.94	—	17,847	17,847	0.62	0.91	16.4	18,149
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	2.60	2.35	24.2	88.6	0.18	0.43	3.80	4.22	0.43	0.93	1.35	—	22,943	22,943	0.78	1.50	0.66	23,400
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mit.	1.01	1.56	7.42	32.5	0.07	0.15	1.28	1.43	0.15	0.32	0.47	—	8,346	8,346	0.29	0.49	3.78	8,504
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	0.18	0.28	1.35	5.94	0.01	0.03	0.23	0.26	0.03	0.06	0.09	—	1,382	1,382	0.05	0.08	0.63	1,408
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.33	4.57	15.8	75.3	0.14	0.33	2.39	2.71	0.33	0.61	0.94	—	17,847	17,847	0.62	0.91	16.4	18,149

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.60	2.35	24.2	88.6	0.18	0.43	3.80	4.22	0.43	0.93	1.35	—	22,943	22,943	0.78	1.50	0.66	23,400
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.01	1.56	7.42	32.5	0.07	0.15	1.28	1.43	0.15	0.32	0.47	—	8,346	8,346	0.29	0.49	3.78	8,504
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.18	0.28	1.35	5.94	0.01	0.03	0.23	0.26	0.03	0.06	0.09	—	1,382	1,382	0.05	0.08	0.63	1,408

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.03	0.49	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	157	157	< 0.005	< 0.005	0.45	158
Area	0.05	0.20	< 0.005	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.20	1.20	< 0.005	< 0.005	—	1.21
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	179	179
Total	0.07	0.22	0.03	0.79	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	0.00	481	481	0.05	0.01	180	664

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.04	0.32	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	143	143	< 0.005	< 0.005	0.01	144
Area	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	179	179
Total	0.02	0.17	0.04	0.32	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	0.00	466	466	0.05	0.01	179	649
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	< 0.005	0.01	0.10	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	41.8	41.8	< 0.005	< 0.005	0.06	42.1
Area	0.03	0.18	< 0.005	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.59	0.59	< 0.005	< 0.005	—	0.59
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	92.2	92.2	0.01	< 0.005	—	93.1
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	179	179
Total	0.03	0.18	0.01	0.25	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	0.00	365	365	0.05	0.01	179	548
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	6.92	6.92	< 0.005	< 0.005	0.01	6.98
Area	< 0.005	0.03	< 0.005	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.10	0.10	< 0.005	< 0.005	—	0.10
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29.7	29.7
Total	0.01	0.03	< 0.005	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	60.5	60.5	0.01	< 0.005	29.7	90.7

3. Construction Emissions Details

3.1. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.2. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.60	3.31	36.2	0.06	0.12	—	0.12	0.12	—	0.12	—	6,391	6,391	0.26	0.05	—	6,413
Dust From Material Movement	—	—	—	—	—	—	0.41	0.41	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.46	5.06	0.01	0.02	—	0.02	0.02	—	0.02	—	893	893	0.04	0.01	—	896
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.08	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	148	148	0.01	< 0.005	—	148
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	0.07	5.73	1.34	0.03	0.08	1.19	1.27	0.08	0.32	0.41	—	4,478	4,478	0.10	0.70	0.28	4,688
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.43	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	77.9	77.9	< 0.005	< 0.005	0.14	79.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.78	0.19	< 0.005	0.01	0.16	0.18	0.01	0.04	0.06	—	626	626	0.01	0.10	0.65	655
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.02	13.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.14	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	< 0.005	0.02	0.11	109

3.3. Commissioning & Testing (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.4. Commissioning & Testing (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.25	1.31	13.1	0.02	0.05	—	0.05	0.05	—	0.05	—	2,664	2,664	0.11	0.02	—	2,673
Architectural Coatings	—	2.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.28	2.80	0.01	0.01	—	0.01	0.01	—	0.01	—	569	569	0.02	< 0.005	—	571

Architect Coatings	—	0.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.51	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	94.3	94.3	< 0.005	< 0.005	—	94.6
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.84	0.21	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	699	699	0.02	0.11	1.70	734
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	119	119	< 0.005	0.01	0.21	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.16	157
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.7	19.7	< 0.005	< 0.005	0.03	20.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.7	24.7	< 0.005	< 0.005	0.03	25.9

3.5. Installation of Foundations & Equipment (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.6. Installation of Foundations & Equipment (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.70	6.27	40.3	0.06	0.13	—	0.13	0.13	—	0.13	—	6,454	6,454	0.26	0.05	—	6,476
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.10	0.86	5.52	0.01	0.02	—	0.02	0.02	—	0.02	—	884	884	0.04	0.01	—	887
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	1.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	146	146	0.01	< 0.005	—	147
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.16	0.07	5.37	1.26	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,198	4,198	0.09	0.65	0.26	4,395
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.42	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	76.3	76.3	< 0.005	< 0.005	0.13	77.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.72	0.17	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	575	575	0.01	0.09	0.60	602

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.13	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	95.2	95.2	< 0.005	0.01	0.10	99.7

3.7. Set Modules, Inverters, Switchgear (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.8. Set Modules, Inverters, Switchgear (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	0.76	6.61	39.7	0.07	0.14	—	0.14	0.14	—	0.14	—	7,015	7,015	0.28	0.06	—	7,039
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	0.76	6.61	39.7	0.07	0.14	—	0.14	0.14	—	0.14	—	7,015	7,015	0.28	0.06	—	7,039
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.16	1.43	8.60	0.01	0.03	—	0.03	0.03	—	0.03	—	1,518	1,518	0.06	0.01	—	1,524
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.26	1.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	251	251	0.01	< 0.005	—	252
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	0.07	5.02	1.23	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,196	4,196	0.09	0.65	10.2	4,403
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.38	0.27	3.02	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	538	538	0.02	0.03	0.06	546
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.16	0.07	5.37	1.26	0.03	0.08	1.11	1.19	0.08	0.30	0.38	—	4,198	4,198	0.09	0.65	0.26	4,395
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	121	121	< 0.005	0.01	0.21	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.14	0.27	0.01	0.02	0.24	0.26	0.02	0.07	0.08	—	908	908	0.02	0.14	0.95	952
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.0	20.0	< 0.005	< 0.005	0.04	20.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.02	—	150	150	< 0.005	0.02	0.16	158

3.9. Electrical Wire Installation / Finish Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.10. Electrical Wire Installation / Finish Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.46	2.89	26.7	0.04	0.09	—	0.09	0.09	—	0.09	—	4,723	4,723	0.19	0.04	—	4,740
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.10	0.62	5.71	0.01	0.02	—	0.02	0.02	—	0.02	—	1,009	1,009	0.04	0.01	—	1,013
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	1.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	167	167	0.01	< 0.005	—	168
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.43	0.23	3.72	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	606	606	0.02	0.03	2.27	617
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.84	0.21	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	699	699	0.02	0.11	1.70	734
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	119	119	< 0.005	0.01	0.21	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.16	157
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.7	19.7	< 0.005	< 0.005	0.03	20.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.7	24.7	< 0.005	< 0.005	0.03	25.9

3.11. Access Road (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.12. Access Road (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.27	1.40	15.8	0.03	0.05	—	0.05	0.05	—	0.05	—	2,857	2,857	0.12	0.02	—	2,867
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.10	1.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	211	211	0.01	< 0.005	—	212
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	35.0	35.0	< 0.005	< 0.005	—	35.1
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.60	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	108	108	< 0.005	0.01	0.01	109
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	0.07	5.73	1.34	0.03	0.08	1.19	1.27	0.08	0.32	0.41	—	4,478	4,478	0.10	0.70	0.28	4,688
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.25	8.25	< 0.005	< 0.005	0.01	8.38
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.41	0.10	< 0.005	0.01	0.09	0.09	0.01	0.02	0.03	—	331	331	0.01	0.05	0.35	347
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.37	1.37	< 0.005	< 0.005	< 0.005	1.39

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.8	54.8	< 0.005	0.01	0.06	57.5

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	92.2	92.2	0.01	< 0.005	—	93.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigera Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.05	0.05	< 0.005	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.20	1.20	< 0.005	< 0.005	—	1.21
Total	0.05	0.20	< 0.005	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.20	1.20	< 0.005	< 0.005	—	1.21
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.10	0.10	< 0.005	< 0.005	—	0.10
Total	< 0.005	0.03	< 0.005	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.10	0.10	< 0.005	< 0.005	—	0.10

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233

Total	—	—	—	—	—	—	—	—	—	—	—	0.00	231	231	0.04	< 0.005	—	233
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	38.2	38.2	0.01	< 0.005	—	38.5

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	179	179
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	179	179
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	179	179
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	179	179
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29.7	29.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29.7	29.7

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/1/2025	2/28/2025	6.00	51.0	—
Commissioning & Testing	Building Construction	6/1/2025	8/31/2025	6.00	78.0	—
Installation of Foundations & Equipment	Building Construction	2/1/2025	3/31/2025	6.00	50.0	—
Set Modules, Inverters, Switchgear	Building Construction	3/1/2025	5/31/2025	6.00	79.0	—
Electrical Wire Installation / Finish Grading	Building Construction	4/1/2025	6/30/2025	6.00	78.0	—
Access Road	Paving	1/1/2025	1/31/2025	6.00	27.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Plate Compactors	Diesel	Tier 4 Final	1.00	8.00	8.00	0.43
Grading	Graders	Diesel	Tier 4 Final	2.00	8.00	148	0.41
Grading	Off-Highway Trucks	Diesel	Tier 4 Final	3.00	8.00	376	0.38
Grading	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	36.0	0.46
Grading	Scrapers	Diesel	Average	0.00	8.00	423	0.48
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	95.0	0.36
Grading	Cranes	Diesel	Tier 4 Final	1.00	2.00	125	0.29
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	0.00	8.00	367	0.40

Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	150	0.36
Grading	Paving Equipment	Diesel	Tier 4 Final	1.00	4.00	89.0	0.36
Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.00	8.00	5.00	0.43
Commissioning & Testing	Plate Compactors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.43
Commissioning & Testing	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Commissioning & Testing	Welders	Diesel	Tier 4 Final	1.00	2.00	50.0	0.45
Installation of Foundations & Equipment	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	95.0	0.37
Installation of Foundations & Equipment	Plate Compactors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.43
Installation of Foundations & Equipment	Cranes	Diesel	Tier 4 Final	1.00	8.00	125	0.29
Installation of Foundations & Equipment	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Installation of Foundations & Equipment	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Installation of Foundations & Equipment	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	50.0	0.74
Installation of Foundations & Equipment	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	8.00	125	0.40
Installation of Foundations & Equipment	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	36.0	0.46

Installation of Foundations & Equipment	Welders	Diesel	Tier 4 Final	2.00	8.00	50.0	0.45
Installation of Foundations & Equipment	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.48
Installation of Foundations & Equipment	Other Construction Equipment	Diesel	Tier 4 Final	0.00	8.00	82.0	0.42
Installation of Foundations & Equipment	Bore/Drill Rigs	Diesel	Tier 4 Final	2.00	8.00	83.0	0.50
Installation of Foundations & Equipment	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	150	0.36
Installation of Foundations & Equipment	Other Construction Equipment	Diesel	Tier 4 Final	2.00	8.00	5.00	0.43
Installation of Foundations & Equipment	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	95.0	0.36
Set Modules, Inverters, Switchgear	Cranes	Diesel	Tier 4 Final	1.00	6.00	367	0.29
Set Modules, Inverters, Switchgear	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Set Modules, Inverters, Switchgear	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	50.0	0.74
Set Modules, Inverters, Switchgear	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	4.00	125	0.40
Set Modules, Inverters, Switchgear	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	50.0	0.46
Set Modules, Inverters, Switchgear	Welders	Diesel	Tier 4 Final	2.00	8.00	50.0	0.45
Set Modules, Inverters, Switchgear	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.48

Set Modules, Inverters, Switchgear	Tractors/Loaders/Backh	Diesel	Tier 4 Final	0.00	4.00	84.0	0.37
Set Modules, Inverters, Switchgear	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	95.0	0.37
Set Modules, Inverters, Switchgear	Cranes	Diesel	Tier 4 Final	1.00	8.00	125	0.29
Set Modules, Inverters, Switchgear	Other Construction Equipment	Diesel	Tier 4 Final	2.00	8.00	5.00	0.43
Set Modules, Inverters, Switchgear	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	8.00	367	0.40
Electrical Wire Installation / Finish Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Electrical Wire Installation / Finish Grading	Cranes	Diesel	Tier 4 Final	1.00	4.00	125	0.29
Electrical Wire Installation / Finish Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Electrical Wire Installation / Finish Grading	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	6.00	376	0.38
Electrical Wire Installation / Finish Grading	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	4.00	125	0.40
Electrical Wire Installation / Finish Grading	Welders	Diesel	Tier 4 Final	1.00	8.00	50.0	0.45
Electrical Wire Installation / Finish Grading	Air Compressors	Diesel	Tier 4 Final	1.00	4.00	50.0	0.48
Electrical Wire Installation / Finish Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	2.00	95.0	0.36

Electrical Wire Installation / Finish Grading	Plate Compactors	Diesel	Tier 4 Final	0.00	8.00	50.0	0.43
Electrical Wire Installation / Finish Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.00	2.00	5.00	0.43
Electrical Wire Installation / Finish Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Access Road	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Access Road	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Access Road	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	6.00	376	0.38
Access Road	Plate Compactors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.43
Access Road	Sweepers/Scrubbers	Diesel	Tier 4 Final	0.00	2.00	50.0	0.46

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Plate Compactors	Electric	Average	1.00	8.00	8.00	0.43
Grading	Graders	Diesel	Tier 4 Final	2.00	8.00	148	0.41
Grading	Off-Highway Trucks	Diesel	Tier 4 Final	3.00	8.00	376	0.38
Grading	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	36.0	0.46
Grading	Scrapers	Diesel	Average	0.00	8.00	423	0.48
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	95.0	0.36
Grading	Cranes	Diesel	Tier 4 Final	1.00	2.00	125	0.29
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	0.00	8.00	367	0.40
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	150	0.36
Grading	Paving Equipment	Diesel	Tier 4 Final	1.00	4.00	89.0	0.36

Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.00	8.00	5.00	0.43
Commissioning & Testing	Plate Compactors	Electric	Average	1.00	8.00	50.0	0.43
Commissioning & Testing	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Commissioning & Testing	Welders	Electric	Average	1.00	2.00	50.0	0.45
Installation of Foundations & Equipment	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	95.0	0.37
Installation of Foundations & Equipment	Plate Compactors	Electric	Average	1.00	8.00	50.0	0.43
Installation of Foundations & Equipment	Cranes	Diesel	Tier 4 Final	1.00	8.00	125	0.29
Installation of Foundations & Equipment	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Installation of Foundations & Equipment	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Installation of Foundations & Equipment	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	50.0	0.74
Installation of Foundations & Equipment	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	8.00	125	0.40
Installation of Foundations & Equipment	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	36.0	0.46
Installation of Foundations & Equipment	Welders	Electric	Average	2.00	8.00	50.0	0.45

Installation of Foundations & Equipment	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.48
Installation of Foundations & Equipment	Other Construction Equipment	Diesel	Tier 4 Final	0.00	8.00	82.0	0.42
Installation of Foundations & Equipment	Bore/Drill Rigs	Diesel	Tier 4 Final	2.00	8.00	83.0	0.50
Installation of Foundations & Equipment	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	150	0.36
Installation of Foundations & Equipment	Other Construction Equipment	Diesel	Tier 4 Final	2.00	8.00	5.00	0.43
Installation of Foundations & Equipment	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	4.00	95.0	0.36
Set Modules, Inverters, Switchgear	Cranes	Diesel	Tier 4 Final	1.00	6.00	367	0.29
Set Modules, Inverters, Switchgear	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	8.00	376	0.38
Set Modules, Inverters, Switchgear	Generator Sets	Diesel	Tier 4 Final	1.00	8.00	50.0	0.74
Set Modules, Inverters, Switchgear	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	4.00	125	0.40
Set Modules, Inverters, Switchgear	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.00	2.00	50.0	0.46
Set Modules, Inverters, Switchgear	Welders	Electric	Average	2.00	8.00	50.0	0.45
Set Modules, Inverters, Switchgear	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	50.0	0.48
Set Modules, Inverters, Switchgear	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	0.00	4.00	84.0	0.37

Set Modules, Inverters, Switchgear	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	95.0	0.37
Set Modules, Inverters, Switchgear	Cranes	Diesel	Tier 4 Final	1.00	8.00	125	0.29
Set Modules, Inverters, Switchgear	Other Construction Equipment	Diesel	Tier 4 Final	2.00	8.00	5.00	0.43
Set Modules, Inverters, Switchgear	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	8.00	367	0.40
Electrical Wire Installation / Finish Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Electrical Wire Installation / Finish Grading	Cranes	Diesel	Tier 4 Final	1.00	4.00	125	0.29
Electrical Wire Installation / Finish Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Electrical Wire Installation / Finish Grading	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	6.00	376	0.38
Electrical Wire Installation / Finish Grading	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	4.00	125	0.40
Electrical Wire Installation / Finish Grading	Welders	Electric	Average	1.00	8.00	50.0	0.45
Electrical Wire Installation / Finish Grading	Air Compressors	Diesel	Tier 4 Final	1.00	4.00	50.0	0.48
Electrical Wire Installation / Finish Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	2.00	95.0	0.36
Electrical Wire Installation / Finish Grading	Plate Compactors	Electric	Average	1.00	8.00	50.0	0.43

Electrical Wire Installation / Finish Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.00	2.00	5.00	0.43
Electrical Wire Installation / Finish Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Access Road	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Access Road	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Access Road	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	6.00	376	0.38
Access Road	Plate Compactors	Electric	Average	1.00	8.00	50.0	0.43
Access Road	Sweepers/Scrubbers	Diesel	Tier 4 Final	0.00	2.00	50.0	0.46

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	100	7.70	LDA,LDT1,LDT2
Grading	Vendor	0.00	4.00	HHDT,MHDT
Grading	Hauling	64.0	20.0	HHDT
Grading	Onsite truck	0.00	—	HHDT
Installation of Foundations & Equipment	—	—	—	—
Installation of Foundations & Equipment	Worker	100	7.70	LDA,LDT1,LDT2
Installation of Foundations & Equipment	Vendor	0.00	4.00	HHDT,MHDT
Installation of Foundations & Equipment	Hauling	60.0	20.0	HHDT

Installation of Foundations & Equipment	Onsite truck	0.00	—	HHDT
Set Modules, Inverters, Switchgear	—	—	—	—
Set Modules, Inverters, Switchgear	Worker	100	7.70	LDA,LDT1,LDT2
Set Modules, Inverters, Switchgear	Vendor	0.00	4.00	HHDT,MHDT
Set Modules, Inverters, Switchgear	Hauling	60.0	20.0	HHDT
Set Modules, Inverters, Switchgear	Onsite truck	0.00	—	HHDT
Electrical Wire Installation / Finish Grading	—	—	—	—
Electrical Wire Installation / Finish Grading	Worker	100	7.70	LDA,LDT1,LDT2
Electrical Wire Installation / Finish Grading	Vendor	0.00	4.00	HHDT,MHDT
Electrical Wire Installation / Finish Grading	Hauling	10.0	20.0	HHDT
Electrical Wire Installation / Finish Grading	Onsite truck	0.00	—	HHDT
Commissioning & Testing	—	—	—	—
Commissioning & Testing	Worker	100	7.70	LDA,LDT1,LDT2
Commissioning & Testing	Vendor	0.00	4.00	HHDT,MHDT
Commissioning & Testing	Hauling	10.0	20.0	HHDT
Commissioning & Testing	Onsite truck	0.00	—	HHDT
Access Road	—	—	—	—
Access Road	Worker	20.0	7.70	LDA,LDT1,LDT2
Access Road	Vendor	0.00	4.00	HHDT,MHDT
Access Road	Hauling	64.0	20.0	HHDT
Access Road	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	100	7.70	LDA,LDT1,LDT2
Grading	Vendor	0.00	4.00	HHDT,MHDT
Grading	Hauling	64.0	20.0	HHDT
Grading	Onsite truck	0.00	—	HHDT
Installation of Foundations & Equipment	—	—	—	—
Installation of Foundations & Equipment	Worker	100	7.70	LDA,LDT1,LDT2
Installation of Foundations & Equipment	Vendor	0.00	4.00	HHDT,MHDT
Installation of Foundations & Equipment	Hauling	60.0	20.0	HHDT
Installation of Foundations & Equipment	Onsite truck	0.00	—	HHDT
Set Modules, Inverters, Switchgear	—	—	—	—
Set Modules, Inverters, Switchgear	Worker	100	7.70	LDA,LDT1,LDT2
Set Modules, Inverters, Switchgear	Vendor	0.00	4.00	HHDT,MHDT
Set Modules, Inverters, Switchgear	Hauling	60.0	20.0	HHDT
Set Modules, Inverters, Switchgear	Onsite truck	0.00	—	HHDT
Electrical Wire Installation / Finish Grading	—	—	—	—
Electrical Wire Installation / Finish Grading	Worker	100	7.70	LDA,LDT1,LDT2
Electrical Wire Installation / Finish Grading	Vendor	0.00	4.00	HHDT,MHDT
Electrical Wire Installation / Finish Grading	Hauling	10.0	20.0	HHDT
Electrical Wire Installation / Finish Grading	Onsite truck	0.00	—	HHDT

Commissioning & Testing	—	—	—	—
Commissioning & Testing	Worker	100	7.70	LDA,LDT1,LDT2
Commissioning & Testing	Vendor	0.00	4.00	HHDT,MHDT
Commissioning & Testing	Hauling	10.0	20.0	HHDT
Commissioning & Testing	Onsite truck	0.00	—	HHDT
Access Road	—	—	—	—
Access Road	Worker	20.0	7.70	LDA,LDT1,LDT2
Access Road	Vendor	0.00	4.00	HHDT,MHDT
Access Road	Hauling	64.0	20.0	HHDT
Access Road	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Commissioning & Testing	0.00	0.00	75,000	25,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	0.00	1,800	25.5	0.00	—
Access Road	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Refrigerated Warehouse-No Rail	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	4.00	0.00	0.00	416	160	0.00	0.00	16,640

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	4.00	0.00	0.00	416	160	0.00	0.00	16,640

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	10,080	3,360	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	165,044	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	165,044	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	0.00	273,750

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	0.00	273,750

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

8. User Changes to Default Data

Screen	Justification
Land Use	Based on site plan and data request
Construction: Construction Phases	Provided in data request.
Construction: Off-Road Equipment	Provided in data request to Rincon.
Operations: Vehicle Data	Assuming 2 workers up to twice per week for operational vehicle trips.
Construction: Dust From Material Movement	Based on Provided information
Construction: Trips and VMT	Based on provided information
Operations: Fleet Mix	Based on provided information
Operations: Energy Use	Based on provided information for NG, defaults for electricity
Operations: Water and Waste Water	based on provided information, no indoor water use, landscaping use 750 gallons per day for 2 years
Operations: Solid Waste	no solid waste generation based on provided information

Midway and Panoche Battery Energy Storage System (BESS) Projects

Noise and Vibration Study

prepared for

Midway BESS LLC
Panoche BESS LLC
4350 Executive Drive, Suite 320
San Diego, California 92121

prepared by

Rincon Consultants, Inc.
7080 North Whitney Avenue, Suite 101
Fresno, California 93720

March 2024

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Table of Contents

Tables

Figures

Appendices

1 Project Description and Impact Summary

1.1 Introduction

This study analyzes the potential noise and vibration impacts associated with the construction and operation of the Midway and Panoche Battery Energy Storage System (BESS) Projects in Fresno County, California. The purpose of this study is to analyze the noise and vibration levels related to both temporary construction activity and long-term operation of the Projects. Table 1 provides a summary of Project impacts.

Table 1 Summary of Impacts

Issue	Proposed Project's Level of Significance	Applicable Recommendations
Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less than significant impact (Construction) Less than significant impact (Operation)	None
Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	Less than significant impact (Construction) Less than significant impact (Operation)	None
For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No impact	None

1.2 Project Summary

Project Location

The proposed Midway and Panoche BESS Projects would be located generally northeast of Interstate 5 (I-5)/West Side Freeway, and just south of West Panoche Road in an unincorporated portion of northwestern Fresno County, California (Figure 1). The Projects would be located within the northern portions of an approximately 25-acre area (BESS Lease Area) for BESS development to be leased within a larger 91.33-acre parcel of primarily agricultural land on Assessor's Parcel Number (APN) 027-060-91S (Figure 2). The BESS Lease Area encompasses primarily irrigated agricultural land (vineyard) and is bound by agricultural land uses to the north, east, south, and west.

Project Description

The Midway BESS Project would include the development of a nominal 120-megawatt (MW) BESS within the overall BESS Lease Area and would be constructed, owned, and operated by Midway BESS LLC. The Panoche BESS Project would include the development of a nominal 57 MW BESS located adjacent to the Midway BESS within the overall BESS Lease Area and be constructed, owned, and operated by Panoche BESS LLC. Midway BESS LLC would lease the overall BESS Lease

Area, with Panoche BESS LLC subleasing land from Midway BESS LLC for the Panoche BESS portion of the site. The Projects would utilize a combined, temporary construction laydown yard along the eastern boundary of the BESS Lease Area. Figure 3 shows a preliminary site plan for both Projects.

Figure 1 Regional Location

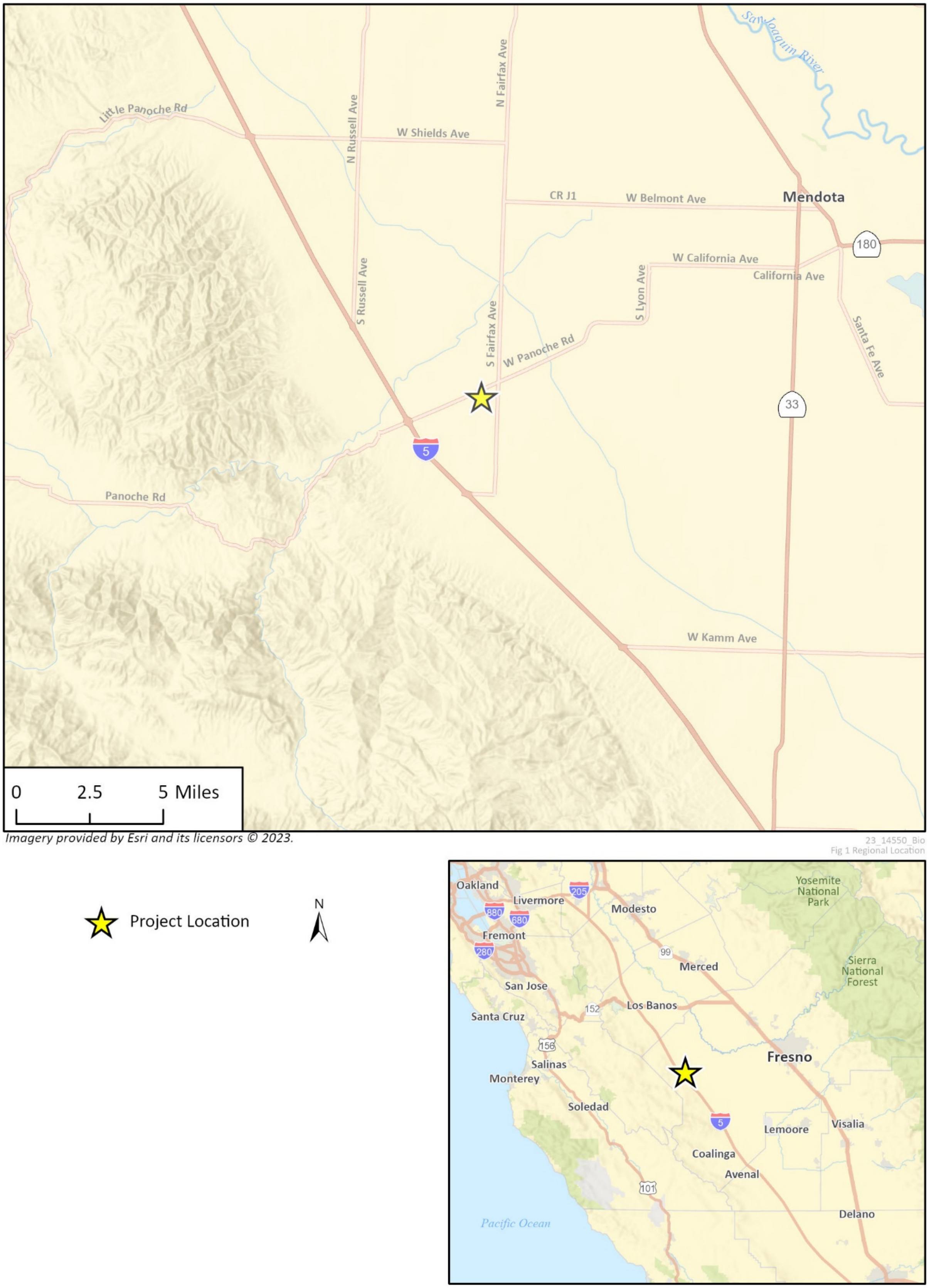
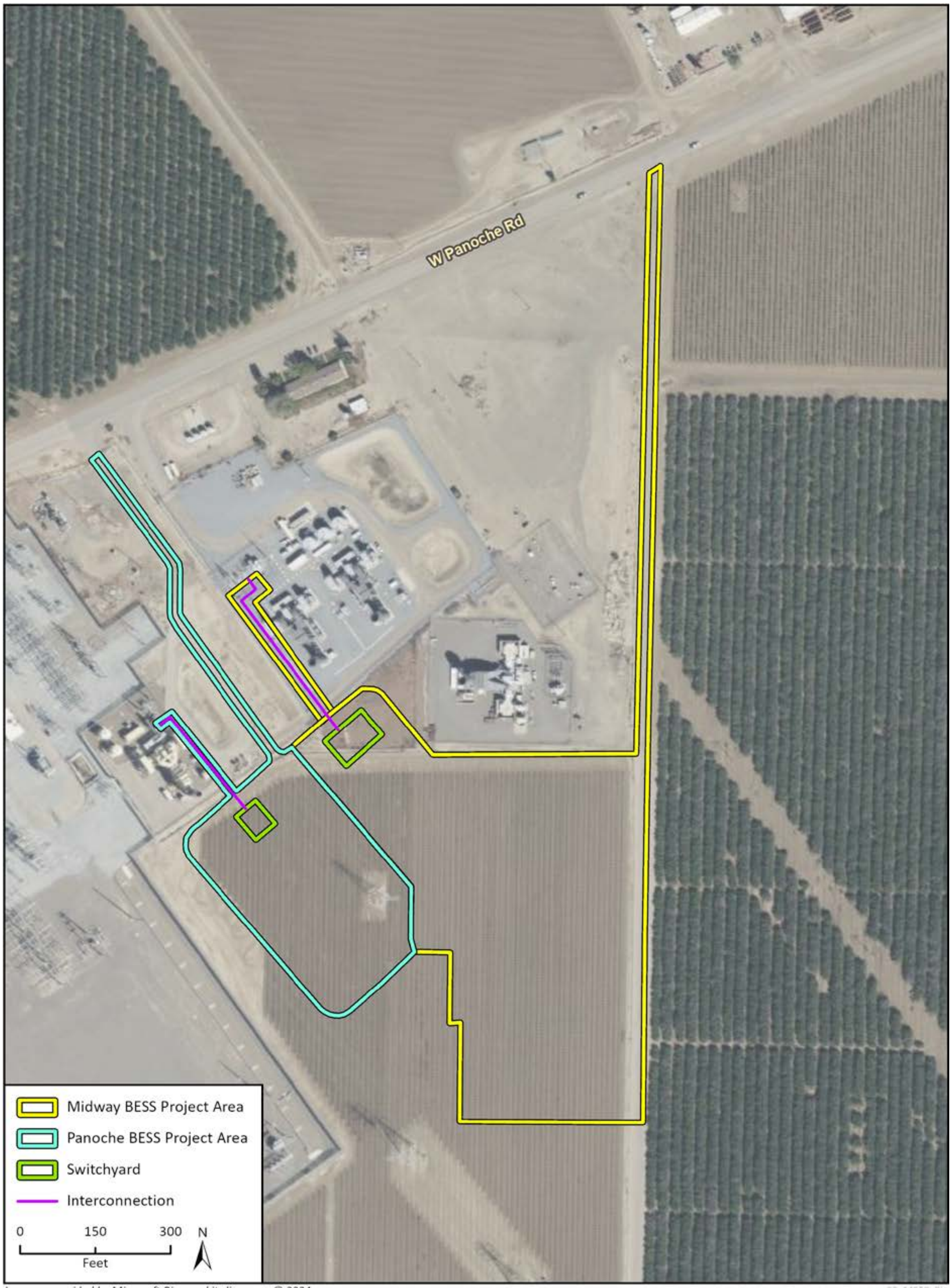
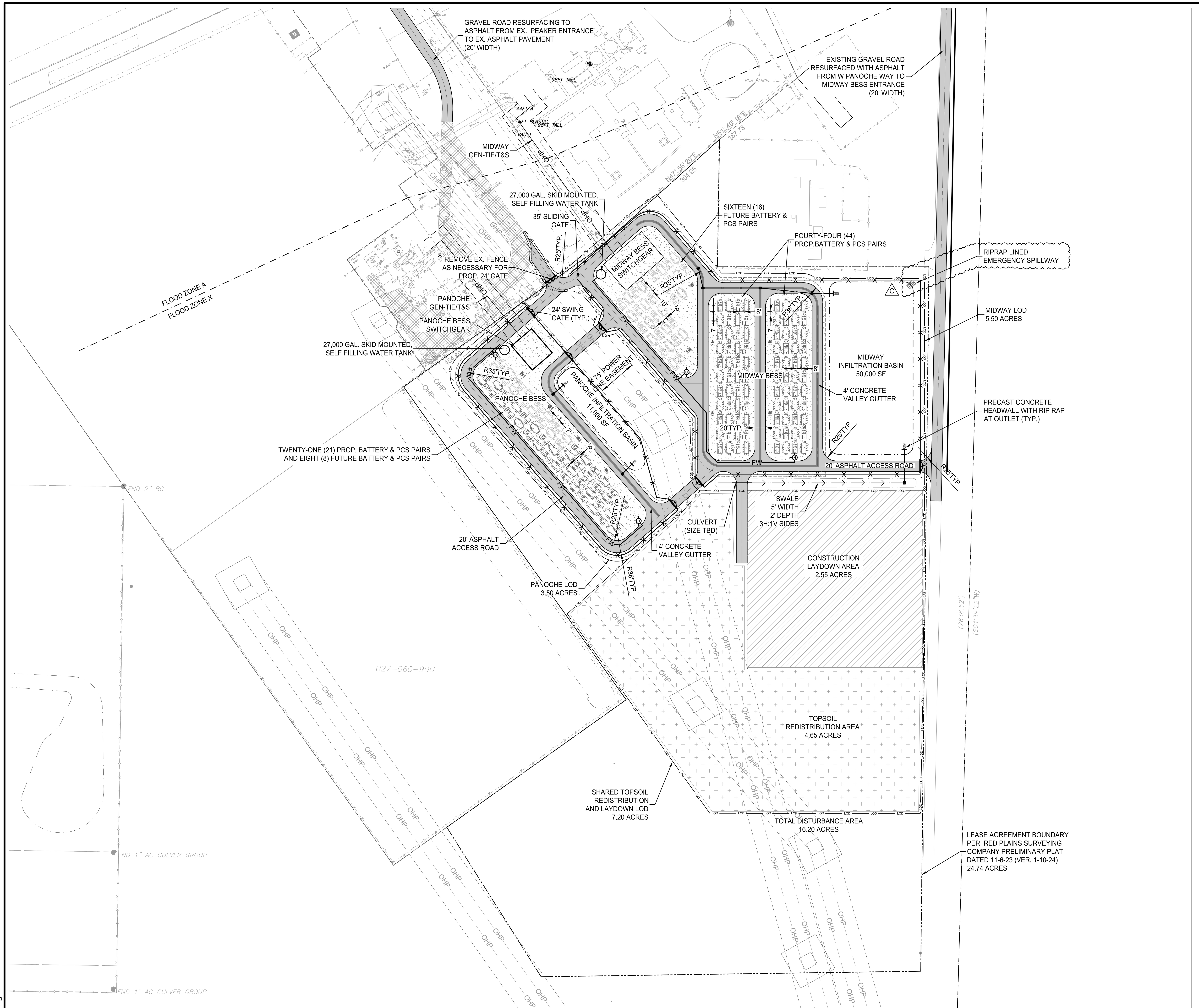


Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2024.

23_14550_Bio
Fig X Project Components



GENERAL NOTES

1. COORDINATES LISTED ARE BASED ON NSRS 2011, CALIFORNIA STATE PLANE ZONE IV, US SURVEY FOOT.
2. THE BOUNDARY AND BASIS OF BEARING IN THIS SITE PLAN ARE BASED ON THE SURVEY PROVIDED BY MRP CONTAINED WITHIN THE DRAWING "Midway-Panoche Topo & Trees - CAD Ver 09-05-2023.dwg" AND "Midway BESS Lease Area 24.74 acres - Ver 10-19-23.dwg"
3. CONTRACTOR SHALL VERIFY DIMENSIONS, PROPERTY BOUNDARY, AND EXISTING BENCH MARKS PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES.
5. ALL AREAS OF DISTURBANCE OUTSIDE OF BESS PAD AND ACCESS ROADWAY TO BE SEEDED OR OTHERWISE PROVIDED EROSION PROTECTION IN ACCORDANCE WITH PROJECT SWPPP AND EROSION CONTROL PLAN.
6. AFTER STRIPPING TOPSOIL, TEMPORARILY STABILIZE CONSTRUCTION LAYDOWN AREA WITH NON WOVEN GEOTEXTILE FABRIC AND 12" OF CALTRANS CLASS 2 AGGREGATE BASE COURSE. REMOVE AGGREGATE AND FABRIC AFTER PROJECT COMPLETION, REDISTRIBUTE, AND SEED FOR FINAL STABILIZATION.

LEGEND

- PROPERTY LINE
- BESS LEASE AREA BOUNDARY
- EXISTING CHAINLINK FENCE
- PROPOSED CHAINLINK FENCE
- EXISTING EASEMENT
- EXISTING HYDRANT
- EXISTING OVERHEAD POWER
- EXISTING POWER POLE
- FEMA FLOOD ZONE X BOUNDARY
- PROP. ROAD CENTERLINE
- PROP. OVERHEAD POWER
- SWALE FLOW LINE
- SWALE EDGE
- LIMITS OF DISTURBANCE
- PROP. FIRE WATER LINE
- PROP. FIRE HYDRANT
- PROP. STORM PIPE
- PROP CATCH BASIN (CB)
- PROP. HEADWALL
- PROP. BASIN BOUNDARY
- PROP. PAD EDGE
- BATTERY ENCLOSURE
- PCS SKID
- FUTURE BATTERY ENCLOSURE
- FUTURE PCS SKID
- AUX. POWER TRANSFORMER
- BESS: BATTERY ENERGY STORAGE SYSTEM
- EXISTING ASPHALT PAVEMENT
- 4" STATION FINISH STONE
- PROP. ASPHALT PAVEMENT
- PROP. CONSTRUCTION LAYDOWN AREA
- PROP. RIPRAP
- PROP. TOPSOIL REDISTRIBUTION AREA

PRELIMINARY

NOT FOR CONSTRUCTION

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
D	STORM REVISIONS	03/18/24	JMM	JMM	TJG	
C	LAYOUT & MRP REVISIONS	02/07/24	JMM	JMM	TJG	
B	MRP/OE COMMENT REVISIONS	01/05/24	JMM	JMM	TJG	
A	PRELIMINARY LAYOUT	11/22/23	JMM	JMM	*	*

REFERENCE DRAWINGS

DSGN	JMM	11/22/23
DRN	JMM	11/22/23
CKD	TJG	01/05/24
SCALE:	1" = 100'	

FOR 22x34 DWG ONLY

POWER ENGINEERS

MIDDLE RIVER POWER

MIDWAY/PANOCHE BESS

SITE PLAN

JOB NUMBER 246909

REV D

DRAWING NUMBER C01-01

C01-01_SITE PLAN.dwg

The Projects would be constructed to support California's current need for additional electrical energy supply capacity during high peak load demand time periods. The key components of each Project are listed below:

- Midway BESS
  - 120-MW BESS plant comprising approximately 5.5 acres, to include 60 modular, containerized battery systems (consisting of batteries, HVAC, and internal fire detection and suppression systems), 60 power conversion system (PCS) shelters (also called inverters), transformers, and electrical conductors to be installed.
  - Connection from the Midway BESS to the Midway Peaker Plant (MPP) to the north via a 13.8 kilovolt (kV) gen-tie connection to the low side of the existing 13.8 kV/115 kV generator step-up (GSU) transformer at the MPP.
  - Minor improvements to the existing access road that runs north to south from West Panoche Road directly to the east of the Midway BESS site, including paving.
  - Infiltration basin comprising approximately 50,000 square feet (sf).
  - Removal of existing vegetation (vineyards) and chipping removed vegetation to be spread as mulch on the southern/unused portion of the BESS Lease Area. Additionally, the southern/unused portion of the BESS Lease Area will be revegetated with native grasses to stabilize the soil surface.

- Panoche BESS
  - 57-MW BESS plant comprising approximately 3.5 acres, to include 29 modular, containerized battery systems (consisting of batteries, HVAC, and internal fire detection and suppression systems), 29 power conversion system (PCS) shelters (also called inverters), transformers, and electrical conductors to be installed.
  - Connection from the Panoche BESS to the Panoche Peaker Plant (PPP) to the north via a 13.8 kilovolt (kV) cable connection to the low side of the existing 13.8 kV/115 kV GSU transformer at the PPP.
  - Minor improvements to the existing access road that runs through the PPP property, including the addition of a short extension to the south to connect to the Panoche BESS area and paving.
  - Infiltration basin comprising approximately 9,500 sf.
  - Removal of existing vegetation (vineyards) and chipping removed vegetation to be spread as mulch on the southern/unused portion of the BESS Lease Area. Additionally, the southern/unused portion of the BESS Lease Area will be revegetated with native grasses to stabilize the soil surface.

A shared construction laydown and staging area will be used for equipment and material storage during the construction phases of both BESS Projects. Additionally, the Projects include a shared internal access road system.

Construction

Construction site mobilization for the Midway and Panoche BESS Projects is currently anticipated to occur from January 2025 to September 2025. Typical construction hours for both BESS projects are expected to be 7 a.m. to 6 p.m. on Mondays through Fridays and 8 a.m. to 5 p.m. on Saturdays.

Construction equipment to be utilized include the following: backhoes, bore/drill rigs, chippers, compactors, compressors, cranes, dozers, front-end loaders, graders, off-highway trucks, pavers and paving equipment, pickup trucks, portable electric generators, rough terrain forklifts, sweepers/scrubbers, welders, dump trucks, and water trucks. A vibratory pile driver may also be needed during construction if a pile foundation option is selected instead of a concrete pad or drilled pier foundations.

Operation

The Midway BESS facility will be integrated with the existing Midway Peaker Plant (MPP), while the Panoche BESS facility will be integrated with the existing CalPeak Panoche Peaker Plant (PPP); however, both BESS facilities will be charged from the electrical grid during solar peak production hours and not from the respective existing peaker plants. The BESS Projects may be operated simultaneously with the adjacent peaker plants in accordance with the market-optimized dispatch instructions received from the California Independent System Operator’s (CAISO’s) Automated Dispatching System (ADS), but the combined outputs will be control-limited to never exceed the limits of the respective Generator Interconnection Agreements. Commercial operation is currently anticipated in 2026. The facilities would be expected to require regular maintenance visits by two workers up to twice per week on average. The Projects’ operational lives and associated land leases are anticipated to be up to 40 years.

Midway Peaking Project Noise Conditions of Certification

The Midway Peaking Plant (MPP) was licensed by the California Energy Commission (CEC) in 2008 (CEC Docket No. 06-AFC-10). The Commission Decision included Conditions of Certification to minimize or avoid noise impacts from the MPP. The portion of the Midway BESS Project’s 13.8 kV gen-tie connection line on the MPP property will therefore require approval of a Petition for Post Certification Amendment to the CEC. The CEC’s jurisdiction is limited to the portion of the Midway BESS gen-tie on the MPP property. The CEC permitting for the Midway BESS gen-tie will be addressed as a separate permitting process from the Fresno County Unclassified Conditional Use Permitting process for the Midway and Panoche BESS projects.

2 Background

2.1 Overview of Sound Measurement

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (California Department of Transportation [Caltrans] 2013).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz and less sensitive to frequencies around and below 100 Hertz (Kinsler, et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible; and that an increase (or decrease) of 10 dBA sounds twice (half) as loud (Crocker 2007).

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site, such as a parking lot or smooth body of water, receives no additional ground attenuation and the changes in noise levels with distance (drop-off rate) result from simply the geometric spreading of the source. An additional ground attenuation value of 1.5 dBA per doubling of distance applies to a soft site (e.g., soft dirt, grass, or scattered bushes and trees) (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA’s guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of Project noise impacts. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time.

The sound level that is exceeded “n” percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the “median sound level.” The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the “intrusive sound level.” The L_{90} is the sound level exceeded 90 percent of the time and is often considered the “effective background level” or “residual noise level.”

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (L_{dn}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 PM to 7:00 AM) hours. It is also measured using CNEL, which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 PM to 7:00 AM (Caltrans 2013). Noise levels described by L_{dn} and CNEL usually differ by about 1 dBA. The relationship between the peak-hour L_{eq} value and the L_{dn}/CNEL depends on the distribution of traffic during the day, evening, and night.

2.2 Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of Hz. The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body starts from a low frequency of less than 1 Hz and goes to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (FTA 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern of vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2020).

2.3 Sensitive Receptors

Noise-sensitive receptors are land uses that may be subject to stress and/or interference from excessive noise, such as residential development, schools, hospitals, nursing homes, churches, and libraries. Industrial and commercial land uses are generally not considered sensitive to noise.

Vibration-sensitive receptors, which are similar to noise-sensitive receivers, include residences and institutional uses, such as schools, churches, and hospitals. However, vibration-sensitive receivers also include buildings where vibrations may interfere with vibration-sensitive equipment that is affected by vibration levels that may be well below those associated with human annoyance (e.g., recording studies or medical facilities with sensitive equipment).

The nearest sensitive receptors are the single-family residences off South Fairfax Avenue located approximately 1.3 miles northeast of the overall Project site. The nearest noise-sensitive receptors to the project site are shown on Figure 4.

2.4 Project Noise Setting

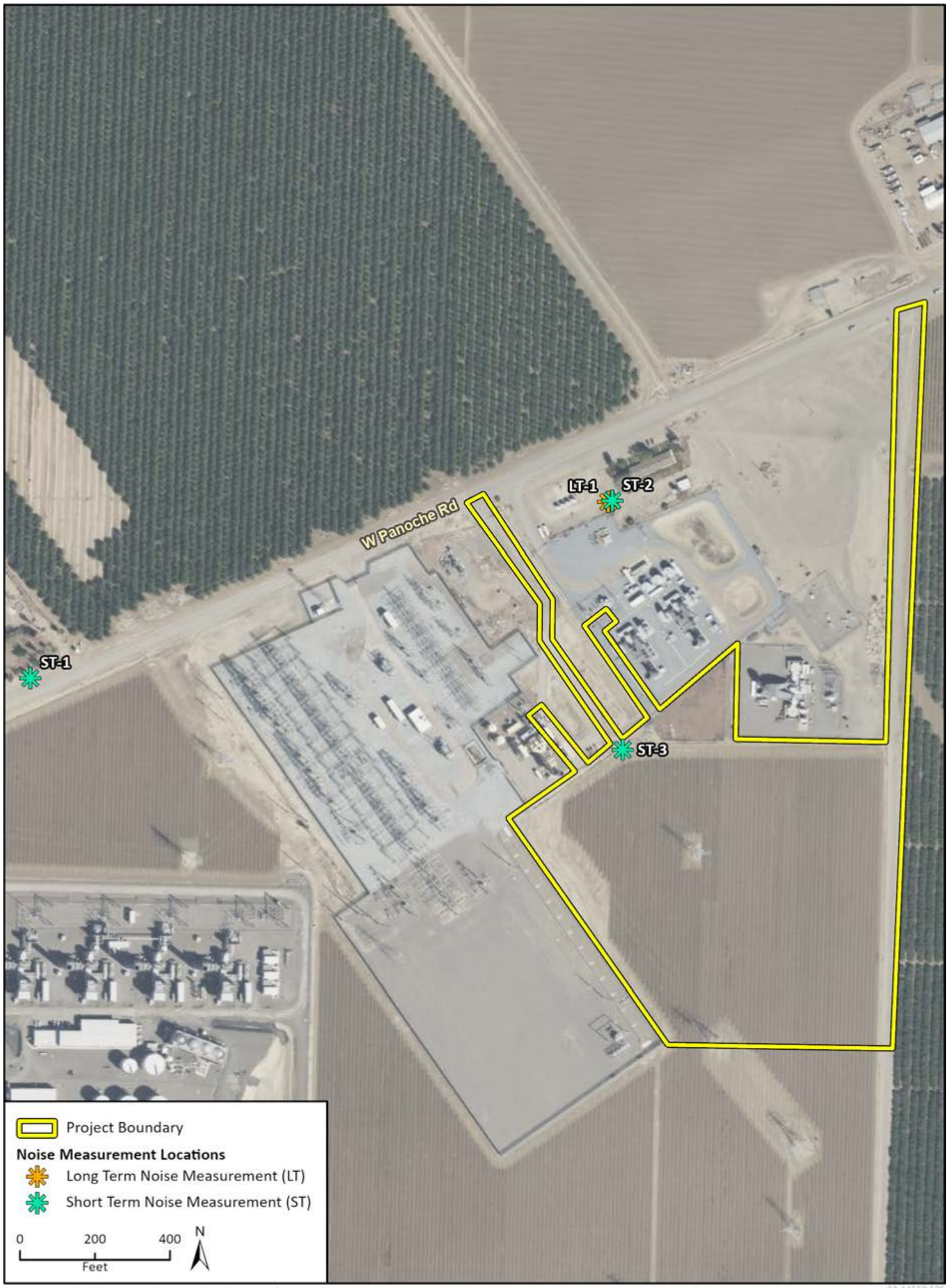
The overall project site is located within an unincorporated, agricultural area of Fresno County that includes other agricultural land uses in the surrounding area. The major noise source in the vicinity of the site is vehicular traffic on West Panoche Road, which is located approximately 730 feet to the northwest of the Midway and Panoche BESS portions of the site. To characterize ambient noise levels at and near the Midway and Panoche BESS portions of the parcel, three short-term 15-minute sound level measurements were conducted on November 28, 2023, and one long-term 24-hour measurement was conducted on November 28 through 29, 2023. An Extech, Model 407780A, ANSI Type 2 integrating sound level meter was used to conduct the measurements. The sound meter was field calibrated before and after the measurements. Short-Term measurement 1 (ST-1) was conducted offsite at the nearby vacant buildings located approximately 0.25 miles from the western edge of the Midway and Panoche BESS area; ST-2 was conducted along West Panoche Road near the adjacent office building to the north of the Project site; and ST-3 was conducted along the northwestern edge of the Midway and Panoche BESS area boundary. The long-term measurement (LT-1) was conducted along West Panoche Road near ST-2. Figure 5 shows the approximate measurement locations, Table 2 summarizes the results of the short-term noise measurements, and Table 3 summarizes the results of the long-term noise measurements.

Figure 4 Noise-Sensitive Receptors

Imagery provided by Microsoft Bing and its licensors © 2024.

23-14550 EPS
Fig X Noise-Sensitive Receptors

Figure 5 Noise Measurement Locations



Imagery provided by Microsoft Bing and its licensors © 2023.

23-14550 EPS
Fig X Noise Measurement Locations

Table 2 Project Site Noise Monitoring Results – Short Term

Measurement Name	Measurement Location	Sample Times	Primary Noise Sources	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	L_{10} (dBA)	L_{50} (dBA)	L_{90} (dBA)
ST-1	Offsite at closest residences northwest of Project site	9:37 – 9:52 a.m.	W Panoche Rd	67.4	38.8	85.7	66.7	45.0	39.1
ST-2	Along W Panoche Rd, near office building N of Project site	10:42 – 10:56 a.m.	W Panoche Rd	53.5	47.6	69.1	52.1	48.8	47.8
ST-3	Along northwestern boundary of Midway and Panoche BESS area	10:10 – 10:25 a.m.	W Panoche Rd, industrial plant, nearby agricultural operations	57.0	56.5	66.1	57.5	57.0	56.6

Detailed sound level measurement data are included in Appendix A; measurement locations are shown on Figure 5.

Table 3 Project Site Noise Monitoring Results – Long Term

Sample Time	dBA L_{eq}	Sample Time	dBA L_{eq}
LT-1 – North of Project site, November 28–29, 2023			
11:24 a.m.	59	11:24 p.m.	50
12:24 p.m.	53	12:24 a.m.	51
1:24 p.m.	51	1:24 a.m.	46
2:24 p.m.	55	2:24 a.m.	52
3:24 p.m.	46	3:24 a.m.	60
4:24 p.m.	58	4:24 a.m.	60
5:24 p.m.	55	5:24 a.m.	58
6:24 p.m.	54	6:24 a.m.	55
7:24 p.m.	49	7:24 a.m.	49
8:24 p.m.	54	8:24 a.m.	58
9:24 p.m.	50	9:24 a.m.	51
10:24 p.m.	52	10:24 a.m.	49
			24-hour Noise Level
		CNEL	62
		L_{eq}	54.9
		L_{min}	50.3
		L_{max}	77.1
		L_{10}	54.9
		L_{50}	49.0
		L_{90}	43.6

Source: Rincon Consultants, field measurements conducted on November 28–29, 2023, using ANSI Type II Integrating sound level meter. See Appendix A for measurement data.

2.5 Regulatory Setting

Federal

There are no specific federal noise standards that would be applicable to the Project other than federal noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass by noise standard is 80 dBA at 15 meters (approximately 50 feet) from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State

California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires each county and city to adopt a General Plan that includes a Noise Element prepared per guidelines adopted by the Governor's Office of Planning and Research. The purpose of the Noise Element is to limit the exposure of the community to excessive noise levels. CEQA requires all known environmental effects of a project be analyzed, including environmental noise and vibration impacts.

Local

The Midway and Panoche BESS Project sites are located in an unincorporated portion of Fresno County. Applicable noise standards are codified in the following County regulations:

Fresno County General Plan Noise Element

The Fresno County General Plan's Health and Safety Element (Section G, Noise) identifies goals, policies, and implementation programs that guide development in unincorporated Fresno County with regard to noise. The policies in the Health and Safety Element (Section G) set noise standards and seek to protect noise-sensitive land uses from excessive noise either through noise-reducing project design features or by allowing noise-sensitive land uses to locate only in areas with ambient noise levels below specific thresholds (Fresno County 2000).

According to the County's noise compatibility matrix, ambient noise levels up to 75 dBA L_{dn}/CNEL are normally acceptable for industrial uses while ambient noise levels up to 80 dBA L_{dn}/CNEL are conditionally acceptable (Fresno County 2000).

The Noise Element also contains goals and policies associated with effective planning to reduce noise levels throughout the County. The following goals and policies are applicable to the Midway and Panoche BESS Projects:

Goal HS-G: To protect residential and other noise-sensitive uses from exposure to harmful or annoying noise levels; to identify maximum acceptable noise levels compatible with various land use designations; and to develop a policy framework necessary to achieve and maintain a healthful noise environment.

Policy HS-G.1: The County shall require that all proposed development incorporate design elements necessary to minimize adverse noise impacts on surrounding land uses.

Policy HS-G.4: So that noise mitigation may be considered in the design of new projects, the County shall require an acoustical analysis as part of the environmental review process where:

b. Proposed projects are likely to produce noise levels exceeding the levels shown in the County's Noise Control Ordinance at existing or planned noise sensitive uses.

Policy HS-G.5: Where noise mitigation measures are required to achieve acceptable levels according to land use compatibility or the Noise Control Ordinance, the County shall place emphasis of such measures upon site planning and projects design. These measures may include, but are not limited to, building orientation, setbacks, earthen berms, and building construction practices. The County shall consider the use of noise barriers, such as sound walls, as a means of achieving the noise standards after other design-related noise mitigation measures have been evaluated or integrated into the projects.

Policy HS-G.6: The County shall regulate construction-related noise to reduce impacts on adjacent uses in accordance with the County's Noise Control Ordinance.

Policy HS-G.8: The County shall evaluate the compatibility of proposed projects with existing and future noise levels through a comparison to Chart HS-1, "Land Use Compatibility for Community Noise Environments" (reproduced below in Table 4).

Table 4 Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Equivalent Level (CNEL) or Day-Night Level (Ldn), dB(A)			
	Normally Acceptable	Conditionally Acceptable	Generally Unacceptable	Land Use Discouraged
Residential: Low-Density Single-Family, Duplex, Mobile Homes	<60	55-70	70-75	>75
Residential: Multiple Family	<65	60-70	70-75	>75
Transient Lodging: Motels, Hotels	<65	60-70	70-80	>80
Schools, Libraries, Churches, Hospitals, Nursing Homes	<70	60-70	70-80	>80
Auditoriums, Concert Halls, Amphitheaters	N/A	<70	N/A	>65
Sports Arenas, Outdoor Spectator Sports	N/A	<75	N/A	>70
Playgrounds, Neighborhood Parks	<70	N/A	67-75	>72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	<75	N/A	70-80	>80
Office Buildings, Business Commercial and Professional	<70	67-77	>75	N/A
Industrial, Manufacturing, Utilities, Agriculture	<75	70-80	>75	N/A

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Generally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Land Used Discouraged: New construction or development should generally not be undertaken.

Source: Fresno County General Plan Policy Document, Chart HS-1.

Fresno County Code of Ordinances

Chapter 8.40 – Noise Control of the Fresno County Code of Ordinances outlines standards to protect people from excessive noise levels within or near a residence, school, church, hospital or public library. Section 8.40.040 provides exterior noise level standards not to be exceeded at any receiving, occupied single- or multiple-family residence, school, hospital, church or public library. These exterior noise limits are shown in Table 5 .

Table 5 Fresno County Code of Ordinances Exterior Noise Standards

Category	Cumulative Number of minutes in any one-hour time period	Noise Level Standards, dBA Daytime Hours (7 a.m. to 10 p.m.)	Noise Level Standards, dBA Nighttime Hours (10 p.m. to 7 a.m.)
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

Source: Fresno County Code of Ordinances Chapter 8.40 – Noise Control, Section 8.40.040.

Section 8.40.060 of the Fresno County Code of Ordinances provides exemptions to the noise level limits above for the following activities relevant to the proposed Midway and Panoche BESS Projects:

- Noise sources associated with construction, provided such activities do not take place before six a.m. or after nine p.m. on any day except Saturday or Sunday, or before seven a.m. or after five p.m. on Saturday or Sunday.
- Noise sources associated with work performed by private or public utilities in the maintenance or modification of its facilities.

Additionally, Section 8.40.090 places noise restriction on electrical substations, specifying that noise associated with the operation of these sources cannot exceed 50 dBA when measured within 50 feet of an affected residence, school, hospital, church, or public library at five feet above the ground.

3 Methodology

3.1 Construction Noise

Construction activity would result in temporary noise in the overall Project site vicinity, exposing surrounding nearby receivers to increased noise levels. Construction noise associated with the Project would be generated by heavy-duty diesel construction equipment used for access road construction, site preparation, grading, tap and switch, foundation and equipment installation, loading, unloading, placing materials, and installing battery enclosures, switchyard, and on-site electrical interconnection. Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Construction noise would typically be higher during the more equipment-intensive phases of initial construction (i.e., site preparation and grading) and would be lower during the later construction phases (i.e., material placement, components installation, commissioning, and testing).

During construction, equipment goes through varying load cycles and is operated intermittently to allow for non-equipment tasks such as measurement. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FTA 2018). Reference noise levels for heavy-duty construction equipment were estimated using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2006).

As discussed above, a pile driver may be needed during construction of the Midway BESS site if a pile foundation is selected instead of a concrete pad foundation. Due to the size of the Project site, a reasonable worst-case scenario consisting of a compactor, crane, dozer, dump truck, and two vibratory pile drivers was analyzed during the loudest phase of construction (foundation installation). At a distance of 50 feet, a compactor, crane, dozer, dump truck, and two vibratory pile drivers would generate a noise level of 97 dBA L_{eq} (RCNM calculations are included in Appendix B).

For the Panoche BESS site, a reasonable worst-case scenario consisting of a backhoe, auger drill rig, compactor, compressor, crane, dozer, front-end loader, and dump truck was analyzed during the loudest phase of construction (foundation installation). At a distance of 50 feet, this equipment would generate a noise level of 87 dBA L_{eq} (RCNM calculations are included in Appendix B).

Construction equipment would operate as close as approximately 7,000 feet to the nearest residential property line to the northeast; however, the construction equipment would continually move around the Project sites over the course of a typical construction day. Due to the complex nature of construction activity within a project site, construction noise is typically considered as a point source located at the center of the work area, and noise impacts from construction equipment are assessed from the center of the equipment activity area over the period of a construction day. The centers of the Midway and Panoche BESS construction areas were assumed to be 7,200 and 7,500 feet, respectively, from the nearest single-family residence to the northeast.

3.2 Groundborne Vibration

The Projects do not include any substantial vibration sources associated with operation. Thus, the most substantial vibration sources with the potential to affect nearby receivers would be associated with activity during construction of the Projects, especially during the site preparation, grading, and foundation installation phases. The greatest vibratory source during construction in the vicinity of the BESS sites would be pile driving along the eastern Midway BESS site boundary during foundation installation. Blasting would not be required for construction of the Projects. Construction vibration estimates are based on vibration levels reported by the FTA (FTA 2018). Table 6 shows typical vibration levels for various pieces of construction equipment used in the assessment of construction vibration (FTA 2018).

Table 6 Vibration Levels Measured during Construction Activities

Equipment	PPV at 25 ft. (in/sec)
Vibratory Pile Driver	0.734
Vibratory Roller	0.21
Large Bulldozer	0.089
Loaded Trucks	0.076

PPV = peak particle velocity, in/sec = inches per second
Source: FTA 2018

Vibration limits used in this analysis to determine a potential impact to local land uses from construction activities, such as pile-driving, vibratory compaction, demolition, drilling, or excavation, are based on vibration thresholds established in *The Transit Noise and Vibration Impact Assessment Manual* (FTA 2018). These thresholds are shown in Table 7.

Table 7 Criteria for Vibration Damage Potential

Building Category	PPV (in/sec)
I. Reinforced concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Nonengineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

PPV = peak particle velocity; in/sec = inches per second
Source: FTA 2018

Based on FTA recommendations, limiting vibration levels to below 0.2 in/sec PPV at residential structures would prevent structural damage regardless of building construction type. These limits are applicable regardless of the frequency of the source.

3.3 Operational Noise

Under normal operation, the BESS sites would be remotely monitored with no personnel on-site except for periodic maintenance (provided by two workers up to twice per week) and battery augmentation activities. Maintenance and battery augmentation activities would not generate substantial noise. The noise sources on the Project site after completion of construction would include stationary outdoor equipment such as transformers, inverters, and individual BESS units.

Noise level modeling of the noise generated by future operation of both BESS Projects was developed using SoundPLAN noise modeling software, Version 9.0. SoundPLAN incorporates noise propagation algorithms and reference sound levels published by various government agencies and the scientific community. Noise sources and receivers are input using three-dimensional coordinates. All surrounding buildings, structures, and topography in the vicinity of the Project sites were conservatively not modeled to present an evaluation of worst-case noise impact, as these structures would normally provide shielding for nearby receivers. All receivers were modeled at the average height of the human ear, which is five feet above ground elevation.

Propagation of modeled stationary noise sources was based on ISO Standard 9613-2, “Attenuation of Sound during Propagation Outdoors, Part 2: General Method of Calculation.” The assessment methodology assumes that all receivers would be downwind of stationary sources. This is a worst-case assumption for total noise impacts since only some receivers would be downwind at any one time.

On-site noise sources were modeled based on information provided by the Project applicants. Per the information provided, inverters would be Power Electronics units (or similar) and generate a noise level of 79 dBA at 1 meter based on manufacturer’s specifications. BESS battery enclosures would be CATL units (or similar) and generate a noise level of 75 dBA at 1 meter based on manufacturer’s specifications. For a conservative scenario, all equipment was assumed to operate at 100 percent of an hour for 24 hours.

3.4 Traffic Noise

Construction traffic will access the Project sites via West Panoche Road. Existing traffic volumes are compared with proposed construction traffic along these roadways to estimate the potential Project-related traffic noise increase. Traffic volumes were based on information provided in the Traffic and Transportation Analysis prepared as part of the Panoche Energy Center Final Staff Assessment (CEC 2007). Page 4.10-4 of the Traffic and Transportation Analysis provides a.m. peak hour, p.m. peak hour, and average daily traffic (ADT) volumes for West Panoche Road, the primary source of roadway noise in the vicinity of both Project sites. Use of this traffic data provides a conservative baseline since traffic volumes are assumed to have increased since 2007.

All roadway vehicle trips generated by construction activities for both Projects are based on estimates provided by the Project applicants. For construction of the Midway BESS site, it is estimated that up to 50 worker trips and 30 haul truck trips per day would occur during peak construction periods. A vehicle trip is defined as a one-direction vehicle movement. The total number of trips generated by the Project includes both inbound and outbound trips. Therefore, Project construction would generate a maximum of 160 one-way trips per day.

For construction of the Panoche BESS site, it is also estimated that up to 50 worker trips and 30 haul truck trips per day would occur during peak construction periods; therefore, Project construction would also generate a maximum of 160 one-way trips per day. Table 8 shows the estimated number of existing vehicle trips and future construction vehicle trips for both Projects. All construction trips were assumed to occur on West Panoche Road.

To assess the increase in ambient noise levels at the nearby residences, a version of the FHWA traffic noise prediction model (FHWA-RD-77-108) was used. Appendix C contains the traffic noise modeling inputs and outputs.

Table 8 Estimated Existing Vehicle Trips and Future Construction-Related Vehicle Trips

Roadway Segment	Existing Daily Vehicle Trips[1]	Midway BESS Construction Daily Vehicle Trips	Panoche BESS Construction Daily Vehicle Trips	Existing + Construction Daily Vehicle Trips
W Panoche Rd (I-5 to Panoche Energy Center site)	1,057	160	160	1,377

[1] Existing average daily traffic (ADT) volumes obtained from Traffic and Transportation Analysis for completed for Panoche Energy Center Final Staff Assessment (PEC 2007).

3.5 Significance Thresholds

To determine whether a project would have a significant noise impact, Appendix G of the CEQA Guidelines requires consideration of whether a project would result in:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or,
2. Generation of excessive groundborne vibration or groundborne noise levels; or,
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

Construction Noise

As stated previously in Section 2.5, the Fresno County Code of Ordinances provides an exemption for noise generated by construction activity as long as it occurs within the specified day and time restrictions (between 6 a.m. and 9 p.m. on Mondays through Fridays or between 7 a.m. and 5 p.m. on Saturdays or Sundays). All construction activity will occur within these required day and time restraints; therefore, noise generated by Project construction is exempt from the noise limits stated in the Fresno County Code of Ordinances.

However, to present a comprehensive environmental review of proposed Project impacts, construction noise was evaluated to the noise limits outlined in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment* Manual (FTA 2018) in the absence of quantified local construction noise level limits. Based on FTA recommendations, the average daytime construction noise level over an eight-hour period should be limited to 80 dBA L_{eq} at a noise-sensitive receiver. Therefore, if noise levels from construction activity associated with the Midway and Panoche BESS Projects exceed 80 dBA L_{eq} for an eight-hour period at the property line of a nearby residential receiver, a significant noise impact would be assessed to occur.

On-site Operational Noise

The Project sites are located in an agricultural area of the County, with the closest residential property located approximately 7,000 feet northeast of the centers of the Midway and Panoche BESS areas. The Fresno County Code of Ordinances includes quantified noise limits for new proposed stationary noise sources. According to the County Code of Ordinances, noise generated by stationary sources cannot exceed the following noise limits at a residential property line: 50 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m. Therefore, on-site operational noise could be significant if it exceeds these thresholds.

Off-site Traffic Noise

A project will normally have a significant effect on the environment related to noise if it will substantially increase the ambient noise levels for adjoining areas. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 to 3 dBA are detectable under quiet, controlled conditions. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible to most people in an exterior environment. Based on this, the following thresholds of significance similar to those recommended by the Federal Aviation Administration (FAA) are used to assess traffic noise impacts at sensitive receptor locations (FAA 2020). A significant impact would occur if Project-related traffic noise increases the existing noise environment by the following:

- Greater than 1.5 dBA for ambient noise environments of 65 dBA CNEL and higher; or
- Greater than 3 dBA for ambient noise environments of 60 to 64 dBA CNEL; or
- Greater than 5 dBA for ambient noise environments of less than 60 dBA CNEL.

Construction Vibration

Fresno County has not adopted standards to assess vibration impacts during construction and operation. Therefore, vibration limits used in this analysis are based on those outlined in *The Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) to evaluate potential construction vibration impacts related to both potential building damage. Based on the Caltrans criteria shown above in Table 7, construction vibration impacts would be significant if vibration levels exceed 0.2 in./sec. PPV for residential structures, which are the limits where minor cosmetic, i.e., non-structural, damage may occur to these buildings.

4 Impact Analysis

4.1 Issue 1

Issue:	Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? **LESS THAN SIGNIFICANT**

Construction

Construction Equipment

MIDWAY BESS PROJECT

General construction activities are expected to typically occur between 7 a.m. and 6 p.m. on Mondays through Fridays and between 8 a.m. and 5 p.m. on Saturdays.

Note that over the course of a typical construction day, construction equipment would be moving around the Project site, generating noise at the center of the work area within the site. In addition, construction noise impact conservatively does not take into account shielding from any intervening buildings, terrain, or other nearby structures or site features.

During the loudest construction phase (foundation installation), the following equipment is assumed to be used: compactor, crane, dozer, dump truck, and two vibratory pile drivers. When accounting for this equipment operating simultaneously, construction activity would generate noise levels up to 54 dBA L_{eq} at the property line of the nearest single-family residence located approximately 7,200 feet northeast of the Midway BESS site.

Therefore, noise levels generated by construction of the Midway BESS Project would not exceed the FTA construction noise threshold of 80 dBA L_{eq} at nearby noise-sensitive receivers, and noise impacts due to the construction of the Midway BESS Project would be less than significant.

PANOCHE BESS PROJECT

General construction activities are expected to typically occur between 7 a.m. and 6 p.m. on Mondays through Fridays and between 8 a.m. and 5 p.m. on Saturdays.

Note that over the course of a typical construction day, construction equipment would be moving around the Project site, generating noise at the center of the work area within the site. In addition, construction noise impact conservatively does not take into account shielding from any intervening buildings, terrain, or other nearby structures or site features.

During the loudest construction phase (foundation installation), the following equipment would be used: backhoe, auger drill rig, compactor, compressor, crane, dozer, front-end loader, and a dump truck. When accounting for this equipment operating simultaneously, construction activity would generate noise levels up to 43 dBA L_{eq} at the property line of the nearest single-family residence located approximately 7,500 feet northeast of the Panoche BESS site.

Therefore, noise levels generated by construction of the Panoche BESS Project would not exceed the FTA construction noise threshold of 80 dBA L_{eq} at nearby noise-sensitive receivers, and noise impacts due to the construction of the Panoche BESS Project would be less than significant.

COMBINED BESS PROJECTS

Noise generated during separate construction of the Midway and Panoche BESS Projects would be approximately 54 and 43 dBA L_{eq}, respectively, at the nearest single-family residence northeast of the overall Project sites. When added together, noise levels generated by simultaneous construction of both BESS Projects would result in a combined noise level of approximately 54 dBA L_{eq} at the nearest single-family residence northeast of the overall Project sites. Therefore, temporary noise levels generated due to construction of both BESS Projects would be below the FTA construction noise threshold of 80 dBA L_{eq} and impacts would be less than significant.

Construction Vehicle Trips

MIDWAY BESS PROJECT

During construction, the Midway BESS Project would generate new, temporary vehicle trips that would increase noise levels on nearby roadways (primarily West Panoche Road). The Project is anticipated to generate a maximum of 160 daily vehicle trips (80 roundtrips) between workers and deliveries of equipment during the peak phases of construction. The Project would not make alterations to roadway alignments or substantially change the vehicle classifications mix on the surrounding roadways (i.e., West Panoche Road). Therefore, the primary factor affecting off-site noise levels would be increased traffic volumes primarily on West Panoche Road, which carries an ADT volume of 1,057 vehicles. A temporary increase of 160 daily vehicle trips would result in a daily traffic noise level increase of 0.6 dBA CNEL on West Panoche Road, which is below the 3.0 dBA CNEL threshold for an ambient noise environment between 60 and 64 dBA CNEL (as presented in Section 2.4, the onsite noise measurement survey determined the ambient noise level at the site was 62 dBA CNEL). Therefore, impacts would be less than significant.

PANOCHE BESS PROJECT

During construction, the Panoche BESS Project would generate new, temporary vehicle trips that would increase noise levels on nearby roadways (primarily West Panoche Road). The Project is anticipated to generate a maximum of 160 daily vehicle trips (80 roundtrips) between workers and deliveries of equipment during the peak phases of construction. The Project would not make alterations to roadway alignments or substantially change the vehicle classifications mix on the surrounding roadways (i.e., West Panoche Road). Therefore, the primary factor affecting off-site noise levels would be increased traffic volumes primarily on West Panoche Road (ADT of 1,057 vehicles). A temporary increase of 160 daily vehicle trips would result in a daily traffic noise level increase of 0.6 dBA CNEL on West Panoche Road, which is below the 3.0 dBA CNEL threshold for the site's ambient noise environment (62dBA CNEL, determined in Section 2.4). Therefore, impacts would be less than significant.

COMBINED BESS PROJECTS

Construction of both BESS Projects would result in temporary, new vehicle trips (primarily) on West Panoche Road (ADT volume of 1,057 vehicles). A total of 320 new vehicle trips (160 roundtrips) would be generated on this roadway during construction, resulting in an overall noise increase of approximately 1.1 dBA CNEL at the site. Therefore, temporary noise impacts associated with vehicle trips on West Panoche Road during construction would not exceed the 3.0 dBA CNEL threshold and impacts would be less than significant.

Operation

Operational Noise

MIDWAY BESS PROJECT

Following the methodology discussed in Section 3.3, noise levels generated by operation of the Midway BESS facility were modeled, and noise contours were calculated throughout the Project site and surroundings. Operational noise levels for the Midway BESS Project are summarized below in Table 9 and noise contours are shown on Figure 6.

Table 9 Midway BESS Operational Noise Levels

Receiver Name	Receiver Description	Modeled Noise Level (dBA)	Exceeds Daytime Noise Threshold?[1]	Exceeds Nighttime Noise Threshold?[1]
R1	Single-family residence along W Panoche Rd, 1.3 miles northeast of Project site	25.1	No	No
R2	Single-family residence along S Fairfax Ave, 1.4 miles northeast of Project site	24.5	No	No

[1] Per the Fresno County Code of Ordinances, the applicable daytime noise threshold (7:00 a.m. to 10:00 p.m.) is 50 dBA at residential properties, while the applicable nighttime noise threshold (10:00 p.m. to 7:00 a.m.) is 45 dBA at residential properties.

As shown on Figure 6 and Table 9, noise levels at the nearest residence 1.3 miles northeast of the Project site (represented as R1) would be 25.1 dBA, while noise levels at the next nearest residence 1.4 miles northeast of the Project site (R2) would be 24.5 dBA. Therefore, noise generated by operation of the Midway BESS facility would be below the County's daytime and nighttime thresholds of 50 and 45 dBA, respectively. Long-term operational noise impacts would be less than significant.

PANOCHE BESS PROJECT

Following the methodology discussed in Section 3.3, noise levels generated by operation of the Panoche BESS facility were modeled, and noise contours were calculated throughout the Project site and surroundings. Operational noise levels for the Panoche BESS Project are summarized below in Table 10 and noise contours are shown on Figure 7.

Table 10 Panoche BESS Operational Noise Levels

Receiver Name	Receiver Description	Modeled Noise Level (dBA)	Exceeds Daytime Noise Threshold?[1]	Exceeds Nighttime Noise Threshold?[1]
R1	Single-family residence along W Panoche Rd, 1.3 miles northeast of Project site	23.5	No	No
R2	Single-family residence along S Fairfax Ave, 1.4 miles northeast of Project site	22.9	No	No

[1] Per the Fresno County Code of Ordinances, the applicable daytime noise threshold (7:00 a.m. to 10:00 p.m.) is 50 dBA at residential properties, while the applicable nighttime noise threshold (10:00 p.m. to 7:00 a.m.) is 45 dBA at residential properties.

As shown on Figure 7 and Table 10, noise levels at the nearest residence 1.3 miles northeast of the Project site (represented as R1) would be 23.5 dBA, while noise levels at the next nearest residence 1.4 miles northeast of the Project site (R2) would be 22.9 dBA. Therefore, noise generated by operation of the Panoche BESS facility would be below the County's daytime and nighttime thresholds of 50 and 45 dBA, respectively. Long-term operational noise impacts would be less than significant.

COMBINED BESS PROJECTS

Noise levels generated by simultaneous operation of both the Midway and Panoche BESS facilities were modeled, and noise contours calculated. Combined operational noise levels are summarized in Table 11 and noise contours are shown on Figure 8.

Table 11 Combined Operational Noise Levels

Receiver Name	Receiver Description	Modeled Noise Level (dBA)	Exceeds Daytime Noise Threshold?[1]	Exceeds Nighttime Noise Threshold?[1]
R1	Single-family residence along W Panoche Rd, 1.3 miles northeast of Project site	26.6	No	No
R2	Single-family residence along S Fairfax Ave, 1.4 miles northeast of Project site	26.0	No	No

[1] Per the Fresno County Code of Ordinances, the applicable daytime noise threshold (7:00 a.m. to 10:00 p.m.) is 50 dBA at residential properties, while the applicable nighttime noise threshold (10:00 p.m. to 7:00 a.m.) is 45 dBA at residential properties.

As shown on Figure 8 and Table 11, noise levels at the nearest residence 1.3 miles northeast of the Project site (represented as R1) would be 26.6 dBA, while noise levels at the next nearest residence 1.4 miles northeast of the Project site (R2) would be 26.0 dBA. Therefore, noise generated by operation of both BESS facilities would be below the County's daytime and nighttime thresholds of 50 and 45 dBA, respectively. Long-term operational noise impacts would be less than significant.

Off-site Traffic Noise

MIDWAY BESS PROJECT

The Midway BESS Project would generate new vehicle trips that would increase noise levels on nearby roadways (primarily West Panoche Road). New vehicle trips would be from regular maintenance visits by two workers twice per week on average. However, when compared with the existing ADT volume of 1,057 vehicles on West Panoche Road, these maintenance worker trips would result in a negligible traffic noise increase (much less than 0.1 dBA CNEL) on this roadway. Therefore, impacts would be below the threshold (3.0 dBA CNEL increase for ambient noise environments between 60 and 64 dBA CNEL) and would result in less-than-significant impacts. Similarly, infrequent battery augmentation activities involving addition of new batteries on existing foundations would result in negligible, less-than-significant traffic noise increases.

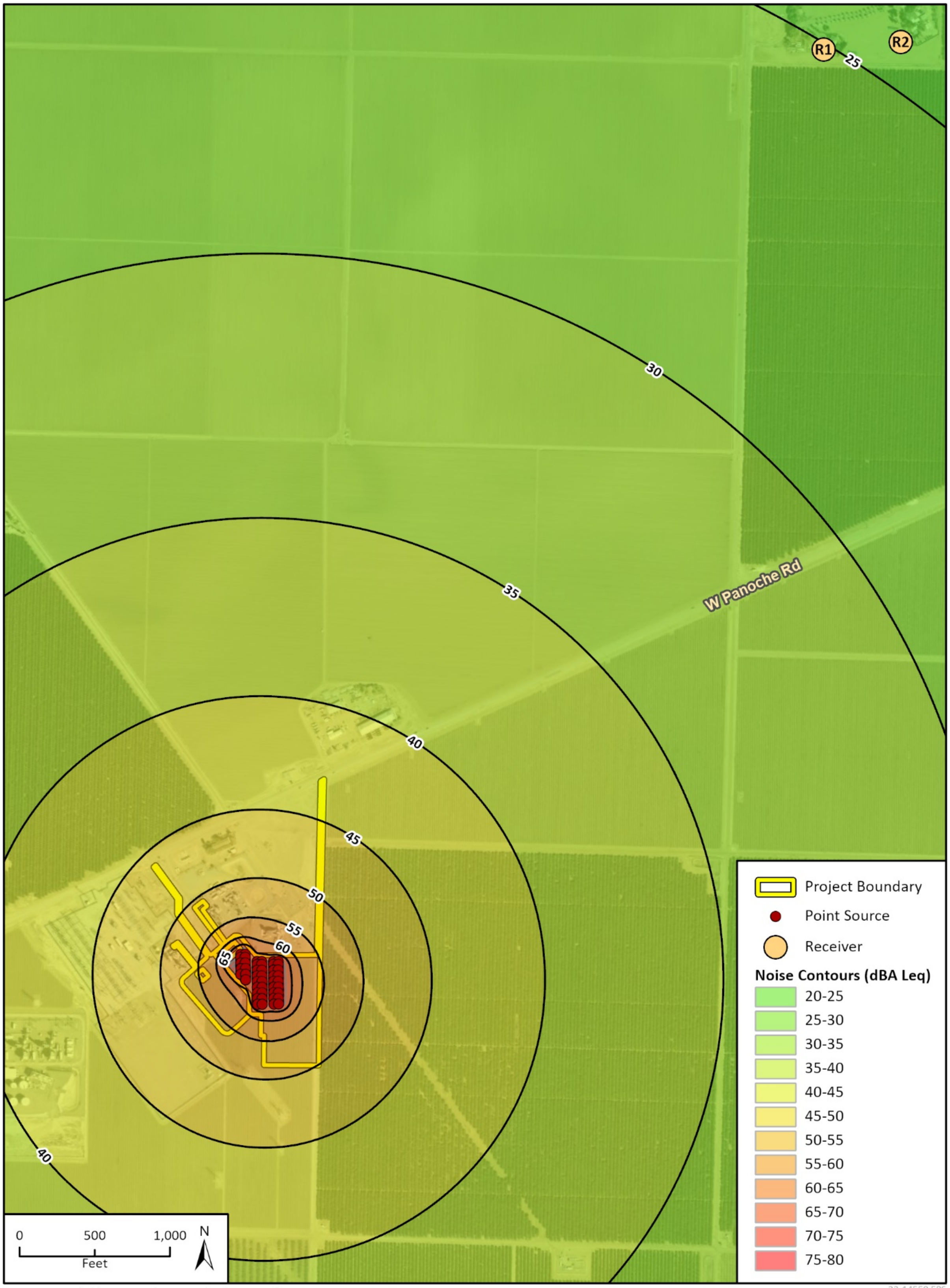
PANOCHE BESS PROJECT

The Panoche BESS Project would generate new vehicle trips that would increase noise levels on (primarily) West Panoche Road. New vehicle trips would be from regular maintenance visits by two workers twice per week on average. However, when compared with the existing ADT volume of 1,057 vehicles on West Panoche Road, these maintenance worker trips would result in a negligible traffic noise increase (much less than 0.1 dBA CNEL) on this roadway. Therefore, impacts would be below the threshold (3.0 dBA CNEL increase for ambient noise environments between 60 and 64 dBA CNEL) and would result in less-than-significant impacts. Similarly, infrequent battery augmentation activities involving addition of new batteries on existing foundations would result in negligible, less-than-significant traffic noise increases.

COMBINED BESS PROJECTS

Combined off-site vehicle trips generated during operation of both BESS projects would be due to regular maintenance visits by two workers four times per week on average. However, when compared to the existing ADT on West Panoche Road, these maintenance visits would result in a negligible traffic increase (much less than 0.1 dBA CNEL) on this roadway. Therefore, combined off-site traffic noise impacts due to operation of both BESS Projects would be below the 3.0 dBA CNEL threshold and would result in less-than-significant impacts.

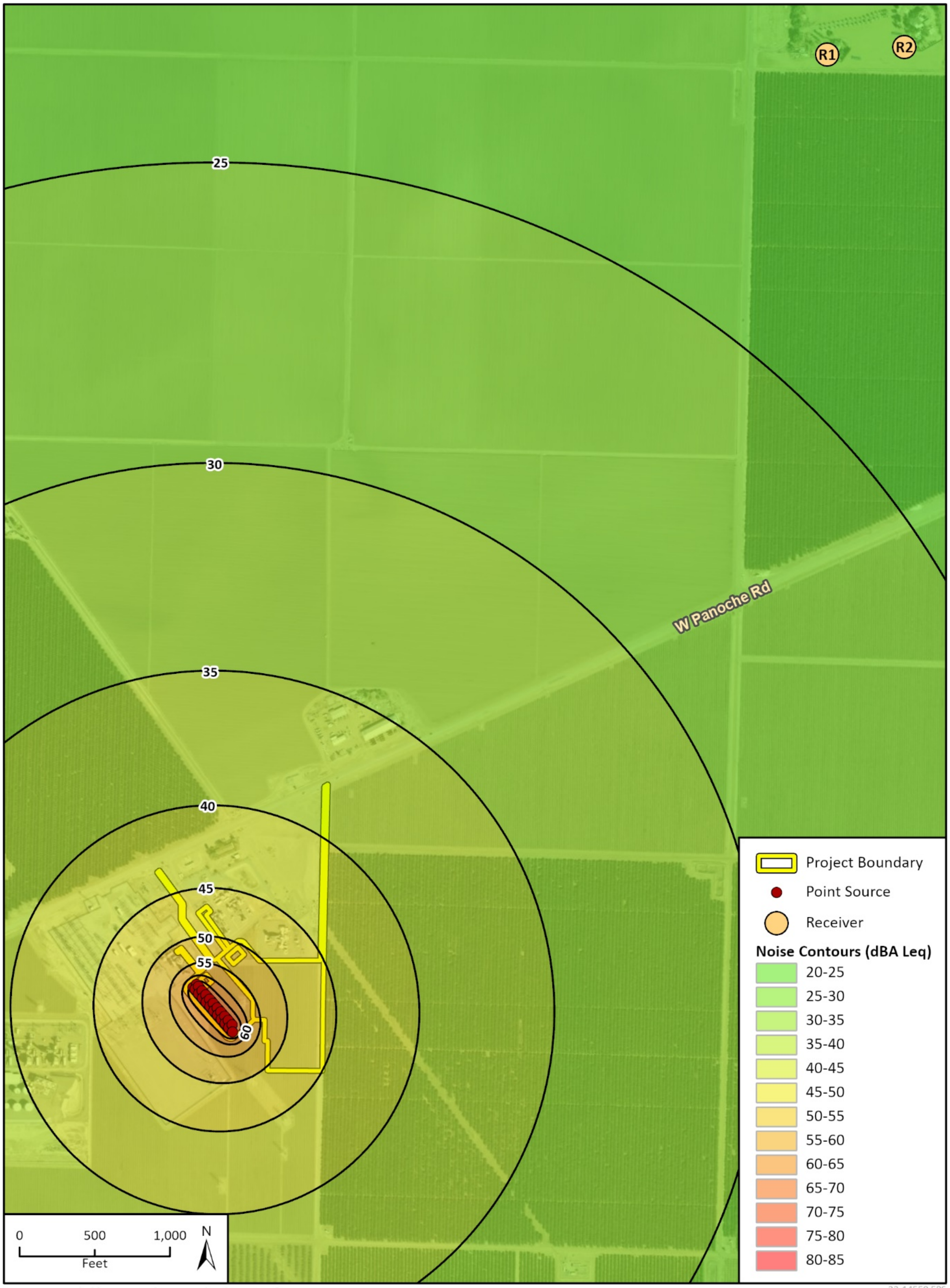
Figure 6 Midway BESS Operational Noise Contours



Imagery provided by Microsoft Bing and its licensors © 2024.

23-14550 EPS
Fig X Noise Contours Midway

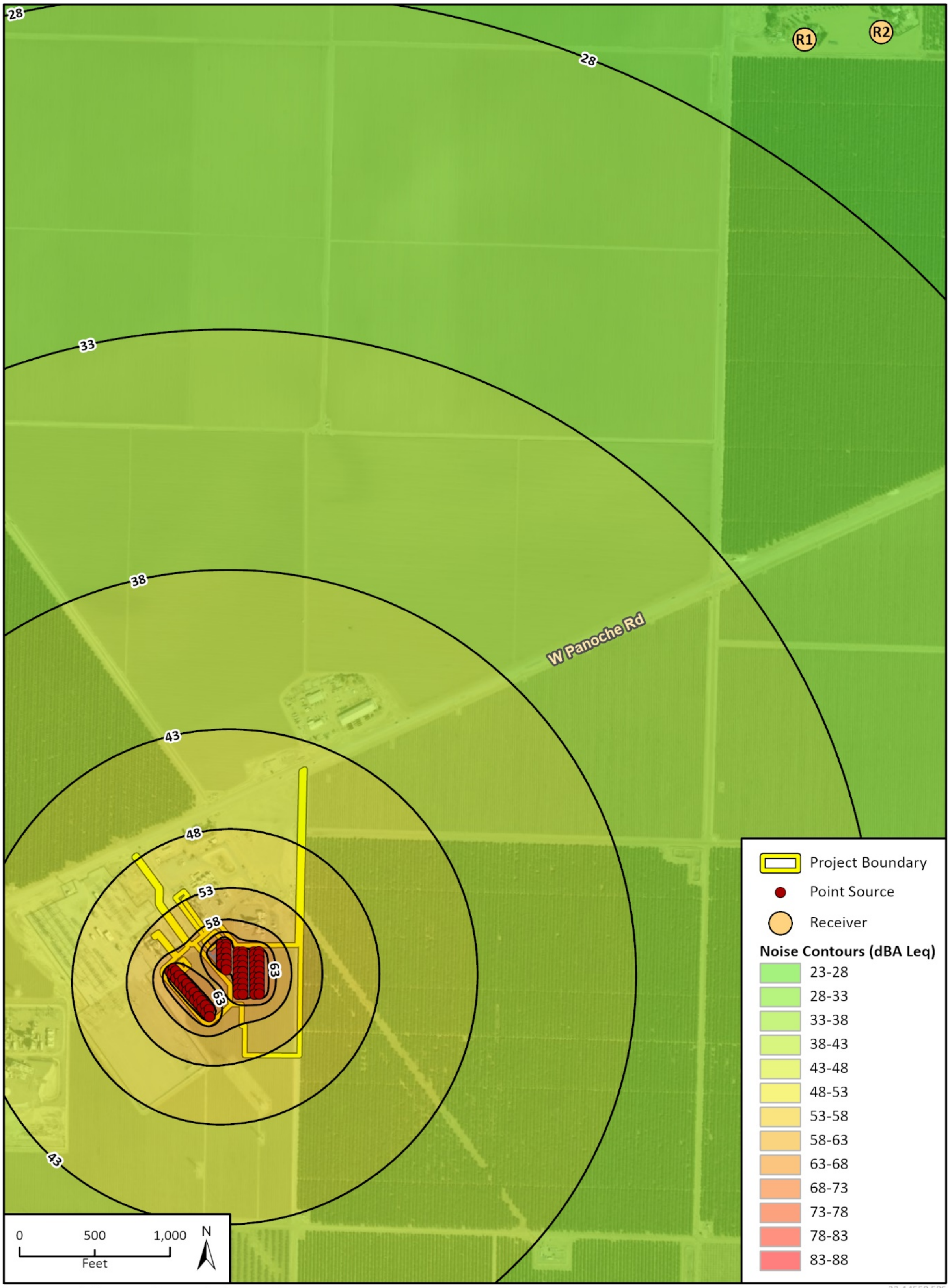
Figure 7 Panoche BESS Operational Noise Contours



Imagery provided by Microsoft Bing and its licensors © 2024.

23-14550 EPS
Fig X Noise Contours Panoche

Figure 8 Combined Operational Noise Contours



Imagery provided by Microsoft Bing and its licensors © 2024.

23-14550 EPS
Fig X Noise Contours Combined

4.2 Issue 2

Issue: Would the Project result in generation of excessive ground-borne vibration or ground-borne noise levels? **LESS THAN SIGNIFICANT**

Construction

Construction Equipment

MIDWAY BESS PROJECT

Construction activities known to generate excessive ground-borne vibration, such as pile driving, may be conducted during construction of the Midway BESS facility. Pile driving construction equipment may be used as close as approximately 7,000 feet of the nearest off-site structures i.e., the single-family residence located northeast of the Midway BESS site. Vibratory pile driving generates a vibration level of approximately 0.734 in/sec PPV at a distance of 25 feet (FTA 2018). This vibration level generated by a pile driver would attenuate to less than 0.001 in/sec PPV at a distance of 7,000 feet and would therefore not exceed the threshold of 0.2 in/sec PPV at this vibration-sensitive receiver. Therefore, temporary vibration impacts associated with construction would be less than significant.

PANOCHE BESS PROJECT

Construction activities known to generate excessive ground-borne vibration, such as pile driving, would not be conducted during construction of the Panoche BESS facility. The greatest source of vibration generated during construction would be a large bulldozer or grader, which may be used as close as approximately 7,350 feet of the nearest off-site structures i.e., the single-family residence located northeast of the Panoche BESS site. These types of equipment generate a vibration level of approximately 0.089 in/sec PPV at a distance of 25 feet (FTA 2018). This vibration level generated by a large bulldozer or grader would attenuate to less than 0.001 in/sec PPV at a distance of 7,350 feet and would therefore not exceed the threshold of 0.2 in/sec PPV at this vibration-sensitive receiver. Therefore, temporary vibration impacts associated with construction would be less than significant.

COMBINED BESS PROJECTS

Vibration levels generated during construction of both the Midway and Panoche BESS Projects would be greatest during construction of the Midway BESS Project due to high vibration levels resulting from pile driving activity. However, due to the proximity of the nearest sensitive receptor (single-family residence located northeast of the overall Project sites), vibration levels generated during construction of both Projects would be less than 0.001 in/sec PPV at this sensitive receptor. As a result, vibration levels would remain below the impact threshold of 0.2 in/sec PPV and temporary vibration impacts associated with construction would be less than significant.

Operation

Operational Vibration

MIDWAY BESS PROJECT

Operation of the Midway BESS Project would not include any substantial vibration sources; therefore, operational vibration impacts would be less than significant.

PANOCHE BESS PROJECT

Operation of the Panoche BESS Project would not include any substantial vibration sources; therefore, operational vibration impacts would be less than significant.

COMBINED BESS PROJECTS

Combined operation of both the Midway and Panoche BESS Projects would not include any substantial vibration sources; therefore, operation vibration impacts would be less than significant.

4.3 Issue 3

Issue:	For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels? **NO IMPACT**

Midway BESS Project

The closest major airport to the Midway BESS Project site is the Fresno Chandler Executive Airport (FCH), located over 40 nine miles to the east. The Project site is located well outside of the 60 dBA CNEL noise contour of the airport according to Figure 3-3 of the Fresno Chandler Executive Airport Master Plan Update (Kimley-Horn 2021). In addition, the Midway BESS facilities are utility-use projects and do not include any noise-sensitive outdoor use areas (e.g., courtyards, outdoor recreation areas) or interior spaces. Therefore, no substantial noise exposure from airport noise would occur to users of the Project, and no impacts would occur.

Panoche BESS Project

The closest major airport to the Panoche BESS Project site is the Fresno Chandler Executive Airport (FCH), located over 40 nine miles to the east. The Project site is located well outside of the 60 dBA CNEL noise contour of the airport according to Figure 3-3 of the Fresno Chandler Executive Airport Master Plan Update (Kimley-Horn 2021). In addition, the Panoche BESS facilities are utility-use projects and do not include any noise-sensitive outdoor use areas (e.g., courtyards, outdoor recreation areas) or interior spaces. Therefore, no substantial noise exposure from airport noise would occur to users of the Project, and no impacts would occur.

Combined BESS Projects

The closest major airport to the Project sites is the Fresno Chandler Executive Airport (FCH), located over 40 nine miles to the east. The Project sites are located well outside of the 60 dBA CNEL noise contour of the airport according to Figure 3-3 of the Fresno Chandler Executive Airport Master Plan

Update (Kimley-Horn 2021). In addition, both BESS facilities are utility-use projects and do not include any noise-sensitive outdoor use areas (e.g., courtyards, outdoor recreation areas) or interior spaces. Therefore, no substantial noise exposure from airport noise would occur to users of the Projects, and no impacts would occur.

5 Conclusion

The proposed Midway and Panoche BESS Projects would generate both temporary construction-related noise and long-term noise associated with operation.

For each BESS Project, construction noise would not exceed noise standards at the nearest sensitive receptors and impacts due to construction noise would be less than significant. Similarly, combined noise impacts due to simultaneous construction of both Projects would be less than significant.

For each BESS Project, operational noise would not exceed the County's daytime and nighttime noise limits at the nearest sensitive receptors located approximately 1.3 miles northeast of the Project sites. Similarly, combined operational noise generated by simultaneous operation of both BESS facilities would not exceed the County's daytime and nighttime noise limits at the nearest sensitive receptors. Therefore, long-term operational noise impacts would be less than significant.

Project-generated traffic during construction and operation would result in noise increases on West Panoche Road; however, a limited number of trips is anticipated and would not increase noise levels above the threshold of 3 dBA CNEL. Therefore, the individual and combined off-site traffic noise increase due to the BESS Projects would be less than significant.

Both Projects would generate groundborne vibration during construction, but vibration would not exceed the applicable thresholds at the sensitive structures nearest to the Project sites. Therefore, construction-related vibration impacts would be less than significant.

Due to the large distance between the Project sites and nearest airport, no substantial noise exposure from airport noise would occur to construction workers, maintenance workers, or infrequent visitors to the facility, and no impacts would occur.

6 References

California Department of Transportation (Caltrans). 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. (CT-HWANP-RT-13-069.25.2) September. Available at: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf

______. 2020. *Transportation and Construction Vibration Guidance Manual*. Available at: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf

California Energy Commission (CEC). 2007. *Panoche Energy Center Final Staff Assessment*. September.

Crocker, Malcom J. (Editor). 2007. *Handbook of Noise and Vibration Control Book*, ISBN: 978-0-471-39599-7, Wiley-VCH. October.

Federal Aviation Administration. 2020. *1050.1F Desk Reference*. February.

Federal Highway Administration (FHWA). 2006*. FHWA Highway Construction Noise Handbook*. (FHWAHEP-06-015; DOT-VNTSC-FHWA-06-02). Available at: http://www.fhwa.dot.gov/environment/construction_noise/handbook. Accessed November 2018.

______. 2011. *Highway Traffic Noise Analysis and Abatement Policy and Guidance*. (FHWA-HEP-10-025). December.

Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment*. November. Available at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

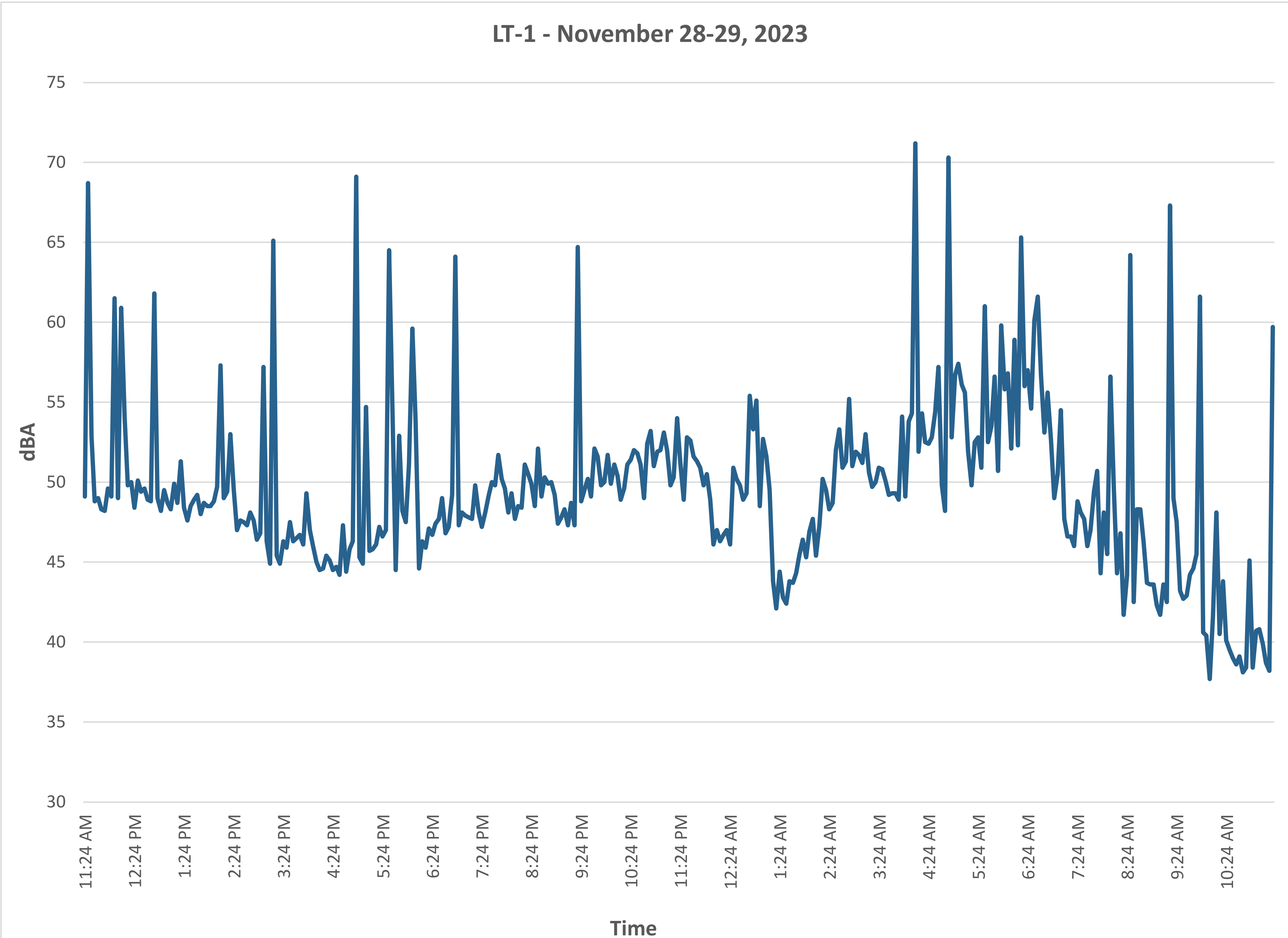
Fresno, County of. 2000. Fresno County General Plan. October.

Kimley-Horn. 2021. Fresno Chandler Executive Airport Master Plan Update. October.

Lawrence E. Kinsler and R. Frey, Austin and B. Coppens, Alan and V. Sanders, James. 1999. *Fundamentals of Acoustics*, 4th Edition. ISBN 0-471-84789-5. Wiley-VCH, December 1999.

Appendix A

Noise Measurement Data


LT-1 - November 28-29, 2023
75
70
65
60
55
50
45
40
35
30
dBA
11:24 AM
12:24 PM
1:24 PM
2:24 PM
3:24 PM
4:24 PM
5:24 PM
6:24 PM
7:24 PM
8:24 PM
9:24 PM
10:24 PM
11:24 PM
12:24 AM
1:24 AM
2:24 AM
3:24 AM
4:24 AM
5:24 AM
6:24 AM
7:24 AM
8:24 AM
9:24 AM
10:24 AM
Time

Appendix B

Construction Noise Modeling Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/27/2023
Case Description: Midway BESS

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Access Rd Construction	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Grader	No	40	85.0		50.0	0.0
Dump Truck	No	40	84.0		50.0	0.0
Paver	No	50	85.0		50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	85.0	82.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	86.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/27/2023
Case Description: Midway BESS

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site Prep & Grading	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Compactor (ground)	No	20		83.2	50.0	0.0
Grader	No	40	85.0		50.0	0.0
Dump Truck	No	40	84.0		50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground)	83.2	76.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	84.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/27/2023
Case Description: Midway BESS

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Foundation Installation	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compactor (ground)	No	20		83.2	50.0	0.0
Crane	No	16	85.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Dump Truck	No	40	84.0		50.0	0.0
Vibratory Pile Driver	No	20		100.8	50.0	0.0
Vibratory Pile Driver	No	20		100.8	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compactor (ground)	83.2	76.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	85.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vibratory Pile Driver	100.8	93.8	N/A	N/A	N/A	N/A	N/A							

N/A N/A N/A N/A N/A N/A N/A
Vibratory Pile Driver 100.8 93.8 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Total 100.8 97.1 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/27/2023
Case Description: Midway BESS

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Tap & Switch	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16	85.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Dump Truck	No	40	84.0		50.0	0.0
Man Lift	No	20	85.0		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Crane	85.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	85.0	78.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	85.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2023
Case Description: Panoche BESS

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Access Road Extension	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Grader	No	40	85.0		50.0	0.0
Dump Truck	No	40	84.0		50.0	0.0
Paver	No	50	85.0		50.0	0.0
Pickup Truck	No	40		75.0	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	85.0	82.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75.0	71.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Total	85.0	86.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2023
Case Description: Panoche BESS

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site Prep & Grading	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Compactor (ground)	No	20		83.2	50.0	0.0
Compressor (air)	No	40	80.0		50.0	0.0
Front End Loader	No	40	80.0		50.0	0.0
Grader	No	40	85.0		50.0	0.0
Dump Truck	No	40	84.0		50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground)	83.2	76.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A							

								N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2023
Case Description: Panoche BESS

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Foundation Installation	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	80.0		50.0	0.0
Auger Drill Rig	No	20	85.0		50.0	0.0
Compactor (ground)	No	20		83.2	50.0	0.0
Compressor (air)	No	40	80.0		50.0	0.0
Crane	No	16	85.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Front End Loader	No	40	80.0		50.0	0.0
Dump Truck	No	40	84.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Auger Drill Rig	85.0	78.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground)	83.2	76.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	80.0	76.0	N/A	N/A	N/A	N/A	N/A							

								N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	85.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	87.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2023
Case Description: Panoche BESS

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Tap & Switch	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40	80.0		50.0	0.0
Crane	No	16	85.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Dump Truck	No	40	84.0		50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	85.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Total	85.0	86.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Appendix C

Traffic Modeling Results

Traffic Noise Calculator: FHWA 77-108 **Project Title: PNUM-01**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																		
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	61.4	65.2	65.4	24	53	114	W Panoche Rd	I-5 to PEC site	1,057	65	0.6%	85.0%	5.0%	10.0%	80.0%	5.0%	15.0%	2	Soft	50	0.5	20
2	62.1	65.8	66.0	27	58	125	W Panoche Rd	I-5 to PEC site	1,217	65	0.6%	85.0%	5.0%	10.0%	80.0%	5.0%	15.0%	2	Soft	50	0.5	20
3	62.6	66.3	66.5	29	63	136	W Panoche Rd	I-5 to PEC site	1,377	65	0.6%	85.0%	5.0%	10.0%	80.0%	5.0%	15.0%	2	Soft	50	0.5	20

Appendix D

SoundPLAN Modeling Results

Midway and Panoche BESS
Run info
Operational Noise Impact_Midway_Single Points

Project info

Project title:	Midway and Panoche BESS
Project No.:	23-14550
Project engineer:	Kyle Pritchard
Customer:	Patch Services LLC

Description:
Model for Midway and Panoche BESS Projects in Fresno County, CA.

Run description

Calculation type:	Single Point Sound
Title:	Operational Noise Impact_Midway_Single Points
Group	
Run file:	RunFile.runx
Result number:	5
Local calculation (ThreadCount=12)	
Calculation start:	1/22/2024 11:16:53 AM
Calculation end:	1/22/2024 11:16:54 AM
Calculation time:	00:00:278 [m:s:ms]
No. of points:	2
No. of calculated points:	2
Kernel version:	SoundPLANnoise 9.0 (1/13/2023) - 64 bit

Run parameters

Reflection order:	3	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	5000 m	
Weighting:	dB(A)	
Allowed tolerance (per individual source):		0.100 dB
Create ground effect areas from road surfaces:		Yes
Treat roads as terrain following:	No	

Standards:
- Industry: ISO 9613-2: 1996
- Air absorption: ISO 9613-1
- regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect
- Limitation of screening loss:
  - single/multiple 20.0 dB /25.0 dB
- Side diffraction: ISO/TR 17534-3:2015 compliant: no side diffraction if terrain blocks line of sight
- Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss
- Environment:
  - Air pressure 1013.3 mbar
  - rel. humidity 70.0 %
  - Temperature 10.0 °C
  - Meteo. corr. C0(7-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;
  - Ignore Cmet for Lmax industry calculation: No
- Parameter for screening: C2=20.0

Dissection parameters:

Distance to diameter factor	8
Minimal distance	1 m
Max. difference ground effect + diffraction	1.0 dB
Max. number of iterations	4

Attenuation

Foliage:	ISO 9613-2
Built-up area:	ISO 9613-2
Industrial site:	ISO 9613-2

Assessment: Day Night Level LDN
Reflection of "own" facade is suppressed

Geometry data

Calculation Area.geo	1/22/2024 10:32:20 AM
GIS_References.geo	1/22/2024 10:45:10 AM
Midway Boundary.geo	1/22/2024 11:02:10 AM
Noise Sources_Batteries (Midway).geo	1/22/2024 10:38:50 AM
Noise Sources_Inverters (Midway).geo	1/22/2024 10:38:52 AM
Project Boundary.geo	1/22/2024 10:32:20 AM
Sensitive Receptors.geo	1/22/2024 11:02:10 AM

Midway and Panoche BESS
Assessed receiver levels
Operational Noise Impact_Midway_Single Points

Receiver	Usage	Fl	Dir	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn dB(A)	Leq,d dB(A)	
R1	SCR	G					29.8	23.4	
R2	SCR	G					29.3	22.8	

Midway and Panoche BESS
Run info
Operational Noise Impact_Panoche_Single Points

Project info

Project title:	Midway and Panoche BESS
Project No.:	23-14550
Project engineer:	Kyle Pritchard
Customer:	Patch Services LLC

Description:
Model for Midway and Panoche BESS Projects in Fresno County, CA.

Run description

Calculation type:	Single Point Sound
Title:	Operational Noise Impact_Panoche_Single Points
Group	
Run file:	RunFile.runx
Result number:	7
Local calculation (ThreadCount=12)	
Calculation start:	1/22/2024 11:17:52 AM
Calculation end:	1/22/2024 11:17:53 AM
Calculation time:	00:00:293 [m:s:ms]
No. of points:	2
No. of calculated points:	2
Kernel version:	SoundPLANnoise 9.0 (1/13/2023) - 64 bit

Run parameters

Reflection order:	3	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	5000 m	
Weighting:	dB(A)	
Allowed tolerance (per individual source):		0.100 dB
Create ground effect areas from road surfaces:		Yes
Treat roads as terrain following:	No	

Standards:
- Industry: ISO 9613-2: 1996
- Air absorption: ISO 9613-1
- regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect
- Limitation of screening loss:
  - single/multiple 20.0 dB /25.0 dB
- Side diffraction: ISO/TR 17534-3:2015 compliant: no side diffraction if terrain blocks line of sight
- Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss
- Environment:
  - Air pressure 1013.3 mbar
  - rel. humidity 70.0 %
  - Temperature 10.0 °C
  - Meteo. corr. C0(7-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;
  - Ignore Cmet for Lmax industry calculation: No
- Parameter for screening: C2=20.0

Dissection parameters:

Distance to diameter factor	8
Minimal distance	1 m
Max. difference ground effect + diffraction	1.0 dB
Max. number of iterations	4

Attenuation

Foliage:	ISO 9613-2
Built-up area:	ISO 9613-2
Industrial site:	ISO 9613-2

Assessment: Day Night Level LDN
Reflection of "own" facade is suppressed

Geometry data

Calculation Area.geo	1/22/2024 10:32:20 AM
GIS_References.geo	1/22/2024 10:45:10 AM
Noise Sources_Batteries (Panoche).geo	1/22/2024 10:45:10 AM
Noise Sources_Inverters (Panoche).geo	1/22/2024 10:45:10 AM
Panoche Boundary.geo	1/22/2024 11:02:20 AM
Project Boundary.geo	1/22/2024 10:32:20 AM
Sensitive Receptors.geo	1/22/2024 11:02:10 AM

Midway and Panoche BESS
Assessed receiver levels
Operational Noise Impact_Panoche_Single Points

Receiver	Usage	Fl	Dir		Lr,lim	Lr,lim	Ldn	Leq,d	
				dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
R1	SCR	G					26.4	19.9	
R2	SCR	G					25.8	19.4	

Midway and Panoche BESS
Run info
Operational Noise Impact_COMBINED_Single Points

Project info

Project title:	Midway and Panoche BESS
Project No.:	23-14550
Project engineer:	Kyle Pritchard
Customer:	Patch Services LLC

Description:
Model for Midway and Panoche BESS Projects in Fresno County, CA.

Run description

Calculation type:	Single Point Sound
Title:	Operational Noise Impact_COMBINED_Single Points
Group	
Run file:	RunFile.runx
Result number:	9
Local calculation (ThreadCount=12)	
Calculation start:	1/22/2024 11:18:45 AM
Calculation end:	1/22/2024 11:18:47 AM
Calculation time:	00:00:385 [m:s:ms]
No. of points:	2
No. of calculated points:	2
Kernel version:	SoundPLANnoise 9.0 (1/13/2023) - 64 bit

Run parameters

Reflection order: 3
Maximum reflection distance to receiver: 200 m
Maximum reflection distance to source: 50 m
Search radius: 5000 m
Weighting: dB(A)
Allowed tolerance (per individual source): 0.100 dB
Create ground effect areas from road surfaces: Yes
Treat roads as terrain following: No

Standards:
- Industry: ISO 9613-2: 1996
- Air absorption: ISO 9613-1
- regular ground effect (chapter 7.3.1), for sources without a spectrum automatically alternative ground effect
- Limitation of screening loss:
  - single/multiple 20.0 dB /25.0 dB
- Side diffraction: ISO/TR 17534-3:2015 compliant: no side diffraction if terrain blocks line of sight
- Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss
- Environment:
  - Air pressure 1013.3 mbar
  - rel. humidity 70.0 %
  - Temperature 10.0 °C
  - Meteo. corr. C0(7-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;
  - Ignore Cmet for Lmax industry calculation: No
- Parameter for screening: C2=20.0

Dissection parameters:

Distance to diameter factor	8
Minimal distance	1 m
Max. difference ground effect + diffraction	1.0 dB
Max. number of iterations	4

Attenuation

Foliage:	ISO 9613-2
Built-up area:	ISO 9613-2
Industrial site:	ISO 9613-2

Assessment: Day Night Level LDN
Reflection of "own" facade is suppressed

Geometry data

Calculation Area.geo	1/22/2024 10:32:20 AM
GIS_References.geo	1/22/2024 10:45:10 AM
Midway Boundary.geo	1/22/2024 11:02:10 AM
Noise Sources_Batteries (Midway).geo	1/22/2024 10:38:50 AM
Noise Sources_Batteries (Panoche).geo	1/22/2024 10:45:10 AM
Noise Sources_Inverters (Midway).geo	1/22/2024 10:38:52 AM
Noise Sources_Inverters (Panoche).geo	1/22/2024 10:45:10 AM
Panoche Boundary.geo	1/22/2024 11:02:20 AM
Project Boundary.geo	1/22/2024 10:32:20 AM
Sensitive Receptors.geo	1/22/2024 11:02:10 AM

Midway and Panoche BESS
Assessed receiver levels
Operational Noise Impact_COMBINED_Single Points

Receiver	Usage	FI	Dir	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn dB(A)	Leq,d dB(A)	
R1	SCR	G					31.4	25.0	
R2	SCR	G					30.9	24.5	

Midway and Panoche Battery Energy Storage System (BESS) Projects

Biological Resources Assessment

prepared for

Midway BESS LLC
Panoche BESS LLC
4350 Executive Drive, Suite 320
San Diego, California 92121

prepared by

Rincon Consultants, Inc.
7080 North Whitney Avenue
Fresno, California 93720

March 2024

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Table of Contents

Tables

Figures

Appendices

This page intentionally left blank.

1 Introduction

This Biological Resources Assessment (BRA) documents the findings of a biological resources literature review and reconnaissance field survey conducted by Rincon Consultants, Inc. (Rincon) for the proposed Midway Battery Energy Storage System (BESS) Project and Panoche BESS Project (Midway-Panoche BESS Projects both collectively hereinafter referred to as "Project") in an unincorporated portion of northwestern Fresno County, California. The Midway BESS Project will be owned and operated by Midway BESS LLC, and the Panoche BESS Project will be owned and operated by Panoche BESS LLC. Panoche BESS LLC will lease land from Midway BESS LLC for the Panoche BESS Project.

This report documents existing biological conditions at the Projects and evaluates the potential for the Projects to impact sensitive biological resources such as special-status species, sensitive habitats, and aquatic resources within the County of Fresno's (County) jurisdiction. Where impacts are identified, this BRA also recommends mitigation measures that may address or mitigate biological impacts, if any.

1.1 Project Location and Description

The proposed Midway and Panoche BESS projects (Projects) are located south of West Panoche Road in an unincorporated portion of northwestern Fresno County, California. The Midway BESS Project is proposed at up to a nominal 120 megawatt hours (MWh) and the Panoche BESS Project is proposed at up to 57 MWh. The Projects are located within an approximately 25-acre area (BESS Lease Area) for BESS development to be leased within a larger 91.33-acre parcel of primarily agricultural land on APN 027-060-91S. The usable area for BESS development within the BESS Lease Area excludes several existing transmission line rights-of-way that are not appropriate for BESS development. The southern portion of the BESS Lease Area is not currently proposed to be developed with BESS facilities – i.e., will remain undeveloped under the currently proposed Projects. During site preparation, the proposed Project plans include removing the existing vineyards on the entire 25-acre BESS Lease Area, chipping the removed vegetation and spreading it as mulch on the southern area, and revegetating areas that will not be developed with BESS related facilities with native grasses to stabilize the soil surface.

The BESS Projects will be constructed in part to support California's current need for additional electrical supply capacity during peak load demand time periods. Midway BESS LLC will construct, own, and operate the Midway BESS Project, and will lease the overall BESS Lease Area. Panoche BESS LLC will construct, own, and operate the Panoche BESS Project and sublease land from Midway BESS LLC for the Panoche BESS portion of the lease.

The Midway BESS Project will interconnect to the electrical grid via a 13.8 kilovolt (kV) connection to the existing Midway Peaker plant to the north of the Midway BESS. The Panoche BESS Project will interconnect to the electrical grid via a 13.8 kV connection to the existing Panoche Peaker plant to the north of the Panoche BESS. The Midway and Panoche Peaker plants are both connected to the existing Pacific Gas and Electric Company (PG&E) Panoche Substation.

The key components of the proposed Midway BESS Project are as follows:

- Containerized battery systems with internal heating ventilation and air conditioning (HVAC) and internal fire detection and fire suppression systems in each container, battery management systems (BMS), power conversion systems (PCS) (also called inverters), transformers, and electrical conductors to be installed. The proposed Midway BESS Project includes an overhead 13.8 kV gen-tie connection from the BESS switchyard to the low side of the existing 13.8 kV/115 kV generation step-up (GSU) transformer at the existing Midway Peaker Plant to the north. The interconnection at the Midway Peaker Plant will require an electrical conductor connection that will involve California Energy Commission (CEC) permitting for the portion of the connection on the Midway Peaker Plant property and County permitting for the portion of the Project outside the CEC jurisdictional Midway Peaker Plant property. Site access to the Midway BESS Project site would involve the use and improvement of an existing access road that runs north -to-south from West Panoche Road on the eastern side of the existing Wellhead Electric Peaker plant and the BESS Lease Area. Minor improvements to this access road, including paving will be required.

The key components of the proposed Panoche BESS Project are as follows:

- Containerized battery systems with internal heating ventilation and air conditioning (HVAC) and internal fire detection and fire suppression systems in each container, battery management systems (BMS), power conversion systems (PCS) (also called inverters), transformers, and electrical conductors to be installed. The interconnection at the Panoche Peaker Plant will require an electrical conductor connection to connect to the low side of the 13.8 kV/115 kV GSU transformer at the existing CalPeak Panoche Peaker Plant switchyard. Site access to the Panoche BESS Project site would involve the use of an existing access road on the Panoche Peaker property. Minor improvements to the existing access road, including adding a short extension to the south to connect to the Panoche BESS area and paving will be required.

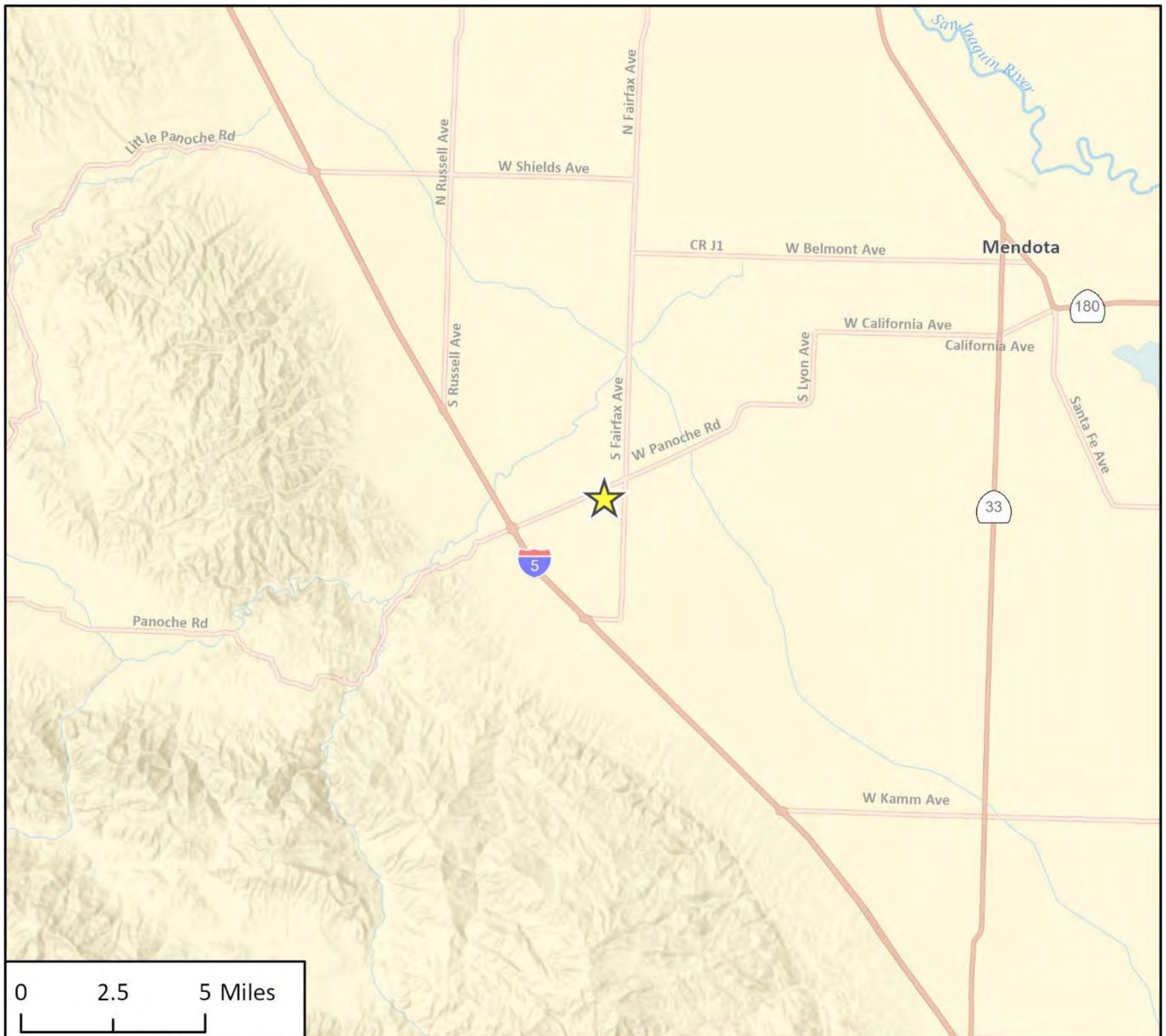
The proposed BESS developments include separate stormwater detention areas, but a combined construction laydown area and internal access road system. The BESS Projects may be operated simultaneously with the adjacent peaker plants in accordance with the market-optimized dispatch instructions received from the California Independent System Operator (CAISO's) Automated Dispatching System (ADS), but the combined outputs will be control-limited to never exceed the limits of the respective Generator Interconnection Agreements.

The Midway and Panoche BESS Projects will require discretionary permitting approvals involving individual Unclassified Conditional Use Permits and associated California Environmental Quality Act (CEQA) compliance with Fresno County. In addition, the portion of the Midway BESS Project 13.8 kV gen-tie connection line on the Midway Peaker Plant property will require approval of a Petition for Post Certification Amendment from the CEC (CEC Docket No. 06-AFC-10). The CEC's jurisdiction is limited to the portion of the Midway BESS Project gen-tie line on the Midway Peaker Plant property. This technical study focuses on the portion of the Projects that are under Fresno County jurisdiction.

Fresno County permitting requirements are expected to include applicant commitments for decommissioning and removal of BESS facilities and reclamation of the BESS Lease Area to an agricultural ready condition at the end of the Projects' lives.

The Projects' operational lives and associated land leases are anticipated to be up to 40 years.

Figure 1 Regional Location Map



Imagery provided by Esri and its licensors © 2023.

23_14550_Bio
Fig 1 Regional Location

Project Location

N

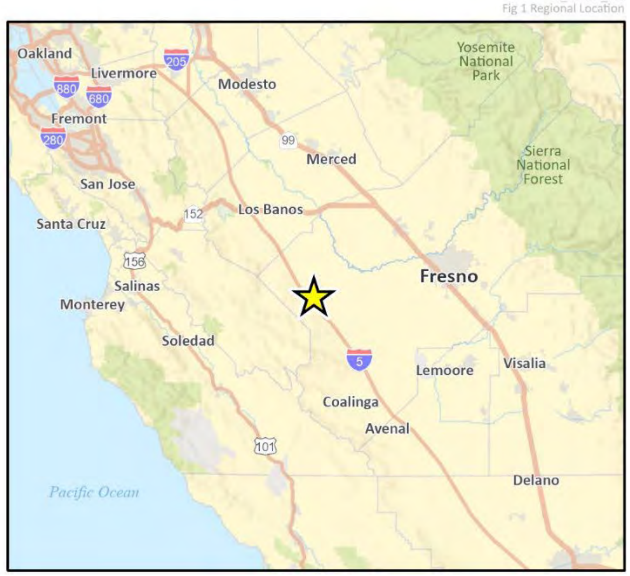
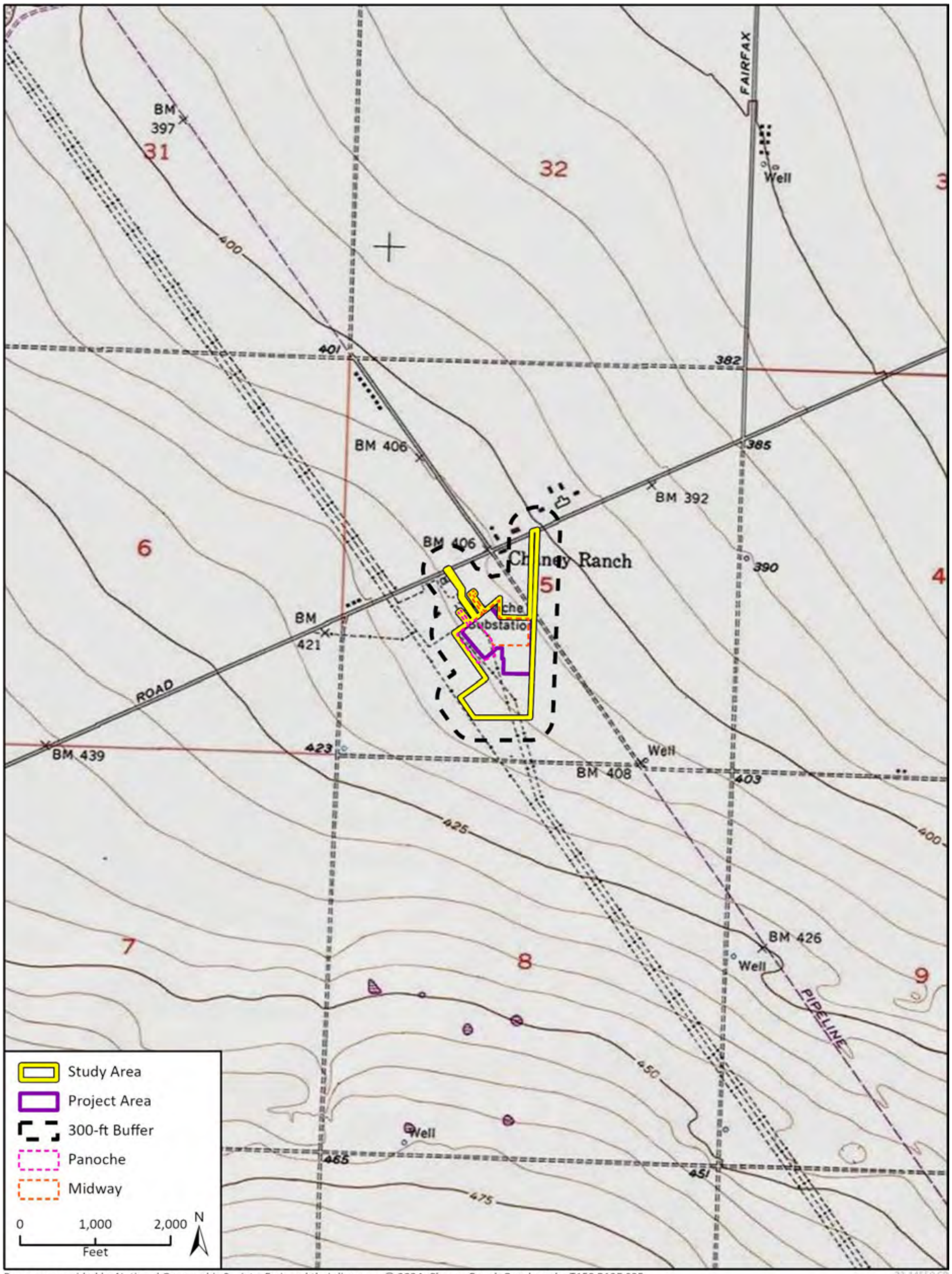


Figure 2 Project Location Map



Basemap provided by National Geographic Society, Esri, and their licensors © 2024. Chaney Ranch Quadrangle. T15S R13E S05. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

2 Methodology

2.1 Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees. Regulatory authority over biological resources is shared by Federal, State, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions, Fresno County.

2.1.1 Definition of Special-status Species

For the purposes of this report, special-status species include:

- Species listed as threatened or endangered under the federal Endangered Species Act (ESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the Projects
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA)
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW)
- Species designated as sensitive by the U.S. Forest Service or Bureau of Land Management (BLM), if the Projects would affect lands administered by these agencies
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy.

2.1.2 Environmental Statutes

For the purpose of this report, the evaluation of potential impacts to biological resources was guided by the following statutes (Appendix A):

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- Native Plant Protection Act
- County of Fresno

2.1.3 Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA guidelines, were used to evaluate potential environmental effects. Based on these criteria, the proposed Project would have a significant effect on biological resources if it would:

a) *Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.*

c) *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.*

2.2 Literature Review

Prior to conducting the field reconnaissance survey, Rincon reviewed literature to collect baseline information on biological resources potentially occurring at the Projects and in the surrounding areas. The literature review included information available in peer reviewed journals and standard reference materials (Holland 1986; Baldwin et al. 2012; Sawyer et al. 2009; Stebbins 2003; American Ornithologists Union 2014).

Rincon also conducted a review of relevant databases for sensitive resource occurrences in the Chaney Ranch, California USGS 7.5-minute topographic quadrangle and eight surrounding quadrangles (nine-quad search), Hammonds Ranch, Broadview Farms, Firebaugh, Coit Ranch, Levis, Monodine Ridge, Tumey Hills, and Chounet Ranch (USGS 2023). The sensitive species queries from the CDFW California Natural Diversity Data Base (CNDDB) (CDFW 2023a) and Biogeographic Information and Observation System (BIOS) (CDFW 2023b); the California Native Plant Society (CNPS) Online Inventory of Rare Plants (CNPS 2023); and the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation System (IPaC) (USFWS 2023a) were evaluated and the species list within a nine-quad search were combined and assessed in the Special Status Species Evaluation Tables in Appendix D. Other resources included the CDFW Special Animals List (CDFW 2023d) and CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2023e).

The USFWS National Wetlands Inventory (NWI) Wetlands Mapper (USFWS 2023b) was utilized to determine waters, wetland, and streambed resources in the vicinity, and the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA, NRCS 2023a) was queried to determine soil map units, including the State Soils Data Access Hydric

Soils List (USDA, NRCS 2023b) to determine if any soil map unit types mapped in or near the study area were classified as hydric. Further, the Critical Habitat Portal (USFWS 2023c), and California Natural Communities List and Sensitive Natural Communities List (CDFW 2023c) were reviewed for the presence of critical habitat, and sensitive and natural communities. Other sources of information included aerial photographs, topographic maps, geologic maps, climatic data, and Project plans.

2.3 Field Reconnaissance Survey

A biological resources reconnaissance survey was conducted in the 300-foot Buffer Area, defined as the Project Area, study area, plus a 300-foot buffer. The Project Area, study area, and Buffer Area are clearly defined in Figures 3 and 4. The Buffer Area was evaluated to assess the habitat suitability for potential special-status species, map the existing vegetation communities and land cover types present, map any evident sensitive biological resources currently on the Projects, document the presence of potential jurisdictional waters and/or wetlands, document any wildlife connectivity/movement features, and record all observations of plant and wildlife species within the Buffer Area. Areas where access was restricted, including private/inaccessible property, were surveyed with binoculars.

Rincon Biologist Morgan Craig conducted two biological resources reconnaissance surveys on August 4, 2023, and November 17, 2023. Survey information including time and weather conditions are detailed in Table 1 below. Site Photographs from the surveys are included as Appendix B and a Floral and Faunal Compendium are included as Appendix C.

Table 1 Field Surveys

Date	Personnel	Time	Weather Conditions	Survey Type
08/04/2023	Morgan Craig	07:00 am – 11:45 am	61-81°F, winds 3-5 mph, no precipitation, 10% cloud cover, good visibility	Pedestrian biological resources reconnaissance survey
11/17/2023	Morgan Craig	07:30 am – 11:40 am	51-72°F, winds 4-7 mph, no precipitation, 90% cloud cover, excellent visibility	Pedestrian biological resources reconnaissance survey

The biologist searched for special-status plants that would have been apparent and identifiable during the time of the survey; however, it should be noted that the biological reconnaissance surveys do not meet the standards of a protocol floristic survey for rare plants. Therefore, the potential for special-status plants to occur was based on a habitat suitability analysis and the two biological reconnaissance surveys. It should be noted that the two biological reconnaissance surveys were conducted in August and November 2023 and covered two different blooming seasons; therefore, increasing the likelihood of observations of a higher variety of plant species. Floral nomenclature for native and non-native plants in this report follows Baldwin et al. (2012) as updated by The Jepson Online Interchange (UC Berkeley 2023).

The biologist also documented wildlife species that were observed directly or detected from calls, burrows, tracks, scat, nests, or other signs. The detection of wildlife species was limited by seasonal and temporal factors; however, the two biological reconnaissance surveys were conducted in the summer and fall, increasing the likelihood of observations of a higher variety of wildlife species. Potentially occurring winter migrants may not have been observed. In addition, the reconnaissance surveys did not serve as a protocol survey to definitively determine the presence or absence of special-status wildlife if not directly observed during the survey; however, the biologist conducted focused surveys for two special-status species, burrowing owl (*Athene cunicularia;* BUOW; SSC [Species of Special Concern] and Birds of Conservation Concern [BCC]) and San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF; Federally Endangered and State Threatened). As the surveys were performed during the day, identification of nocturnal animals was limited to signs, if present on-site. Therefore, the potential for special-status wildlife species to occur on the site was determined based on a habitat suitability assessment and the two biological reconnaissance surveys. In this report, zoological nomenclature is based upon Dunn and Alderfer (2011) for birds, and Burt and Grossenheider (1980) for mammals.

This page intentionally left blank.

3 Existing Conditions

This section provides background information pertaining to the natural environment and context of the study area. This background information describes the distribution and type of biological resources documented in the vicinity of the study area to inform this BRA.

3.1 Physical Characteristics

The Projects are situated at an approximate distance of 68 miles east of the Pacific Ocean, 1.75 miles southwest of Panoche Creek, 15.5 miles southeast of Mercey Hot Springs, and roughly seven miles northeast of Tumey Hills. The study area is notably flat and level and consists of developed land associated with the existing energy facilities to the north and west, isolated areas of barren land in the center to the north and east, and large areas of agricultural land consisting of vineyards and almond and fruit orchards to the north, south, and east. The areas surrounding the Buffer Area include a variety of agricultural lands.

3.1.1 Watershed and Drainages

The Buffer Area is in the Great Valley geomorphic province, one of the 11 geomorphic provinces of California (California Geological Survey 2002). The Great Valley is an elongated lowland approximately 50 miles wide and 400 miles long. It is bounded to the east by the Sierra Nevada Range and to the west by the Coast Ranges (California Geological Survey 2002). A relatively undeformed basin, the Great Valley rises from about sea level to approximately 400 feet in elevation at the north and south ends. The northern portion of the valley, referred to as the Sacramento Valley, is drained by the Sacramento River, while the southern portion of the valley, referred to as the San Joaquin Valley, is drained by the San Joaquin River. Both rivers converge in the Central Valley and drain into San Francisco Bay. The Great Valley is predominantly alluvial, flood, and delta plains formed by these two major river systems.

The Buffer Area is within the Tulare Lake watershed which extends approximately 134 miles east to west from the Sierra Nevada to the Coast Ranges – and 163 miles north to south from the San Joaquin River to the Tehachapi Range (California DWR 2015). This watershed includes all of Tulare and Kings counties, and most of Fresno and Kern counties. Major rivers that drain into the Tulare Lake watershed include the Kings, Kaweah, Tule, and Kern rivers, which extend from the Sierra Nevada headwaters in eastern Fresno and Tulare counties, to their termination at the former Tulare Lake and Buena Vista Lake beds (California DWR 2015). The study area is 2.4 miles west of the San Luis Canal, a joint federal/state facility that is a section of the California Aqueduct.

The Buffer Area does not include any jurisdictional aquatic features; however, there are evident drainage courses present within the study area that include agricultural dirt drainage channels along West Panoche Road and the access road adjacent and parallel to the eastern boundary of the study area. There are also four manmade depressions within the developed energy facilities on the Projects' site; however, no standing water was observed during the reconnaissance surveys. No wetlands or other water features occur within the proposed Projects or Buffer Area.

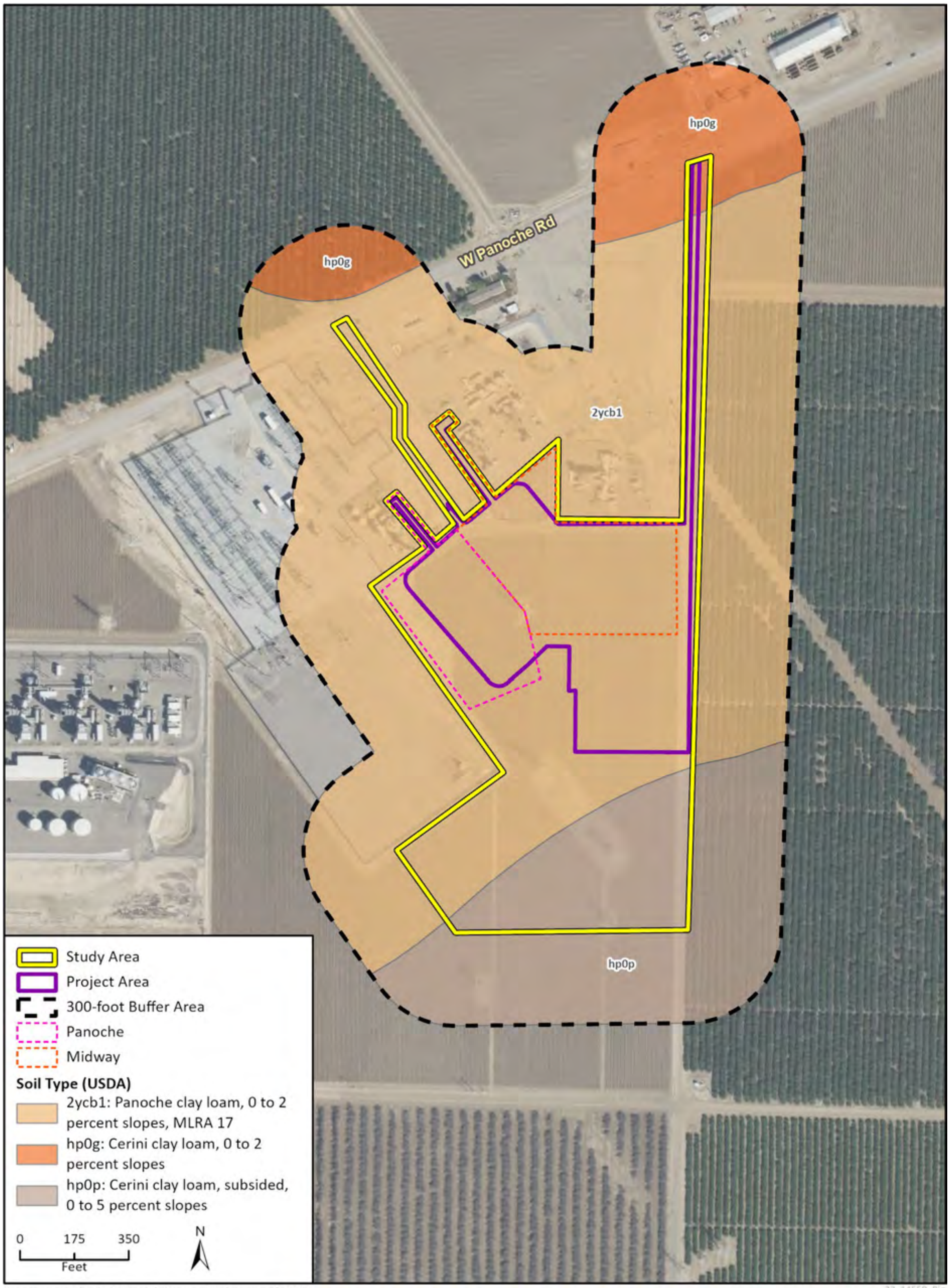
3.1.2 Topography and Soils

The topography of the Buffer Area is notably flat and level, with elevations ranging from approximately 390 feet above mean sea level (amsl) to 400 feet amsl. Based on the most recent USDA NRCS soil survey for the study area, the study area contains three soil map units (see Figure 3 below) within the Panoche and Cerini soil series' (USDA, NRCS 2023a) Both of the series are characterized by the presence of very well-drained soils situated on alluvial fans.

Table 2 Project Soils

Soil Map Unit Name	Soil Map Unit Name Description	Acreage within Study Area
Cerini clay loam, 0 to 2 percent slopes	Occurs on alluvial fans and has slopes of 0 to 2 percent. This soil is derived from calcareous sedimentary rock. Soils are typically very deep and well-drained with moderately low permeability. A typical soil profile consists of clay loam over stratified sandy loam to clay loam. Depth to restrictive feature is more than 80 inches. Nonhydric soil.	8.5
Cerini clay loam, subsided, 0 to 5 percent slopes	Occurs on alluvial fans and has slopes of 0 to 5 percent. This soil is derived from calcareous sedimentary rock. Soils are typically very deep and well-drained with moderately low permeability. A typical soil profile consists of clay loam over stratified sandy loam to clay loam. Depth to restrictive feature is more than 80 inches. Nonhydric soil.	17.7
Panoche clay loam, 0 to 2 percent slopes, MLRA 17	Occurs on alluvial fans and has slopes of 0 to 2 percent. This soil is derived from calcareous sedimentary rock. Soils are typically well-drained with moderately low permeability. A typical soil profile consists of clay loam over loam over sandy loam. Depth to restrictive feature is more than 80 inches. Nonhydric soil.	68.2

Figure 3 Project Soils Map



Imagery provided by Microsoft Bing and its licensors © 2024.

23_14550_Bio
Fig X Soils

3.1.3 Vegetation, Land Cover, and Habitat Types

The Buffer Area consists of developed land associated with the existing energy facilities, isolated areas of barren land, and large areas of agricultural land consisting of vineyards and almond and fruit orchards. The areas surrounding the Buffer Area include a variety of agricultural lands including active agricultural crop production. Based on Google Earth imagery, most of the Buffer Area surrounding the existing energy facilities appears to have been historically graded, mowed, and disked for agricultural purposes, so most of the land in the Buffer Area that is not developed is characterized by active agriculture. A majority of the Buffer Area has been graded in the past or is currently developed as vineyards. Consequently, the Buffer Area no longer retains its natural characteristics. No native vegetation communities are present within the Buffer Area. In the surrounding regions where the natural setting persists, the vegetation comprises California annual and perennial grassland including great basin grassland and alley and foothill grassland, chenopod scrub and great basin scrub. The climate in the vicinity of the study area is classified as semi-arid.

Three land cover types were observed in the Buffer Area: 1) developed; 2) barren; and 3) agricultural (Figure 4 below). Brief descriptions of the land cover types present in the Buffer Area are provided below and are primarily based on habitat type classifications included in the California Wildlife Habitat Relationships System (CWHR; CDFW 1988). Vegetation community characterizations for this analysis were also based on the classification systems presented in *A Manual of California Vegetation, Second Edition* ([MCV2] Sawyer et al. 2009). *Preliminary Description of Terrestrial Natural Communities of California* (Holland 1986) has been superseded by the MCV2, but is included for reference. Plant species nomenclature and taxonomy used for this report follows the treatments within the second edition of *The Jepson Manual* (Baldwin et al. 2012).

Developed

The northwestern portion of the Buffer Area consists of developed land including structures and roads associated with the existing energy facilities. This land cover type is not naturally occurring and is not described in the CWHR (CDFW 1988), Holland (1986) or Sawyer et al. (2009) classification systems. This land cover type consists of areas that have been modified and are built up such that most or all vegetation has been removed or only small areas of ruderal vegetation are present. Within the Buffer Area, this land cover type covers 31.5 acres and consists of paved roads and structures and other infrastructure associated with the existing facilities. The northern portion of the 300-foot buffer is heavily comprised of developed land.

Barren

Barren land cover, described by the CWHR (CDFW 1988), occurs throughout the Buffer Area as graded unpaved agricultural access roads, strips of land adjacent to access roads, and a large clearing immediately east of the Projects. This land cover type is defined by the absence of vegetation and generally consists of less than two percent total herbaceous cover and covers 12.8 acres of the Buffer Area. This land cover is highly disturbed due to vehicle traffic and previous and ongoing maintenance activities including grading, mowing, and disking.

Agricultural

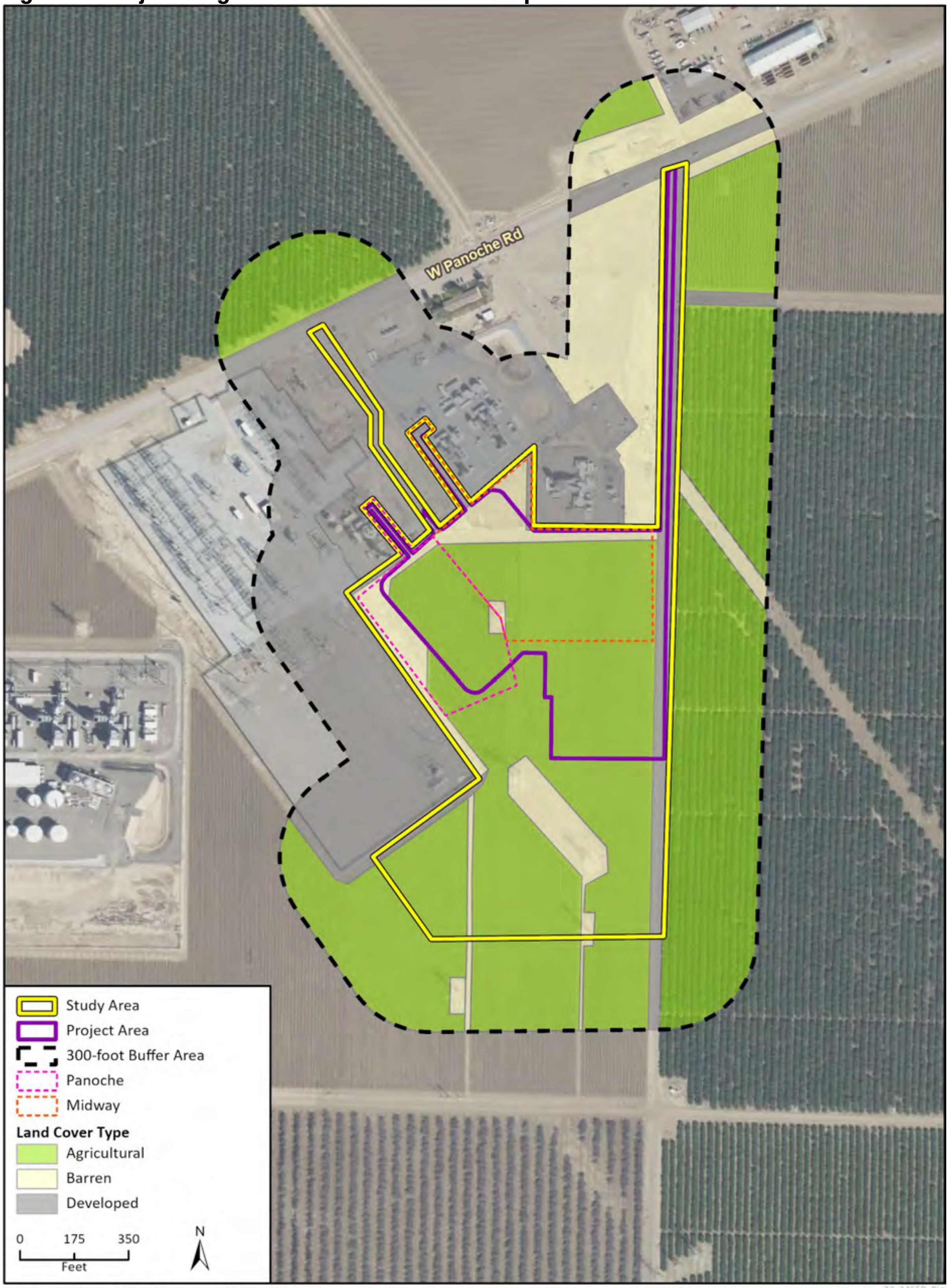
Agricultural lands encompass large portions of the Buffer Area to the east and south, as well as small areas to the north of the Buffer Area. Specifically, agriculture within the Buffer Area covers 50.0 acres and includes almond orchards, fruit orchards (plum, peach, pear), and wine vineyards.

The fruit orchard trees along the eastern boundary of the Buffer Area were observed to be heavily trimmed and/or removed during the November 17, 2023 survey. This land cover type corresponds most closely to deciduous orchard (almond, plum, peach, pear) and vineyards (grapes) in the CWHR (CDFW 1988). Deciduous orchards are described as open single species trees that are low, bushy in tree rows with an open understory that often have herbaceous annuals and perennials during winter months (CDFW 1988) Vineyards are described as single species intertwined within rows with an understory of bare soil or a cover crop of herbaceous plants (CDFW 1988).

3.1.4 General Wildlife

The Buffer Area and its surroundings provide habitat for wildlife species that commonly occur in industrialized, agricultural, and disturbed habitats within the Central Valley. Avian species observed/detected within the study area include Cooper's hawk (*Accipiter cooperii*; Watchlist [WL]), western scrub jay (*Aphelocoma californica*), red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferus),* northern harrier (*Circus hudsonius*; SSC and BCC), rock pigeon (*Columba livia*), American crow (*Corvus brachyrhynchos*), American raven (*Corvus corax*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Haemorhous mexicanus*), loggerhead shrike (*Lanius ludovicianus*; SSC), northern mockingbird (*Mimus polyglottos*), savannah sparrow (*Passerculus sandwichensis*), yellow-rumped warbler (*Setophaga coronata*)*,* western bluebird *(Sialia mexicana),* Eurasian-collared dove (*Streptopelia decaocto*), American robin (*Turdus migratorius*), mourning dove (*Zenaida macroura*), and white-crowned sparrow (*Zonotrichia leucophrys*). The northern harrier was observed foraging in the grape vineyard northeast of the Buffer Area. The Cooper's hawk was observed perching on a fruit orchard tree east of the Buffer Area. The loggerhead shrike was observed perching on a fruit orchard tree at the southeast corner of the Buffer Area. No reptiles or amphibians were observed/detected within the Buffer Area. A subspecies of savannah sparrow, Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), is a special-status species (State Endangered and BCC); however, this subspecies was not the individual observed within the Buffer Area as their general habitat is limited to coastal salt marshes from Santa Barbara south through San Diego County. Mammal species observed/detected within the Buffer Area include black-tailed jackrabbit (*Lepus californicus*) and desert cottontail (*Sylvilagus audubonii*). The Buffer Area contained minimal burrows in the agricultural orchards and vineyards that likely belong to gophers. All of the burrows observed were either one to two inches in diameter or were completely closed a few inches from the entrance of the burrow, which does not align with burrow suitability for burrowing owl (SSC and BCC) or San Joaquin kit fox (Federally Endangered and State Threatened).

Figure 4 Project Vegetation and Land Cover Map



Imagery provided by Microsoft Bing and its licensors © 2024.

23_14550_Bio
Fig X Vegetation

This page intentionally left blank.

4 Sensitive Biological Resources

Local, state, and federal agencies regulate special-status species and other sensitive biological resources and require an assessment of their presence or potential presence to be conducted on-site prior to the approval of proposed development on a property. This section discusses sensitive biological resources observed within the proposed Projects and Buffer Area and evaluates the potential for the Projects to support additional sensitive biological resources. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the Buffer Area and the results of surveys of the Projects and Buffer Area. The potential for each special-status species to occur in the study area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species.
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site. Protocol surveys (if conducted) did not detect species.
- **Moderate Potential**. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

4.1 Special-status Species

4.1.1 Special-status Plant Species

No federal or state listed plants were observed during the reconnaissance-level biological field survey. A protocol botanical survey for all species has not been completed, and the two biological reconnaissance-level surveys conducted may be outside the bloom period for some species. It should be noted that the reconnaissance-level surveys were conducted in August and November 2023, and covered two different blooming seasons; therefore, increasing the likelihood of observations of a higher variety of plant species. The database and literature review performed for the Projects indicated that 14 special-status plant species have been documented within the nine-quad search area. These species occur in a variety of habitats such as vernal pools, cismontane woodlands and forests, marshes, swamps, chenopod scrub, and valley and foothill grasslands. Based on the habitat assessment of the Project, study area, and special-status plant habitat requirements, no special-status plant species were determined to have potential to occur within the Buffer Area.

The majority of the Buffer Area is either barren ground with little to no vegetation present, is developed with structures and roads used for the energy facilities onsite, or is agricultural consisting of orchards, vineyards or mowed/disked fields. Historical aerial imagery shows that the Buffer Area has been maintained, mowed, graded, and disked in association with its active agricultural uses. Most of the vegetation within the Buffer Area is restricted to non-native species associated with agricultural crops. The agricultural orchards and vineyards within the study area do not represent suitable habitat for any of the evaluated special-status plant species with potential to occur in the region. Given the existing and historical site conditions, lack of suitable habitat and presence of several non-native plant species, no special-status plant species are expected to occur within the Buffer Area. See the Special-status Species Evaluation Tables in Appendix D for a summary of the potential to occur for all fourteen special status plant species.

4.1.2 Special-status Wildlife Species

The database and literature review performed for the Project indicated that 32 special status wildlife species have been documented within the nine-quad search area. Of the 32 wildlife species evaluated, Rincon determined that loggerhead shrike (SSC), in additional to two other species including northern harrier (SSC and BCC) and Cooper's hawk (WL]) are present in the study area because they were observed during the reconnaissance surveys. Other species evaluated include SJKF (Federally Endangered and State Threatened) with a low potential to occur, BUOW (SSC and BCC) with a low potential to occur, and Swainson's hawk (*Buteo swainsoni*; State Threatened) with a moderate potential to occur. These species are evaluated in further detail in the sections below. Other species with a low potential to occur limited to foraging or transient potential that are discussed in further detail in the Special-status Species Evaluation Tables in Appendix D include California horned lark (*Eremophila alpestris actia*; WL), prairie falcon (*Falco mexicanus*; WL), and western red bat (*Lasiurus blossevillii*; SSC).

See the Special-status Species Evaluation Tables in Appendix D for a summary of the potential to occur for all 32 special-status wildlife species documented within the nine-quad search area.

San Joaquin Kit Fox

The SJKF is federally listed as an endangered and state listed as a threatened species. Suitable habitat associated with SJKF includes arid grasslands and scrublands, many of which have been extensively modified, in the San Joaquin Valley. Types of modified habitats include those with oil exploration and extraction equipment and wind turbines, agricultural mosaics of row crops, irrigated pastures, orchards, vineyards, and grazed annual grasslands. Oak woodland, alkali sink scrubland, and vernal pool and alkali meadow communities also provide habitat for the species. Dens are scarce in areas with shallow soils because of the proximity to bedrock, high water tables, or impenetrable hardpan layers. The Endangered Species Recovery Program (ESRP) states the current range of the species is highly fragmented and includes the natural land on the San Joaquin Valley floor in Fresno County (CSU Stanislaus 2023).

No SJKF were observed during the biological reconnaissance surveys. Minimal burrows were observed in the agricultural orchards during the reconnaissance surveys and all burrows observed were either one to two inches in diameter or were completely closed a few inches from the entrance of the burrow, and likely belonged to gopher species. As a result, no suitable burrows for SJKF were observed within the Buffer Area during the reconnaissance survey. No atypical dens exist in the Buffer Area. It is not anticipated that the SJKF will utilize any areas within the Buffer Area. Although the species is highly mobile, it is also nocturnal and, therefore, there is low potential for this species to be present while moving through or foraging in the Buffer Area during the day while construction is occurring.

Loggerhead Shrike

Loggerhead shrike is a CDFW SSC. Suitable habitat for loggerhead shrike includes open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. They frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries. Loggerhead shrikes are often seen along mowed roadsides with access to fence lines and utility poles. In the absence of trees or shrubs, the species sometimes nests in brush piles or tumbleweeds.

One loggerhead shrike adult was observed perching on a fruit orchard tree outside of the Project Area, but in the southeast corner of the Buffer Area during the survey. This species could be present during construction activities while foraging and nesting in suitable habitat that consists of agricultural orchard trees along the northern edge and eastern boundary of the Buffer Area (See Figure 4); however, the fruit orchard trees along the southeastern boundary of the Buffer Area were observed to be heavily trimmed and/or removed during the November 17, 2023 survey. This previously suitable nesting habitat appears to be unsuitable based on this most recent survey. The species could also be present during construction activities while perched and/or flying over in all locations within the Project Area and Buffer Area. No nesting avian species, or any avian species exhibiting breeding or nesting behavior were observed.

Northern Harrier

Northern harrier is a CDFW SSC and USFWS BCC species. Suitable habitat for the northern harrier includes wide-open grasslands, marshes, or fields, preferring relatively open habitats characterized by tall, dense vegetation. They use native or cultivated vegetation in wet or dry grasslands, fresh to alkali wetlands, lightly grazed pastures, fallow or old fields, and brushy areas with little bare ground and some shrubs. Nests are typically found in undisturbed wetlands or grasslands dominated by thick vegetation. Nests are on the ground and usually in a dense clump of vegetation such as willows, grasses, sedges, reeds, bulrushes, and cattails.

One northern harrier adult was observed foraging outside of the Project Area, but in the grape vineyard in the northeast corner of the Buffer Area during the survey. No suitable nesting habitat occurs within the proposed Project Area or Buffer Area; however, this species could be present during Project construction activities while foraging in surrounding agricultural lands along the northern, eastern, and southern boundaries of the Buffer Area (See Figure 4). The species could also be present during Project construction activities while perched and/or flying over in all locations within the proposed Project Area and Buffer Area. No nesting avian species, or any avian species exhibiting breeding or nesting behavior were observed within the Buffer Area.

Swainson’s Hawk

Swainson’s Hawk is state listed as a threatened species. Suitable habitat associated with Swainson’s hawk includes grasslands, agricultural land, and open shrubland located on the San Joaquin Valley floor and surrounding low foothills. Areas they inhabit require at least small tracts of adjacent land containing lightly irrigated agricultural areas particularly with alfalfa and grass hay or non-agricultural areas with low or moderate height vegetation supporting a prey base of small mammals. Swainson’s hawk typically nests in trees in open areas or along riparian corridors in a variety of tree species including small shrubby trees in shrub-steppe and desert habitats.

No Swainson's hawks were observed during the biological reconnaissance survey. There are trees present within the Buffer Area related to agricultural orchards, as well as ornamental trees associated with the peaker plant office building along West Panoche Road. None of these trees are suitable for nesting; however, there are utility towers within the Buffer Area that could potentially provide suitable nesting habitat for Swainson's hawk. This highly mobile species has the potential to move transiently or forage in the Buffer Area. No nesting avian species, or any avian species exhibiting breeding or nesting behavior were observed. No signs of nests were observed within the utility towers within the Buffer Area.

Cooper's Hawk

Cooper's hawk is a CDFW WL species. Suitable habitat associated with Cooper's hawk includes woodlands, chiefly of open, interrupted or marginal type. Cooper's hawk typically nests in riparian growths of deciduous trees, as in canyon bottoms on river floodplains, as well as live oaks. They also may nest in suburban areas in a variety of tree species.

One Cooper's hawk adult was observed perching on a fruit orchard tree along the eastern boundary of the Buffer Area, likely foraging. There are no trees suitable for nesting in the proposed Project or study area. This highly mobile species has the potential to move transiently or forage in the Buffer Area. No nesting avian species, or any avian species exhibiting breeding or nesting behavior were observed. No signs of nests were observed within the Buffer Area.

Nesting Birds

The Buffer Area contains potentially suitable nesting habitat for bird species protected under the MBTA and CFGC Section 3503. Species of birds that are common to the area and typically utilize open disturbed habitats for foraging may nest in landscaped or developed portions of the Buffer Area. The nesting season generally extends from February through August, but can vary annually based upon climatic conditions. During the survey, no nesting avian species, or any avian species exhibiting breeding or nesting behavior were observed within the Buffer Area.

4.1.3 Sensitive Plant Communities and Critical Habitat

Plant communities are considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. The CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in CNDDB. CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Some alliances with the rank of 4 and 5 have also been included in the 2022 sensitive natural communities list under CDFW's revised ranking methodology (CDFW 2023c).

No native vegetation communities or protected trees were mapped within the Buffer Area and no sensitive vegetation communities are present within the Buffer Area. No designated critical habitat occurs within the Buffer Area.

4.1.4 Jurisdictional Waters and Wetlands

The Buffer Area including the proposed Projects does not support any wetlands, drainages, or other potentially jurisdictional aquatic features such as waters of the United States or waters of the State. There are four manmade depressions within the developed energy facilities in the Project Area;

however, no standing water was observed during the reconnaissance surveys. No wetlands or other water features occur within the proposed Project Area or Buffer Area.

4.1.5 Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations or those populations that are at risk of becoming isolated. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

Wildlife movement corridors can be both large and small scale. Regionally, the Buffer Area is not located within an Essential Connectivity Area, as mapped in the report, *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (Spencer et al. 2010). The Buffer Area is located near Firebaugh in Fresno County and is not located within a significant habitat linkage or corridor. The proposed Projects are highly disturbed and developed with infrastructure associated with the existing energy facilities and are surrounded by agricultural uses. The energy facilities are surrounded by chain-link fencing and gates, excluding most wildlife movement within the Projects. There are also no water sources or cover on-site that would potentially encourage wildlife movement within the Projects. Therefore, the Buffer Area is not considered an important regional wildlife movement area.

4.1.6 Resources Protected by Local Policies and Ordinances

The Buffer Area is not within or in proximity to any critical habitat or other ecologically sensitive areas, as identified by local, regional, state, or federal agencies. Furthermore, all existing trees within the Buffer Area would be retained during Projects' activities or are associated with agricultural orchards; therefore, County ordinances and guidelines protecting trees would not be triggered.

4.1.7 Habitat Conservation Plans

The Buffer Area does not occur in an area with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal conservation plan.

5 Impacts

This section discusses the potential impacts and effects to biological resources that may occur from implementation of the Project. Construction-related activities and ground disturbance from the Projects are limited to the highly developed areas with infrastructure associated with the existing energy facilities and access, as well as the heavily disturbed barren and agricultural areas associated with the orchards, grape vineyards, and access.

As discussed above, the study area contains potentially suitable habitat for special-status species and nesting birds. Potential impacts for each species with potential to occur on-site are discussed below.

5.1 Special-status Species

5.1.1 Special-status Plant Species

The proposed Project would have a significant effect on biological resources if it would:

Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

No special-status plants were observed on-site during the reconnaissance survey, and none have the potential to occur on the proposed Project Area or Buffer Area because habitat potentially suitable for special-status plants was not present. Therefore, no impacts to special-status plant species are expected.

5.1.2 Special-status Wildlife Species

The proposed Project would have a significant effect on biological resources if it would:

Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

As discussed above, the Buffer Area contains potentially suitable habitat for special-status wildlife species and nesting birds. Potential impacts for each special-status species with potential to occur within the Buffer Area are discussed below.

San Joaquin Kit Fox

Due to the lack of suitable burrows or dens, the Buffer Area does not contain suitable denning habitat for SJKF. In addition, man-made structures such as culverts that could be used as an atypical den by SJKF are not present within the Buffer Area. Potentially suitable movement and foraging habitat exists within the Buffer Area. They are a curious, highly mobile species and may be attracted to the Buffer Area; however, being that the SJKF is nocturnal, the species is not likely to be present during daytime construction activities. As a result, direct impacts to the species in the form of mortality, injury, or general harassment from Project-related vehicle traffic or construction if the species is passing by or foraging in the Buffer Area are not anticipated. SJKF are attracted to den-like structures such as pipes and other construction materials. They are known to sleep in pipes and may also become trapped or injured within pipes or other construction material. Although there is a low likelihood that the species would be present in the Project Area or Study Area during construction, measures from USFWS' 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* including litter disposal and pipe inspections as detailed below will be implemented during construction to avoid any potential impacts to the species. Furthermore, being that the species is not likely to be present during construction activities, indirect effects to this species in the form of noise, vibrations, and other construction-related activities that may impact the species' normal behavior are not anticipated. Based on these determinations, the Projects would not be expected to have a significant impact to SJKF due to lack of habitat suitability and the unlikelihood for the species to be present during daytime construction activities. To ensure compliance with state and federal law and to avoid impacts to SJKF, in the event that special-status species such as SJKF are observed within the active construction area, construction shall immediately cease near the sighting location and the appropriate resource agencies will be informed (USFWS and CDFW). If SJKF is detected, USFWS' 2011 guidance will be followed to avoid any potential impacts to the species including take.

BIO-1: *All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for SJKF before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If SJKF is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted.*

BIO-2: *All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from the Project construction site.*

Loggerhead Shrike

Loggerhead shrike nesting habitat exists in agricultural portions of the Buffer Area that include orchard trees, but these areas are not located within the proposed Projects. Being that all potential nesting habitat is outside of the proposed Projects, it is not anticipated that there will be any direct impacts to the species' nest(s).

This species could be present during construction activities while foraging and nesting in suitable habitat that consists of agricultural orchard trees along the northern edge and eastern boundary of the Buffer Area (See Figure 4); however, the fruit orchard trees along the southeastern boundary of the Buffer Area were observed to be heavily trimmed and/or removed during the November 17, 2023 survey. This previously suitable nesting habitat appears to be unsuitable based on this most recent survey. The agricultural areas including grape vineyards within the proposed Projects and surrounding orchard trees are suitable foraging habitat for the species and therefore the species could be affected indirectly from construction noise, dust, and other anthropogenic disturbances during construction activities. The loss of an active loggerhead shrike nest due to construction activities would be a violation of the MBTA and CFGC sections 3503 and 3513. Being that the species is elusive, and the proposed Project is small and mostly developed/barren, impacts to moving or foraging individuals are not anticipated. To ensure compliance with state and federal law and to avoid impacts to loggerhead shrike, a pre-construction nesting bird survey will be conducted, as detailed below.

BIO-3: *If construction activities would commence anytime during the nesting bird season of native, a pre-construction survey for nesting birds should be conducted prior to the commencement of construction activities.*

Northern Harrier

The proposed Projects do not contain nesting habitat for northern harrier, so it is not anticipated that there will be any direct impacts to the species nest(s). Being that the proposed Projects are small and mostly developed/barren, impacts to moving or foraging individuals is not anticipated. Impacts to individuals are not anticipated but would be considered significant under CEQA. Given the limited foraging habitat and lack of nesting habitat, the proposed Projects would not be expected to have a significant impact to northern harrier due to lack of habitat suitability. To ensure compliance with state and federal law and to avoid impacts to northern harrier, a pre-construction nesting bird survey will be conducted as detailed in BIO-3 above.

Swainson's Hawk

The proposed Projects do not contain nesting habitat for Swainson's hawk. However, atypical nesting habitat for Swainson's hawk in the form of utility towers are present within the Projects and Buffer Area. If a nest is discovered to be active during the Projects, construction activities could indirectly impact nests through disruption of normal breeding behaviors potentially resulting in the abandonment or harm to eggs and nestlings or reduced fitness of active nests. Being that the proposed Projects are small and mostly developed/barren, impacts to moving or foraging individuals are not anticipated. Impacts to both individuals and nests are not anticipated but would be considered significant under CEQA. Given the limited foraging and nesting habitat, the proposed Projects would not be expected to have a significant impact to Swainson's hawk due to lack of habitat suitability. To ensure compliance with state and federal law and to avoid impacts to Swainson's hawk, a pre-construction nesting bird survey will be conducted as detailed in BIO-3 above.

Cooper's Hawk

The proposed Projects do not contain nesting habitat for Cooper's hawk, so it is not anticipated that there will be any direct impacts to the species nest(s). Being that the proposed Projects are small and mostly developed/barren, impacts to moving or foraging individuals are not anticipated. Impacts to individuals are not anticipated but would be considered significant under CEQA. Given the limited foraging habitat and lack of nesting habitat, the proposed Projects would not be expected to have a significant impact to Cooper's hawk due to lack of habitat suitability. To ensure compliance with state and federal law and to avoid impacts to Cooper's hawk, a pre-construction nesting bird survey will be conducted as detailed in BIO-3 above.

Nesting Birds

Nesting birds and raptors protected by the CFGC and the MBTA have potential to occur within the proposed Projects and Buffer Area. If nesting birds are present on-site during construction, nesting birds could be affected directly (loss of individuals) or indirectly (construction noise, dust, and other anthropogenic disturbances) by Project activities. The proposed Projects would have a significant impact to raptors and other nesting birds if construction occurs while they are present on or adjacent to the site through direct mortality or abandonment of nests. The loss of a nest due to construction activities would be a violation of the MBTA and CFGC sections 3503 and 3513. While the loss of common avian species is not an anticipated result of the proposed Projects, to ensure compliance with state and federal law and to avoid impacts to nesting birds, a pre-construction nesting bird survey will be conducted as detailed in BIO-3 above.

5.1.3 Sensitive Plant Communities

The proposed Projects would have a significant effect on biological resources if it would:

Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

No native vegetation communities or protected trees were observed or mapped within the proposed Project Area or Buffer Area; therefore, no direct or indirect impacts are anticipated as part of these Projects.

5.1.4 Jurisdictional Waters and Wetlands

The proposed Projects would have a significant effect on biological resources if it would:

Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The Buffer Area including the proposed Projects do not support any wetlands, drainages, or other potentially jurisdictional features associated with waters of the United States or waters of the State. There are four depressions within the developed energy facilities on the Project Area; however, no standing water was observed during the reconnaissance surveys. No wetlands or other water features occur within the proposed Project Area or Buffer Area. No direct or indirect impacts are anticipated as part of these Projects.

5.1.5 Wildlife Movement

The proposed Projects would have a significant effect on biological resources if it would:

Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.

The Buffer Area including the proposed Projects are not located within a significant habitat linkage or corridor. The proposed Projects are highly disturbed and developed with infrastructure associated with the existing energy facilities and is surrounded by agricultural uses. Therefore, the Buffer Area is not considered an important regional wildlife movement area and no direct or indirect impacts are anticipated as part of these Projects.

5.1.6 Local Policies and Ordinances

The proposed Projects would have a significant effect on biological resources if it would:

Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

The Buffer Area including the proposed Projects are not within or proximate to any critical habitat or other ecologically sensitive areas, as identified by local, regional, state, or federal agencies. Furthermore, all existing trees within the Buffer Area would be retained during Project activities or are associated with agricultural orchards; therefore, all County ordinances and guidelines protecting trees would not be triggered. Therefore, these proposed Projects do not pose any conflicts with any local policies or ordinances protecting biological resources and no direct or indirect impacts are anticipated as part of these Projects.

5.1.7 Adopted or Approved Plans

The proposed projects would have a significant effect on biological resources if it would:

Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

The Buffer Area including the proposed Projects do not occur in an area with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal conservation plan. Therefore, these proposed Projects do not pose any conflicts with provisions of any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plans and no direct or indirect impacts are anticipated as part of these Projects.

This page intentionally left blank.

6 Limitations, Assumptions, and Use Reliance

This Biological Resources Assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Reconnaissance biological surveys for certain taxa may have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis, or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

This page left intentionally blank.

7 References

American Ornithologists' Union (AOU). 2014. Check-list of North American Birds. Retrieved from: http://www.americanornithology.org/content/checklist-north-and-middle-american-bird.

Baldwin , B.G. (Ed.), D.H. Goldman (Ed.), D. J. Keil (Ed.), R. Patterson (Ed.), T. J. Rosatti (Ed.), D. H. Wilken (Ed.). 2012. The Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded. University of California Press. Berkeley, California.

Burt, W.H., and R.P. Grossenheider. 1980. A Field Guide to the Mammals of North American North of Mexico. The Peterson Field Guide Series.

California Department of Fish and Wildlife (CDFW). 2023a. California Natural Diversity Database, Rarefind V. Accessed August 2023.

_____. 2023b. Biogeographic Information and Observation System (BIOS). Retrieved August 2023 from www.wildlife.ca.gov/data/BIOS.

_____. 2023c. California Sensitive Natural Communities. Biogeographic Data Branch, California Natural Diversity Database. June 2023.

_____. 2023d. Special Animals List. Biogeographic Data Branch, California Natural Diversity Database. October 2023.

_____. 2023e. Special Vascular Plants, Bryophytes, and Lichens List. Biogeographic Data Branch, California Natural Diversity Database. October 2023.

_____. 1988. California Wildlife Habitat Relationships System. A Guide to Wildlife Habitats of California.

California Department of Water Resources (DWR). 2015. California's Groundwater Update 2013: A Compilation of Enhanced Content for California Water Plan. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/Statewide-Reports/GWU2013_Ch9_TulareLake_Final.pdf. Accessed December 2023.

California Geological Survey. 2002. Generalized Geologic Map of California. Electronic document: https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-17.pdf. Accessed November 30, 2023.

California Native Plant Society. 2023. Inventory of Rare and Endangered Plants. V.7-08c-Interim 8-22-02. Updated online and accessed via: www.rareplants.cnps.org..Accessed December 2023.

California State University of Stanislaus (CSU Stanislaus). 2023. San Joaquin Kit Fox, Endangered Species Recovery Program.

Dunn, J.L, J. Alderfer. 2011. National Geographic Field Guide to the Birds of North America, Sixth Edition. Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Wildlife, Nongame Heritage Program. 156 pgs.

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Wildlife, Nongame Heritage Program. 156 pgs.

Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, California. 1300 pgs.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Stebbins, R. C. 2003. A Field Guide to Western Reptiles and Amphibians. 2nd ed. Houghton-Mifflin Company. Boston, Massachusetts.

United States Department of Agricultural, Natural Resources Conservation Service (USDA, NRCS). 2023a. Web Soil Survey. Soil Survey Area: Fresno County, California. Soil Survey Data. Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed August 2023.

_____. 2023b. Lists of Hydric Soils. National Cooperative Soil Survey, U.S. Department of Agriculture. Available at: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. Accessed August 2023.

United States Fish and Wildlife Service (USFWS). 2023a. Information for Planning and Consultation online project planning tool. Available at: https://ecos.fws.gov/ipac/. Accessed August 2023.

_____. 2023b. National Wetlands Inventory wetlands mapper. Available at: https://www.fws.gov/wetlands/data/mapper.html. Accessed December 2023.

_____. 2023c. Critical Habitat Portal. Available at: https://ecos.fws.gov/ecp/report/table/critical-habitat.html. Accessed December 2023.

U.S. Geological Service (USGS). 2023. The National Map. 3DEPElevation. ArcGIS Online Map Viewer. Accessed August 2023.

University of California Berkeley (UC Berkeley). 2023. The Jepson Online Interchange for California Floristics. https://ucjeps.berkeley.edu/interchange/. Accessed December 2023.

8 List of Preparers

Rincon Consultants, Inc.

Primary Authors

- Priya Pratap, Senior Biologist
- Grace Myers, Biologist

Technical Review

- Elizabeth Atherton, Supervising Regulatory Specialist
- Kevin Hostert, Senior Supervising Biologist
- Christopher Julian, Principal Regulatory Specialist

Graphics

- Keelie Rocker, Senior GIS Analyst

Field Reconnaissance Survey

- Morgan Craig, Biologist

This page intentionally left blank.

Appendix A

Regulatory Setting

Regulatory Setting

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the Biological Survey Area (BSA) include the following:

- U.S. Army Corps of Engineers (wetlands and other waters of the United States)
- U.S. Fish and Wildlife Service (federally listed species and migratory birds)
- National Marine Fisheries Service (marine wildlife and anadromous fishes)
- Regional Water Quality Control Board (waters of the State)
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes; state-listed species; nesting birds, marine resources)

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is responsible for administering several federal programs related to ensuring the quality and navigability of the nation's waters.

Clean Water Act Section 404

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 404 of the CWA authorizes the Secretary of the Army, acting through the USACE, to issue permits regulating the discharge of dredged or fill materials into the "navigable waters at specified disposal sites."

Section 502 of the CWA further defines "navigable waters" as "waters of the United States, including the territorial seas." "Waters of the United States" are broadly defined at 33 CFR Part 328.3 to include navigable, tidal, and interstate waters and certain impoundments, tributaries, and wetlands. The agencies' most recent regulatory definition of the term was promulgated in January 2023, following failed attempts in prior years that had been frustrated by legal challenges. However, in May 2023 the U.S. Supreme Court issued its ruling in Sackett v. Environmental Protection Agency, which invalidated portions of the updated regulations. To address this ruling, in September 2023 the agencies issued a "conforming rule" (88 FR 61964-61969) modifying their definition of "waters of the United States" to comport with the Court's ruling. This definition is described in detail below.

Waters of the U.S.

Current USACE and USEPA regulations, reflecting of the January 2023 definition as modified by the September 2023 Conforming Rule, define "waters of the United States" as follows (33 CFR 328.3; see also 88 FR 61964-61969):

(1) Waters which are:

(i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(ii) The territorial seas; or

(iii) Interstate waters;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters:

(i) Waters identified in paragraph (a)(1) of this section; or

(ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds, not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

The definition specifies that the following features are not “waters of the United States” even where they otherwise meet the terms of provisions (2) through (5) above:

(1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;

(2) Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA;

(3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;

(4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;

(5) Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;

(6) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;

(7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and

(8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

The lateral limits of USACE jurisdiction in non-tidal waters is defined by the "ordinary high-water mark" (OHWM) unless adjacent wetlands are present. The OHWM is a line on the shore or edge of a channel established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed upon the bank, shelving, changes in the character of soil, destruction of vegetation, or the presence of debris (33 CFR 328.3(c)(1)). As such, waters are recognized in the field by the presence of a defined watercourse with appropriate physical and topographic features. If wetlands occur within, or adjacent to, waters of the United States, the lateral limits of USACE jurisdiction extend beyond the OHWM to the outer edge of the wetlands (33 CFR 328.4 (c)). The upstream limit of jurisdiction in the absence of adjacent wetlands is the point beyond which the OHWM is no longer perceptible (33 CFR 328.4; see also 51 FR 41217).

Wetlands

The USACE defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3(c)(1)). The USACE's delineation procedures identify wetlands in the field based on indicators of three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. The following is a discussion of each of these parameters.

Hydrophytic Vegetation

Hydrophytic vegetation dominates areas where frequency and duration of inundation or soil saturation exerts a controlling influence on the plant species present. Plant species are assigned wetland indicator status according to the probability of their occurring in wetlands. More than fifty percent of the dominant plant species must have a wetland indicator status to meet the hydrophytic vegetation criterion. The USACE published the National Wetland Plant List (USACE 2018), which separates vascular plants into the following four basic categories based on plant species frequency of occurrence in wetlands:

- **Obligate Wetland (OBL).** Almost always occur in wetlands
- **Facultative Wetland (FACW).** Usually occur in wetlands, but occasionally found in non-wetlands
- **Facultative (FAC).** Occur in wetlands or non-wetlands
- **Facultative Upland (FACU).** Usually occur in non-wetlands, but may occur in wetlands
- **Obligate Upland (UPL).** Almost never occur in wetlands

The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these categories. Any species not appearing on the United States Fish and Wildlife Service's list is assumed to be an upland species, almost never occurring in wetlands. In addition, an area needs to contain at least 5% vegetative cover to be considered as a vegetated wetland.

Hydric Soils

Hydric soils are saturated or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of wetland soils include observations of ponding, inundation, saturation, dark (low chroma) soil colors, bright mottles (concentrations of oxidized minerals such as iron), gleying (indicates reducing conditions by a blue-grey color), or accumulation of organic material. Additional supporting information includes documentation of soil as hydric or reference to wet conditions in the local soils survey, both of which must be verified in the field.

Wetland Hydrology

Wetland hydrology is inundation or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands), or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by field indicators, such as water marks, drift lines, sediment deposits, or drainage patterns in wetlands.

Limitations on Jurisdiction based on Sackett v. USEPA Supreme Court

On May 25, 2023, the Supreme Court issued its decision on the petition from the Sacketts, a family in Idaho that was subject to a compliance order from the USEPA for backfilling their lot near Priest Lake, which the USEPA claimed contained federally regulated wetlands. The wetlands in question were adjacent to a ditch that fed a creek that ultimately drained into Priest Lake, a navigable water body. The USEPA asserted that the Sacketts had violated the law by filling the wetlands on their property without a permit. The Court's decision addressed controversy over whether, and under what conditions, the CWA reaches navigable waters' tributaries or adjacent wetlands. The Supreme Court's decision in Sackett provides definitive guidance to the agencies in determining the limits of their Clean Water Act authority. Major tenets of the decision have been incorporated into the agencies' current regulations through the September 2023 Conforming Rule.

The Court decided:

- "Adjacent wetlands" are WOTUS only if there is a continuous surface connection between the wetland and a navigable or relatively permanent water body, such that it is difficult to determine the boundary between the wetland and the water body. The opinion notes that "temporary interruptions to surface connection may sometimes occur because of phenomena like low tides or dry spells."
- The Significant Nexus Standard, introduced by the Court in prior decisions, is not mentioned in the Clean Water Act and should not be used. Additionally, the standard includes ecological factors whose use in determining jurisdiction is not supported by the statute.
- Although jurisdiction over tributaries was not addressed by the Court, current agency guidance relies upon the Significant Nexus Standard to establish jurisdiction over tributaries that flow infrequently. In disallowing the use of that standard the decision suggests that non-relatively permanent tributaries will be non-jurisdictional going forward, stating, "…the [Clean Water Act's] use of "waters" encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes."

Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable water of the United States, and applies to all structures and work. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g. riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. It is important to note that Section 10 applies only to navigable waters, and thus does not apply to work in non-navigable wetlands or tributaries. In some cases, Section 10 authorization is issued by the USACE concurrently with CWA Section 404 authorization, such as when certain Nationwide Permits are used.

Regional Water Quality Control Board Jurisdiction

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code sec. 13050(e)). These agencies also have responsibilities for administering portions of the CWA.

Clean Water Act Section 401

Section 401 of the CWA requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide state certification that the proposed activity will not violate state and federal water quality standards. In California, CWA Section 401 Water Quality Certification (Section 401 Certification) is issued by the RWQCBs and by the SWRCB for multi-region projects. The process begins when an applicant requests a pre-application meeting with the RWQCB, waits no less than 30 days, and then submits an application to the RWQCB and informs the USACE (or the applicable agency from which a license or permit was requested) that an application has been submitted. The USACE will then determine a "reasonable period of time" for the RWQCB to act on the application; this is typically 60 days for routine projects and longer for complex projects but may not exceed one year. Under current regulations, once initiated, the reasonable period of time cannot be stopped or paused. When the period has elapsed, if the RWQCB has not either issued or denied the application for Section 401 Certification, the USACE may determine that Certification has been waived and issue the requested permit. If a Section 401 Certification is issued it may include binding conditions, imposed either through the Certification itself or through the requested federal license or permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 *et seq*.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected

- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCBs (based on watershed boundaries) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Section 13260 of the Porter-Cologne Act requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB. The RWQCB may then authorize the discharge, subject to conditions, by issuing Waste Discharge Requirements (WDRs). While this requirement was historically applied primarily to outfalls and similar point source discharges, the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, effective May 2020, make it clear that the agency will apply the Porter-Cologne Act's requirements to discharges of dredge and fill material as well. The *Procedures* state that they are to be used in issuing CWA Section 401 Certifications and WDRs, and largely mirror the existing review requirements for CWA Section 404 Permits and Section 401 Certifications, incorporating most elements of the USEPA's *Section 404(b)(1) Guidelines*. Following issuance of the *Procedures*, the SWRCB produced a consolidated application form for dredge/fill discharges that can be used to obtain a CWA Section 401 Water Quality Certification, WDRs, or both.

Non-Wetland Waters of the State

The SWRCB and RWQCBs have not established regulations for field determinations of waters of the state except for wetlands currently. In many cases the RWQCBs interpret the limits of waters of the State to be bounded by the OHWM unless isolated conditions or ephemeral waters are present. However, in the absence of statewide guidance each RWQCB may interpret jurisdictional boundaries within their region and the SWRCB has encouraged applicants to confirm jurisdictional limits with their RWQCB before submitting applications. As determined by the RWQCB, waters of the State may include riparian areas or other locations outside the OHWM, leading to a larger jurisdictional area over a given water body compared to the USACE.

Wetland Waters of the State

Procedures for defining wetland waters of the State pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB defines an area as wetland if, under normal circumstances:

1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) implements several laws protecting the Nation's fish and wildlife resources, including the Endangered Species Act (ESA; 16 United States Code [USC] Sections 153 et seq.), the Migratory Bird Treaty Act (MBTA; 16 USC Sections 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668).

Endangered Species Act

The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. Generally, the USFWS implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadromous species. Projects that would result in "take" of any threatened or endangered wildlife species, or a threatened or endangered plant species if occurring on federal land, are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the ESA, depending on the involvement by the federal government in funding, authorizing, or carrying out the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of the ESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

Migratory Bird Treaty Act

The MBTA of 1918 implements four international conservation treaties that the U.S. entered into with Canada in 1916, Mexico in 1936, Japan in 1972, and Russia in 1976. It is intended to ensure the sustainability of populations of all protected migratory bird species. The law has been amended with the signing of each treaty, as well as when any of the treaties were amended, such as with Mexico in 1976 and Canada in 1995. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS.

The list of migratory bird species protected by the law, in regulations at 50 CFR Part 10.13, is primarily based on bird families and species included in the four international treaties. A migratory bird species is included on the list if it meets one or more of the following criteria:

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.

3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

In 2004, the Migratory Bird Treaty Reform Act limited the scope of the MBTA by stating the MBTA applies only to migratory bird species that are native to the United States or U.S. territories, and that a native migratory bird species is one that is present as a result of natural biological or ecological processes. The MBTRA requires the USFWS to publish a list of all nonnative, human-introduced bird species to which the MBTA does not apply, and an updated list was published in 2020. The 2020 update identifies species belonging to biological families referred to in treaties the MBTA implements but are not protected because their presence in the United States or U.S. territories is solely the result of intentional or unintentional human-assisted introductions.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the USFWS, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

"Disturb" means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) derives its authority from the Fish and Game Code of California and administers several State laws protecting fish and wildlife resources and the habitats upon which they depend.

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et. seq.) prohibits take of state listed threatened or endangered. Take under CESA is defined as “Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” (Fish and Game Code sec. 86). This definition does not prohibit indirect harm by way of habitat modification, except where such harm is the proximate cause of death of a listed species. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated. Unlike the federal ESA, CESA’s protections extend to candidate species during the period (typically one year) while the California Fish and Game Commission decides whether the species warrants CESA listing.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare, and prohibits the take of listed plant species. Effective in 2015, CDFW promulgated regulations (14 CCR 786.9) under the authority of the NPPA, establishing that the CESA's permitting procedures would be applied to plants listed under the NPPA as "Rare." With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Fully Protected Species Laws

The CDFW enforces Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code, which prohibits take of species designated as Fully Protected. Under Senate Bill 147, effective July 1, 2023, the CDFW is allowed to issue an Incidental Take Permit for Fully Protected species under CESA through December 31, 2033, or take can be authorized by a Natural Community Conservation Plan (NCCP) which is in place that authorizes take of the Fully Protected species.

Avian Protection Laws

California Fish and Game Code sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Section 3513 makes it a state-level offense to take any bird in violation of the federal Migratory Bird Treaty Act.

Protection of Lakes and Streambeds

California Fish and Game Code section 1602 states that it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying the California Department of Fish and Wildlife (CDFW) of that activity. Thereafter, if CDFW determines and informs the entity that the activity will not significantly impact any existing fish or wildlife resources, the entity may commence the activity. If, however, CDFW determines that the activity may would significantly impact an existing fish or wildlife resource, the entity may be required to obtain from CDFW a Streambed Alteration Agreement (SAA), which will include reasonable measures necessary to protect the affected resource(s), before the entity may conduct the activity described in the notification. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the entity with a Draft SAA. Upon review of the Draft SAA by the applicant, any problematic terms are negotiated with CDFW and a final SAA is executed.

The CDFW has not defined the term "stream" for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:

  - References “river,” “stream,” and “lake”
  - References “natural flow”
  - References “bed,” “bank,” and “channel”

- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602’s use of “stream” to be as defined in common law. The Court indicated that a “stream” is commonly understood to:
  - Have a source and a terminus
  - Have banks and a channel
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
  - Represent the depression between the banks worn by the regular and usual flow of the water
  - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
  - Include the land that is covered by the water in its ordinary low stage
  - Include lands below the OHWM

- **CDFW regulations** defining “stream” for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
  - Flows at least periodically or intermittently
  - Flows through a bed or channel having banks
  - Supports fish or aquatic life
  - Can be dry for a period of time
  - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation

- **Guidance documents**, *including A Field Guide to Lake and Streambed Alteration Agreements* (CDFG 1994) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2013), which suggest the following:
  - A stream may flow perennially or episodically
  - A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
  - Width of a stream course can reasonably be identified by physical or biological indicators
  - A stream may have one or more channels (single thread vs. compound form)
  - Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
  - Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife

- Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
- The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. Importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

This page intentionally left blank.

Appendix B

Site Photographs

Photograph 1. Overview of North-central portion of the Project Area looking towards the Panoche Peaker Plant, View South.

Photograph 2. South Central Boundary of the Project Area looking towards the Panohe and Midway Peaker Plants, View Northwest.

Photograph 3. Overview of Northeastern Boundary of the Project and access road, View South.

Photograph 4. Overview of Current Midway Peaker Plant Facility, View South.

Photograph 5. Schindler-Panoche 115 kV Transmission Line, View North.

Photograph 6. Panoche Kearney 230 kV Transmission Line, View North.

Photograph 7. Grape vineyards along southern boundary of the Buffer Area, View Northwest.

Photograph 8. Grape vineyards and access road looking towards Panoche Peaker Plant and Panoche BESS Project site, View Northwest.

Photograph 9. Gopher burrows within fruit orchards near eastern boundary of the Buffer Area, View East.

Photograph 10. Man-made developed basin within existing energy faciltiies without standing water, View East.

Photograph 11. Fruit orchard trees along eastern Project boundary and access road prior to heavy trimming and/or removal, View North. August 2023.

Photograph 12. Fruit orchard trees along eastern Project boundary and access road after heavy trimming and/or removal, View North. November 2023.

This page intentionally left blank.

Appendix C

Floral and Faunal Compendium

Animal Species Observed Within the Study Area on [August 4, 2023 and November 17, 2023]

Scientific Name	Common Name
Birds	
Accipiter cooperii	Cooper’s hawk
Aphelocoma californica	western scrub jay
Buteo jamaicensis	red-tailed hawk
Charadrus vociferous	killdeer
Circus hudsonius	northern harrier
Columba liva	rock pigeon
Corvus corax	common raven
Euphagus cyanocephalus	brewer’s blackbird
Haemorhous mexicanus	house finch
Lanius ludovicianus	loggerhead shrike
Mimus polyglottos	northern mockingbird
Passerculus sandwichensis	savannah sparrow
Setophaga coronata	yellow-rumped warbler
Sialia mexicana	western bluebird
Streptopelia decaocto	Eurasian collared dove
Turdus migratorius	American robin
Zenaida macroura	mourning dove
Zonotrichia leucophrys	white-crowned sparrow
Mammals	
Lepus californicus	black-tailed jackrabbit
Sylvilagus audubonii	desert cottontail

This page intentionally left blank.

Appendix D

Special-status Species Evaluation Tables

Special-status Wildlife Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
Invertebrates				
Aegialia concinna Ciervo aegilian scarab beetle	-/- G1/S1	Known only from Fresno County in sandy substrates.	No Potential	Suitable habitat and substrate are not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Bombus crotchii Crotch bumble bee	-/- G3G4/S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Bombus pensylvanicus American bumble bee	-/- G3G4/S2C	Long-tongued; forages on a wide variety of flowers including vetches (Vicia), clovers (Trifolium), thistles (Cirsium), sunflowers (Helianthus), etc. Nests above ground under long grass or underground. Queens overwinter in rotten wood or underground.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Coelus gracilis San Joaquin dune beetle	-/- G1/S1	Inhabits fossil dunes along the western edge of San Joaquin Valley; extirpated from Antioch Dunes (type locality). Inhabits sites containing sandy substrates.	No Potential	Suitable habitat and substrate are not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Reptiles				
Anniella pulchra Northern California legless lizard	-/- G3/S2S3 SSC	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	No Potential	Limited marginally suitable habitat may be present in the Buffer Area. The Buffer Area is mostly barren or agricultural with limited moisture content. The species was not observed during the reconnaissance surveys
Arizona elegans occidentalis California glossy snake	-/- G5T2/S2 SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Emys marmorata Western pond turtle	-/- G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open	No Potential	No aquatic habitat present within the Buffer Area. The species was not observed during the reconnaissance surveys.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
		fields) upland habitat up to 0.5 km from water for egg-laying.		
Gambelia sila blunt-nosed leopard lizard	FE/SE G1/S1 FP	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts; they do not excavate their own burrows.	No Potential	Limited marginally suitable habitat present in the Buffer Area. The Buffer Area is mostly barren or agricultural and contains limited burrows and shrubs for cover. The species was not observed during the reconnaissance surveys.
Masticophis flagellum ruddocki San Joaquin coachwhip	-/- G5T2T3/S2 SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	No Potential	Limited marginally suitable habitat present in the Buffer Area. The Buffer Area is mostly barren or agricultural and contains limited burrows and shrubs for cover. The species was not observed during the reconnaissance surveys.
Phrynosoma blainvillii coast horned lizard	-/- G3G4/S3S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	No Potential	Limited marginally suitable habitat is present within the Buffer Area. The species was not observed during the reconnaissance surveys.
Amphibians				
Eremophila alpestris actia foothill yellow-legged frog	-/SE G3/S3 SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	No Potential	No aquatic habitat present within the Buffer Area. The species was not observed during the reconnaissance surveys.
Spea hammondii Western spadefoot	-/- G2G3/S3 SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	No Potential	No aquatic habitat or vernal pools present within the Buffer Area. The species was not observed during the reconnaissance surveys.
Birds				
Agelaius tricolor tricolored blackbird	-/ST G1G2/S1S2 SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Asio flammeus short-eared owl	-/- G5/S2 SSC, BCC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
		in depression concealed in vegetation.		
Athene cunicularia burrowing owl	-/- G4/S2 SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low Potential	Marginally suitable foraging habitat is present within agricultural areas and there is a lack of suitable nesting habitat within the Buffer Area . The species or signs of the species were observed during the surveys. Minimal burrows were observed during the survey and likely belong to gopher species. All burrows observed were either less than three inches wide or completely closed within a few inches from the entrance of the burrow. No California ground squirrel observed during the surveys.
Buteo swainsoni Swainson's hawk	None/ST G5/S4	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Moderate Potential	Although there are no trees suitable for nesting in the Buffer Area, there are utility towers within the study area that could potentially provide suitable nesting habitat for the species. The species was not observed during the reconnaissance surveys.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1 SSC	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Eremophila alpestris actia California horned lark	-/- G5/S2 WL	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills.	Low Potential (foraging)	Marginally suitable foraging habitat is present within agricultural areas and there is a limited marginally suitable nesting habitat within the Buffer Area. The species was not observed during the reconnaissance surveys.
Falco mexicanus prairie falcon	-/- G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Inhabits dry, open terrain, either level or hilly.	Low Potential (transient)	Suitable habitat is not present for this species within the Buffer Area, but this species may occur as a transient individual. The species was not observed during the reconnaissance surveys.
Mammals				
Ammospermophilus nelson	-/ST G2G3/S2S3	Occurs in Western San Joaquin Valley from 200-1200 feet	No Potential	Limited marginally suitable habitat present in the

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
Nelson's (=San Joaquin) antelope squirrel		elevation. Uses dry, sparsely vegetated areas with a variety of soils suitable for digging. Digs burrows or uses kangaroo rat or other small mammal burrows. Needs widely scattered shrubs, forbs, and grasses in broken terrain, often with gullies and washes.		Buffer Area. The Buffer Area is mostly barren or agricultural and contains limited burrows and shrubs for cover. The species was not observed during the reconnaissance surveys
Antrozous pallidus pallid bat	-/- G4/S3 SSC	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Dipodomys ingens Giant kangaroo rat	FE/SE G1G2/S1S2	Chenopod scrub, valley and foothill grassland habitat. Prefers Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Needs level terrain and sandy loam soils for burrowing.	No Potential	Although suitable substrate is present, suitable habitat for this species is not present within the Buffer Area . The species was not observed during the reconnaissance surveys.
Eumops perotis californicus western mastiff bat	-/- G4G5T4/S3S4 SSC	Occurs in open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces and caves, and buildings. Roosts typically occur high above ground.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Lasiurus blossevillii western red bat	-/- G4/S3 SSC	Roosts in trees in forests and woodlands of varying elevations. Forages in grasslands, shrublands, open woodlands and forests, and agriculture. Typically found in riparian habitats, does not occur in deserts.	Low Potential (foraging)	Suitable roosting habitat is not present, but marginally suitable foraging habitat is present within the Buffer Area . The species was not observed during the reconnaissance surveys.
Lasiurus cinereus hoary bat	-/- G3G4/S4	Typically roosts in trees in deciduous and coniferous forests and woodlands but occasionally roosts in rocks crevices. Forages in open areas, typically along riparian corridors or over water. Diet primarily consists of moths.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Onychomys torridus tularensis Tulare	-/- G5T1T2/S1S2 SSC	Hot, arid valleys and scrub deserts in the southern San Joaquin Valley. Diet almost exclusively composed of	No Potential	Suitable habitat is not present for this species within the Buffer Area. Developed and agricultural

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
grasshopper mouse		arthropods, therefore needs abundant supply of insects.		lands comprise a majority of the Buffer Area and use of herbicides are likely due to active agriculture crops; therefore, the species exclusive food source is limited. The species was not observed during the reconnaissance surveys.
Perognathus inornatus San Joaquin pocket mouse	-/- G2G3/S2S3	Grassland, oak savannah and arid scrubland in the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills, south to the Mojave Desert. Associated with fine-textured, sandy, friable soils.	No Potential	Suitable habitat is not present for this species within the Buffer Area. The species was not observed during the reconnaissance surveys.
Taxidea taxus American badger	-/- G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	No Potential	The Buffer Area is mostly barren, developed, or agricultural and suitable habitat is not present for this species. The species was not observed during the reconnaissance surveys.
Vulpes macrotis mutica San Joaquin kit fox	FE/ST G4T2/S2	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Low Potential	No San Joaquin kit foxes were observed during the reconnaissance surveys. No California ground squirrel burrows were observed during the surveys and all observed burrows observed were either less than 3-inches wide or completely closed within a few inches from the entrance of the burrow. Atypical dens were not observed in the Buffer Area in the form of culverts and other man-made structures. Being that the species is nocturnal, this species is not anticipated to be present during construction activities if it were moving through or foraging in the Buffer Area.
Myotis yumanensis Yuma myotis	-/- G5/S4	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	No Potential	The Buffer Area is mostly barren, developed, or agricultural and suitable habitat is not present for this species. No roosting sites or water bodies are within the vicinity of the study area. The species was not observed during the reconnaissance surveys.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)

FE = Federal Endangered
FT = Federal Threatened
FPE = Federal Proposed Endangered
FPT = Federal Proposed Threatened
FD = Federal Delisted
FC = Federal Candidate
SE = State Endangered
ST = State Threatened
SCE = State Candidate Endangered
SCT = State Candidate Threatened
SR = State Rare
SD = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

CRPR (CNPS California Rare Plant Rank)

1A = Presumed extirpated in California, and rare or extinct elsewhere
1B = Rare, Threatened, or Endangered in California and elsewhere
2A = Presumed extirpated in California, but common elsewhere
2B= Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (Review List)
4 = Limited Distribution (Watch List)

CRPR Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant
GH or SH Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

Additional notations may be provided as follows

T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority
? – Inexact numeric rank

Special-status Plant Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Allium howellii var. *sanbenitense* San Benito onion	None/None G3G4T3/S3 1B.3	Perennial bulbiferous herb. Chaparral, valley and foothill grassland. Clay, slopes (often). Elevations: 1280-4480ft. (390-1365m.) Blooms Apr-May.	No Potential	No suitable habitat or soils present within the Buffer Area and the study area is outside of the species' elevation range.
Atriplex coronata var. *vallicola* Lost Hills crownscale	None/None G4T3/S3 1B.2	Annual herb. Chenopod scrub, valley and foothill grassland, vernal pools. Alkaline. Elevations: 165-2085ft. (50-635m.) Blooms Apr-Sep.	No Potential	No vernal pools present within the Buffer Area. No suitable habitat or soils present within the study area.
Deinandra halliana Hall's tarplant	None/None G3/S3 1B.2	Annual herb. Chenopod scrub, cismontane woodland, valley and foothill grassland. Reported from a variety of substrates including clay, sand, and alkaline soils. Elevations: 855-3115ft. (260-950m.) Blooms (Mar) Apr-May.	No Potential	Although suitable soils are present within the Buffer Area, suitable habitat is not present and the study area is outside of the species' elevation range.
Delphinium recurvatum recurved larkspur	None/None G2/S2 1B.2	Perennial herb. Chenopod scrub, cismontane woodland, valley and foothill grassland. Alkaline. Elevations: 10-2590ft. (3-790m.) Blooms Mar-Jun.	No Potential	No suitable habitat or soils present within the Buffer Area.
Eriastrum hooveri Hoover's eriastrum	FD/None G3/S3 4.2	Annual herb. Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland. On sparsely vegetated alkaline alluvial fans; also in the Temblor Range on sandy soils. Elevations: 165-3000ft. (50-915m.) Blooms Mar-Jul.	No Potential	No suitable habitat or soils present within the Buffer Area.
Lasthenia chrysantha Alkali-sink goldfields	None/None G2/S2 1B.1	Annual herb. Vernal pools. Alkaline. Elevations: 0-655ft. (0-200m.) Blooms Feb-Apr.	No Potential	No vernal pools present within the Buffer Area. No suitable habitat or soils present within the Buffer Area.
Layia heterotricha pale-yellow layia	None/None G2/S2 1B.1	Annual herb. Cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Alkaline or clay soils; open areas. Elevations: 985-5595ft. (300-1705m.) Blooms Mar-Jun.	No Potential	Although suitable soils are present within the Buffer Area, suitable habitat is not present and the study area is outside of the species' elevation range.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Layia munzii Munz's tidy-tips	None/None G2/S2 1B.2	Annual herb. Chenopod scrub, valley and foothill grassland. Hillsides, in white-grey alkaline clay soils, w/grasses and chenopod scrub associates. Elevations: 490-2295ft. (150-700m.) Blooms Mar-Apr.	No Potential	Although suitable soils are present within the Buffer Area, suitable habitat is not present and the study area is outside of the species' elevation range.
Lepidium jaredii ssp. album Panoche pepper-grass	None/None G2G3T2T3/S2S3 1B.2	Annual herb. Valley and foothill grassland. White or grey clay lenses on steep slopes; incidental in alluvial fans and washes. Clay and gypsum-rich soils. Elevations: 605-2445ft. (185-745m.) Blooms Feb-Jun.	No Potential	No suitable habitat or soils present within the Buffer Area and the Buffer Area is outside of the species' elevation range.
Navarretia panochensis Panoche navarretia	None/None G3/S3 1B.3	Annual herb. Chenopod scrub, valley and foothill grassland. Clay, Gravelly (often). Elevations: 1085-2820ft. (330-860m.) Blooms Apr-Aug.	No Potential	No suitable habitat or soils present within the Buffer Area and the Buffer Area is outside of the species' elevation range.
Monolopia congdonii San Joaquin woollythreads	FE/None G2/S2 1B.2	Annual herb. Chenopod scrub, valley and foothill grassland; often with grasses and within chenopod scrub Alkaline or loamy plains; sandy soils. Elevations: 195-2625ft. (60-800m.) Blooms Feb-May.	No Potential	No suitable habitat or soils present within the Buffer Area.
Lasthenia chrysantha chaparral ragwort	None/None G3/S2 2B.2	Annual herb. Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. Elevations: 50-2625ft. (15-800m.) Blooms Jan-Apr (May).	No Potential	No suitable habitat or soils present within the Buffer Area.
Madia radiata showy golden madia	None/None G3/S3 1B.1	Annual herb. Cismontane woodland, valley and foothill grassland. Mostly on adobe clay in grassland or among shrubs. Elevations: 80-3985ft. (25-1215m.) Blooms Mar-May.	No Potential	No suitable habitat or soils present within the Buffer Area.
Sagittaria sanfordii Sanford's arrowhead	None/None G3/S3 1B.2	Perennial rhizomatous herb (emergent). Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. Elevations: 0-2135ft. (0-650m.) Blooms May-Oct(Nov).	No Potential	No marshes or swamps present within the Buffer Area. No suitable habitat or soils present within the Buffer Area.

Regional Vicinity refers to within a 9-quad search radius of site.

Status (Federal/State)		**CRPR (CNPS California Rare Plant Rank)**	
FE =	Federal Endangered	1A =	Presumed extirpated in California, and rare or extinct elsewhere
FT =	Federal Threatened	1B =	Rare, Threatened, or Endangered in California and elsewhere
FPE =	Federal Proposed Endangered	2A =	Presumed extirpated in California, but common elsewhere
FPT =	Federal Proposed Threatened	2B=	Rare, Threatened, or Endangered in California, but more common elsewhere

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale

FD = Federal Delisted
FC = Federal Candidate
SE = State Endangered
ST = State Threatened
SCE = State Candidate Endangered
SCT = State Candidate Threatened
SR = State Rare
SD = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

3 = Need more information (Review List)
4 = Limited Distribution (Watch List)

CRPR Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant
GH or SH Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

Additional notations may be provided as follows

T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority
? – Inexact numeric rank

This page intentionally left blank.

Midway BESS and Panoche BESS Projects

Cultural Resources Technical Report

prepared for

Midway BESS LLC
Panoche BESS LLC
4350 Executive Drive, Suite 320
San Diego, California 92121

prepared by

Rincon Consultants, Inc.
7080 North Whitney Avenue
Fresno, California 93720

March 2024

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Please cite this report as follows:

Bilchak, Rachel, Mark Strother, Rachel Perzel, and Breana Campbell-King

2024. *Cultural Resources Technical Report for the Midway Battery Energy Storage System and Panoche Battery Energy Storage System Projects.* Rincon Consultants, Inc., Project No. 22-14550. Report on file at the Southern San Joaquin Valley Information Center, California State University, Bakersfield.

Table of Contents

Figures

Tables

Appendices

Executive Summary

Rincon Consultants, Inc. (Rincon) was retained to conduct a cultural resources assessment for the Midway Battery Energy Storage System (BESS) Project and the Panoche BESS Project (projects) in an unincorporated portion of northwestern Fresno County, California. The projects propose installation of new batteries and associated infrastructure within the 25-acre Midway-Panoche BESS Lease Area (Study Area). The projects are subject to the California Environmental Quality Act (CEQA) and the County of Fresno (County) is the lead agency under CEQA.

This assessment included a cultural resources records search of the California Historical Resources Information System (CHRIS), a Sacred Lands File (SLF) search, a pedestrian survey of the Study Area, and the preparation of this report to summarize the results of these activities.

The background research identified two built environment historical resources (P-10-006612 and P-10-006614), both of which are located within the Study Area, as well as five (P-005886, 005887, 005888, 006013, and 006610) within the one-mile record search radius. Both resources within the Study Area are historic-aged transmission lines, resource P-10-006612 consists of Pacific Gas and Electric's (PG&E) Schindler-Panoche power line and steel lattice towers and resource P-10-006614 consists of PG&E's Panoche-Kearney transmission line and towers. Both resources have been previously evaluated and recommended ineligible for listing in the National Register of Historic Places (NRHP), and the California Register of Historic Resources (CRHR). Their current condition was documented on California Department of Parks and Recreation Series 523 update forms as a result of this assessment. The current assessment indicated that the transmission lines are in a condition consistent with that at the time of their previous recordation and did not identify any information to suggest that the lines may constitute historical resources pursuant to CEQA. Additionally, both transmission lines will be avoided through project design and will not be physically altered by the projects. The proposed projects would therefore result in ***no impact to historical resources*** pursuant to CEQA.

The cultural resources records search identified no archaeological resources within the Study Area and three historic-aged archaeological resources within the one-mile records search radius (P-10-005817, 005818, and 005835). Rincon's cultural resources survey confirmed most of the Study Area has undergone previous ground disturbance associated with construction of existing onsite and offsite power generation related facilities and agricultural activity on and surrounding the Study Area. No new cultural resources were identified during the survey. The Study Area has been subject to extensive plowing, tilling, grading, and development activities since the 1950s. The proposed projects therefore have a low potential to encounter previously unidentified cultural resources.

Based on the information summarized above, both the Midway and Panoche project sites are considered to have low sensitivity for buried archaeological resources and the following standard unanticipated discovery mitigation measure is recommended for both projects. With adherence to this measure, Rincon recommends a finding of ***less-than-significant impact with mitigation*** for archaeological resources under CEQA. The projects are also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

Recommended Mitigation

Unanticipated Discovery of Cultural Resources

In the event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 50 feet of the find should halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric, then a Native American representative should also be contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or Native American representative determines it to be appropriate, archaeological testing for CRHR eligibility should be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via project redesign, a qualified archaeologist should prepare a data recovery plan tailored to the physical nature and characteristics of the resource, per the requirements of CCR Guidelines Section 15126.4(b)(3)(C). The data recovery plan should identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative, as appropriate, should recover and document the scientifically consequential information that justifies the resource's significance. The County should review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation should be submitted to the Southern San Joaquin Valley Information Center, per CCR Guidelines Section 15126.4(b)(3)(C).

Human Remains

No human remains are known to be present within the Study Area. However, the discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be of Native American origin, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance. With adherence to existing regulations, Rincon recommends a finding of ***less-than-significant impact to human remains*** under CEQA.

1 Introduction

Rincon Consultants, Inc. (Rincon) was retained to conduct a cultural resources assessment for the Midway Battery Energy Storage System (BESS) Project and the Panoche BESS Project (projects) in an unincorporated portion of northwestern Fresno County, California. The projects propose installation of new batteries and associated infrastructure on the approximately 25-acre Midway-Panoche BESS Lease Area (Study Area) within portions of the existing Midway and Panoche BESS properties. In addition, the proposed projects include electrical interconnections on the adjacent Midway and Panoche peaker plants to the north of the BESS Lease Area as well as access road improvements. This technical report documents the results of the study and tasks conducted by Rincon, specifically, a cultural resources records search, Sacred Lands File (SLF) search, and a field survey. This study has been completed pursuant to the requirements of the California Environmental Quality Act (CEQA), with the County of Fresno (County) serving as the lead agency under CEQA.

1.1 Project Area and Description

The proposed Midway and Panoche BESS projects (Projects) are located south of West Panoche Road in an unincorporated portion of northwestern Fresno County, California. The Midway BESS Project is proposed at up to a nominal 120 megawatt hours (MWh) and the Panoche BESS Project is proposed at up to 57 MWh. The Projects are located within an approximately 25-acre area (BESS Lease Area) for BESS development to be leased within a larger 91.33-acre parcel of primarily agricultural land on APN 027-060-91S (Figure 1). The Study Area is depicted on the *Chaney Ranch, California,* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map, within Township 14 South, Range 13 East, Section 5 (Figure 2). The usable area for BESS development within the BESS Lease Area/Study Area excludes several existing transmission line rights-of-way that are not appropriate for BESS development. The southern portion of the BESS Lease Area/Study Area is not currently proposed to be developed with BESS facilities – i.e., will remain undeveloped under the currently proposed Projects. During site preparation, the proposed Project plans include removing the existing vineyards on the entire 25-acre Study Area, chipping the removed vegetation and spreading it as mulch on the southern area, and revegetating areas that will not be developed with BESS related facilities with native grasses to stabilize the soil surface. Grading depth in the northern portion of the Study Area where BESS development is proposed is expected to be approximately three feet, and the maximum anticipated depth during project development is approximately 20 feet for the generation interconnect pole foundations.

The BESS Projects will be constructed in part to support California's current need for additional electrical supply capacity during peak load demand time periods. Midway BESS LLC will construct, own, and operate the Midway BESS Project, and will lease the overall BESS Lease Area. Panoche BESS LLC will construct, own, and operate the Panoche BESS Project and sublease land from Midway BESS LLC for the Panoche BESS portion of the lease.

The Midway BESS Project will interconnect to the electrical grid via a 13.8 kilovolt (kV) connection to the existing Midway Peaker plant to the north of the Midway BESS. The Panoche BESS Project will interconnect to the electrical grid via a 13.8 kV connection to the existing Panoche Peaker plant to the north of the Panoche BESS. The Midway and Panoche peaker plants are both connected to the existing Pacific Gas and Electric Company (PG&E) Panoche Substation.

The key components of the proposed Midway BESS Project are as follows:

- Containerized battery systems with internal heating ventilation and air conditioning (HVAC) and internal fire detection and fire suppression systems in each container, battery management systems (BMS), power conversion systems (PCS) (also called inverters), transformers, and electrical conductors to be installed. The proposed Midway BESS Project includes an overhead 13.8 kV gen-tie connection from the BESS switchyard to the low side of the existing 13.8 kV/115 kV generation step-up (GSU) transformer at the existing Midway Peaker Plant to the north. The interconnection at the Midway Peaker Plant will require an electrical conductor connection that will involve California Energy Commission (CEC) permitting for the portion of the connection on the Midway Peaker Plant property and County permitting for the portion of the Project outside the CEC jurisdictional Midway Peaker Plant property. Site access to the Midway BESS Project site would involve the use and improvement of an existing access road that runs north -to-south from West Panoche Road on the eastern side of the existing Wellhead Electric Peaker plant and the BESS Lease Area. Minor improvements to this access road, including paving will be required.

The key components of the proposed Panoche BESS Project are as follows:

- Containerized battery systems with internal heating ventilation and air conditioning (HVAC) and internal fire detection and fire suppression systems in each container, battery management systems (BMS), power conversion systems (PCS) (also called inverters), transformers, and electrical conductors to be installed. The interconnection at the Panoche Peaker Plant will require an electrical conductor connection to connect to the low side of the 13.8 kV/115 kV GSU transformer at the existing CalPeak Panoche Peaker Plant switchyard. Site access to the Panoche BESS Project site would involve the use of an existing access road on the Panoche Peaker property. Minor improvements to the existing access road, including adding a short extension to the south to connect to the Panoche BESS area and paving will be required.

The proposed BESS developments include separate stormwater detention areas, but a combined construction laydown area and internal access road system. The BESS Projects may be operated simultaneously with the adjacent peaker plants in accordance with the market-optimized dispatch instructions received from the California Independent System Operator (CAISO's) Automated Dispatching System (ADS), but the combined outputs will be control-limited to never exceed the limits of the respective Generator Interconnection Agreements.

The Midway and Panoche BESS Projects will require discretionary permitting approvals involving individual Unclassified Conditional Use Permits and associated California Environmental Quality Act (CEQA) compliance with Fresno County. In addition, the portion of the Midway BESS Project 13.8 kV gen-tie connection line on the Midway Peaker Plant property will require approval of a Petition for Post Certification Amendment from the CEC (CEC Docket No. 06-AFC-10). The CEC's jurisdiction is limited to the portion of the Midway BESS Project gen-tie line on the Midway Peaker Plant property. This technical study focuses on the portion of the Projects that are under Fresno County jurisdiction.

Fresno County permitting requirements are expected to include applicant commitments for decommissioning and removal of BESS facilities and reclamation of the BESS Lease Area to an agricultural ready condition at the end of the Projects' lives.

The Projects' operational lives and associated land leases are anticipated to be up to 40 years.

Figure 1 Regional Location Map

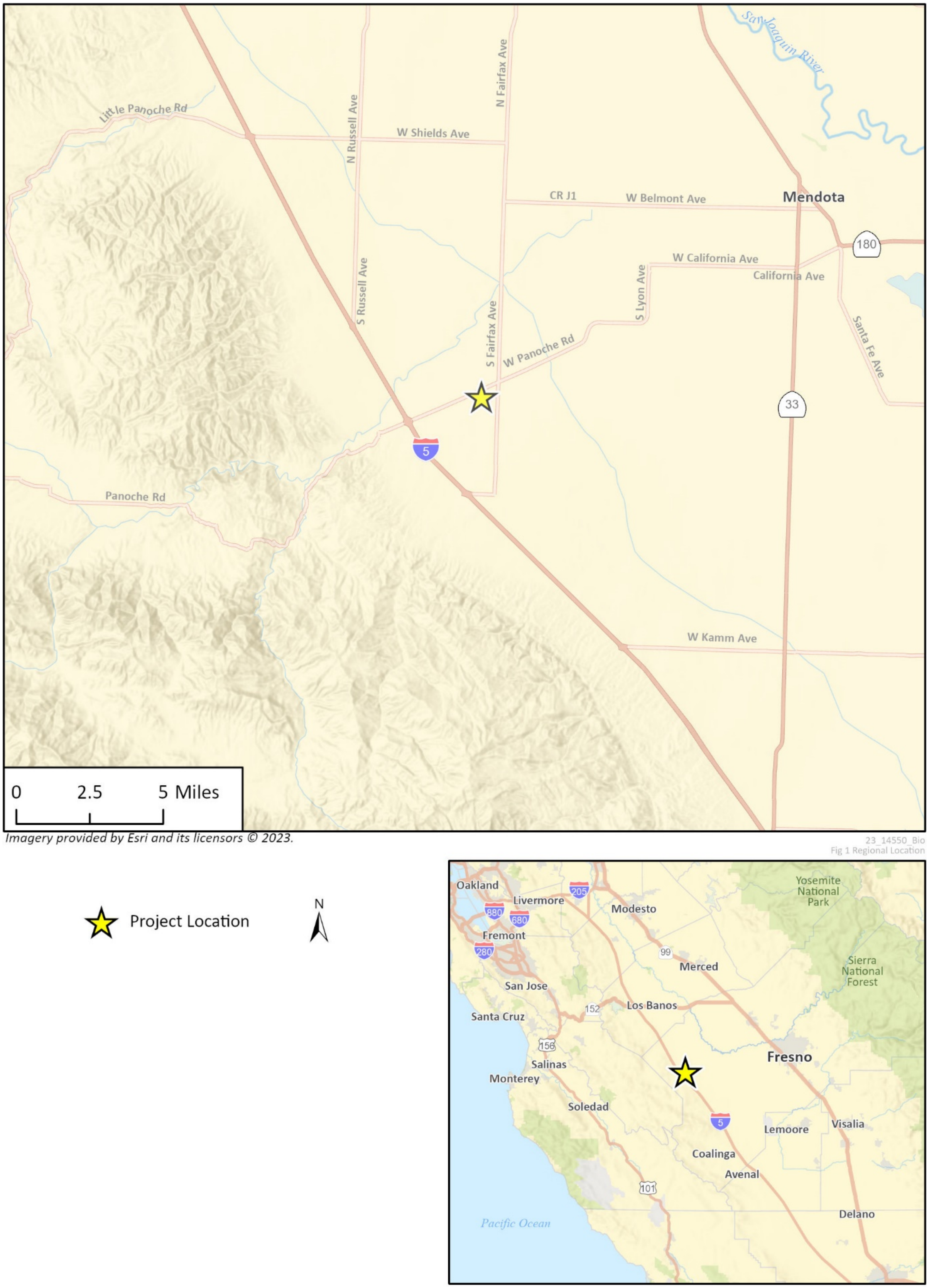
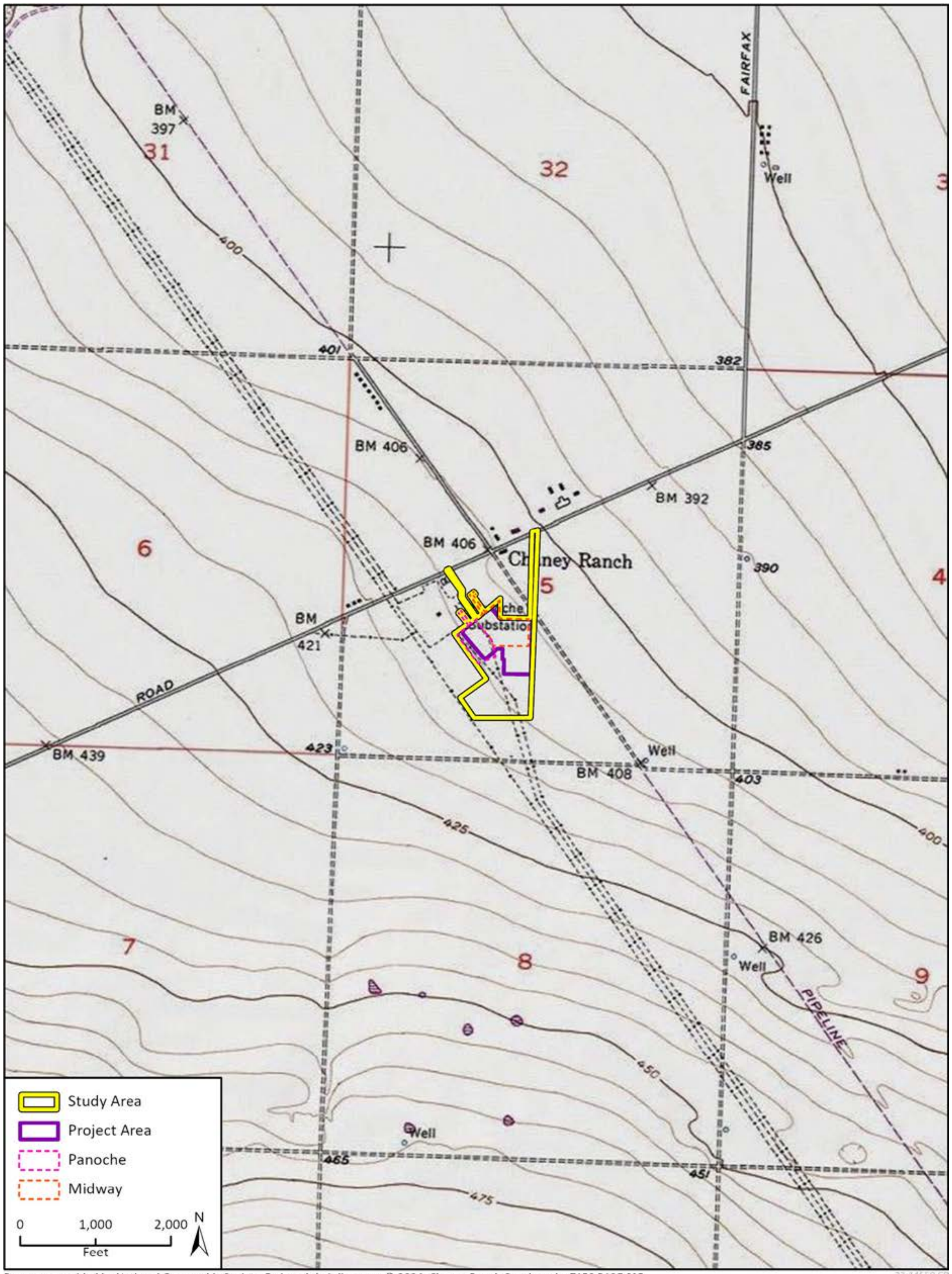


Figure 2 Project Location Map



Basemap provided by National Geographic Society, Esri, and their licensors © 2024. Chaney Ranch Quadrangle. T15S R13E S05.
The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

23-14550 CR
CRFig 2 Project Site Topo

1.2 Personnel

Rincon Senior Archaeologist Mark Strother MA, Registered Professional Archaeologist (RPA), managed this cultural resources assessment and provided senior oversight. Mark Strother meets the Secretary of the Interior's Professional Qualification Standards for prehistoric and historical archaeology (National Park Service 1983). Archaeologist Rachel Bilchak, BA authored this report. Heriberto Trevino, BA conducted the archaeological pedestrian survey. Rincon Geographic Information Systems Analyst Bryan Valladares, BA, prepared the figures found in the report. Rincon Cultural Resources Program Managers Breana Campbell-King, MA, RPA, and Rachel Perzel, MA, reviewed this report for quality control and quality assurance.

2 Regulatory Setting

This section includes a discussion of the applicable state and local laws, ordinances, regulations, and standards governing cultural resources, which must be adhered to before and during implementation of the Project.

2.1 California Environmental Quality Act

California Public Resources Code (PRC) Section 21084.1 requires lead agencies determine if a project could have a significant impact on historical or unique archaeological resources. As defined in PRC Section 21084.1, a historical resource is a resource listed in, or determined eligible for listing in, the California Register of Historical Resources (CRHR), a resource included in a local register of historical resources or identified in a historical resources survey pursuant to PRC Section 5024.1(g), or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant. PRC Section 21084.1 also states resources meeting the above criteria are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates otherwise. Resources listed in the National Register of Historic Places (NRHP) are automatically listed in the CRHR, as are California Historical Landmarks 770 and above; both are therefore historical resources under CEQA. Historical resources may include eligible built environment resources and archaeological resources of the precontact or historic periods.

CEQA Guidelines Section 15064.5(c) provides further guidance on the consideration of archaeological resources. If an archaeological resource does not qualify as a historical resource, it may meet the definition of a “unique archaeological resource” as identified in PRC Section 21083.2. PRC Section 21083.2(g) defines a unique archaeological resource as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: 1) it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information, 2) has a special and particular quality such as being the oldest of its type or the best available example of its type, or 3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological resource does not qualify as a historical or unique archaeological resource, the impacts of a project on those resources will be less than significant and need not be considered further (CEQA Guidelines Section 15064.5[c][4]). CEQA Guidelines Section 15064.5 also provides guidance for addressing the potential presence of human remains, including those discovered during the implementation of a project.

According to CEQA, an impact that results in a substantial adverse change in the significance of a historical resource is considered a significant impact on the environment. A substantial adverse change could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (CEQA Guidelines Section 15064.5 [b][1]). Material impairment is defined as demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR or a local register (CEQA Guidelines Section 15064.5[b][2][A]).

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a][b]).

The requirements for mitigation measures under CEQA are outlined in CEQA Guidelines Section 15126.4(a)(1). In addition to being fully enforceable, mitigation measures must be completed within a defined time period and be roughly proportional to the impacts of the Project. Generally, a project which is found to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (the Standards) is considered to be mitigated below a level of significance (CEQA Guidelines Section 15126.4 [b][1]). For historical resources of an archaeological nature, lead agencies should also seek to avoid damaging effects where feasible. Preservation in place is the preferred manner to mitigate impacts to archaeological sites; however, data recovery through excavation may be the only option in certain instances (CEQA Guidelines Section 15126.4[b][3]).

2.1.1 National Register of Historic Places

Although the Project does not have a federal nexus, properties which are listed in or have been formally determined eligible for listing in the NRHP are automatically listed in the CRHR. The following is therefore presented to provide applicable regulatory context. The NRHP was authorized by Section 101 of the National Historic Preservation Act and is the nation's official list of cultural resources worthy of preservation. The NRHP recognizes the quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects. Per 36 CFR Part 60.4, a property is eligible for listing in the NRHP if it meets one or more of the following criteria:

Criterion A: Is associated with events that have made a significant contribution to the broad patterns of our history

Criterion B: Is associated with the lives of persons significant in our past

Criterion C: Embodies the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

Criterion D: Has yielded, or may be likely to yield, information important in prehistory or history

In addition to meeting at least one of the above designation criteria, resources must also retain integrity. The National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, defined as follows:

Location: The place where the historic property was constructed or the place where the historic event occurred

Design: The combination of elements that create the form, plan, space, structure, and style of a property

Setting: The physical environment of a historic property

Materials: The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property

Workmanship: The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory

Feeling: A property's expression of the aesthetic or historic sense of a particular period of time

Association: The direct link between an important historic event or person and a historic property

Certain properties are generally considered ineligible for listing in the NRHP, including cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions, relocated structures, or commemorative properties. Additionally, a property must be at least 50 years of age to be eligible for listing in the NRHP. The National Park Service states that 50 years is the general estimate of the time needed to develop the necessary historical perspective to evaluate significance (National Park Service 1997:41). Properties which are less than 50 years must be determined to have "exceptional importance" to be considered eligible for NRHP listing.

2.1.2 California Register of Historical Resources

The CRHR was established in 1992 and codified by PRC Sections 5024.1 and Title 14 Section 4852. The CRHR is an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (Public Resources Code, 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (Public Resources Code, 5024.1(b)). Unlike the NRHP however, the CRHR does not have a defined age threshold for eligibility; rather, a resource may be eligible for the CRHR if it can be demonstrated sufficient time has passed to understand its historical or architectural significance (California Office of Historic Preservation 2011). Furthermore, resources may still be eligible for listing in the CRHR even if they do not retain sufficient integrity for NRHP eligibility (California Office of Historic Preservation 2011). Generally, the California Office of Historic Preservation recommends resources over 45 years of age be recorded and evaluated for historical resources eligibility (California Office of Historic Preservation 1995:2).

A property is eligible for listing in the CRHR if it meets one of more of the following criteria:

Criterion 1: Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

Criterion 2: Is associated with the lives of persons important to our past

Criterion 3: Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history

2.1.3 California Assembly Bill 52 of 2014

As of July 1, 2015, Assembly Bill (AB) 52 was enacted and expands CEQA by defining a new resource category, "tribal cultural resources". AB 52 establishes, "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states the CEQA lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) define tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and that meets at least one of the following criteria, as summarized in CEQA Guidelines Appendix G:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k)
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process with California Native American tribes that must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed Project.” California Native American tribes to be included in the process are those that have requested notice of Projects proposed within the jurisdiction of the lead agency.

2.2 California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined if the remains are subject to the Coroner’s authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification.

2.3 California Public Resources Code §5097.98

Section 5097.98 of the California Public Resources Code states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code §7050.5, shall immediately notify those persons (i.e., the Most Likely Descendant [MLD]) that it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

2.4 Local Regulations

Fresno County General Plan

The following information on the County of Fresno regulations is provided for informational purposes, the Study Area falls in the jurisdiction of the County of Fresno. The Fresno County General

Plan contains policies that seek to preserve historical, archaeological, paleontological, geological, and cultural resources of the county through development review, acquisition, encouragement of easements, coordination with other agencies and groups, and other methods (Fresno County General Plan 2000). As presented in the Open Space and Conservation Element these include:

Goals

Goal OS- J – To identify, protect, and enhance Fresno County's important historical, archeological, paleontological, geological, and cultural sites and their contributing environment.

Policies

OS-J.1 The County shall require that discretionary development projects, as part of any required CEQA review, identify and protect important historical, archeological, paleontological, and cultural sites and their contributing environment from damage, destruction, and abuse to the maximum extent feasible. Project-level mitigation shall include accurate site surveys, consideration of project alternatives to preserve archeological and historic resources, and provision for resource recovery and preservation when displacement is unavoidable.

OS-J.2 The County shall, within the limits of its authority and responsibility, maintain confidentiality regarding the locations of archeological sites in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts.

OS-J.3 The County shall solicit the views of the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or sites of cultural importance.

OS-J.4 The County shall maintain an inventory of all sites and structures in the County determined to be of historical significance (Index of Historic Properties in Fresno County).

OS-J.5 The County shall support the registration by property owners and others of cultural resources in appropriate landmark designations (i.e., National Register of Historic Places, California Historical Landmarks, Points of Historical Interest, or Local Landmark).

OS-J.6 The County shall provide for the placement of historical markers or signs on adjacent County roadways and major thoroughfares to attract and inform visitors of important historic resource sites. If such sites are open to the public, the County shall ensure that access is controlled to prevent damage or vandalism.

OS-J.7 The County shall use the State Historic Building Code and existing legislation and ordinances to encourage preservation of cultural resources and their contributing environment.

OS-J.8 The County shall support efforts of other organizations and agencies to preserve and enhance historic resources for educational and cultural purposes through maintenance and development of interpretive services and facilities at County recreational areas and other sites.

3 Natural and Cultural Setting

This section provides background information pertaining to the natural and cultural context of the Study Area. It places the Study Area in the broader natural environment that has sustained populations throughout history. This section also provides an overview of regional indigenous history, local ethnography, and post-contact history. This background information describes the distribution and type of cultural resources documented in the vicinity of the Study Area to inform this cultural resources assessment.

3.1 Natural Setting

The projects are situated at an approximate distance of 68 miles east of the Pacific Ocean, 1.75 miles southwest of Panoche Creek, 15.5 miles southeast of Mercey Hot Springs, and roughly 7 miles northeast of the Tumey Hills. The topography of the Study Area is notably level, with elevations ranging from approximately 390 feet above mean sea level (amsl) to 400 feet amsl. The land surrounding the Study Area is agricultural. A majority of the Study Area has been graded in the past or is currently developed. Consequently, the Study Area no longer retains its natural characteristics. In the surrounding regions where the natural setting persists, the vegetation comprises Chenopod scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran Desert scrub, and Valley and foothill grassland. The climate in the vicinity of the Study Area is classified as semi-arid.

The Study Area is in the Great Valley geomorphic province, one of the 11 geomorphic provinces of California (California Geological Survey 2002). The Great Valley is an elongated lowland approximately 50-miles wide and 400-miles long. It is bounded to the east by the Sierra Nevada Range and to the west by the Coast Ranges (California Geological Survey 2002). A relatively undeformed basin, the Great Valley rises from about sea level to approximately 400 feet in elevation at the north and south ends. The northern portion of the valley, referred to as the Sacramento Valley, is drained by the Sacramento River, while the southern portion of the valley, referred to as the San Joaquin Valley, is drained by the San Joaquin River. Both rivers converge in the Central Valley and drain into San Francisco Bay. The Great Valley is predominantly alluvial, flood, and delta plains formed by these two major river systems. Sediments underlying the Study Area are mapped as Holocene-aged alluvium and date to the era of human occupation.

The Study Area is underlain by the Panoche and the Cerini soil series (California Soil Resource Lab 2023). A majority of the soils within the Study Area are classified within the Panoche soil series. The Panoche series is characterized by the presence of very deep, well-drained soils situated on alluvial fans and floodplains. These soils have originated from loamy calcareous alluvium derived from sedimentary rock (California Soil Resource Lab 2023). It should be noted that floodplain sediments have an episodic nature and have an increased likelihood of burying archaeological deposits (Waters 1992).

3.2 Cultural Setting

3.2.1 Indigenous History

The Central Valley has been described as one of the largest intermontane basins in California extending 404 miles (650 km) from the Siskiyou to the Tehachapi mountains (Rosenthal et al. 2007).

No single chronological framework covers the entirety of the Central Valley, but California prehistory is generally divided into three broad time periods: the Paleoindian Period (ca. 11,550 to 8550 before common era [BCE]), the Archaic Period (8550 BCE to common era [CE] 1100), and the Emergent Occupation (CE 1000 to European Contact) (Fredrickson 1973, 1974), which has been updated and adjusted by Rosenthal et al. (2007) to further separate the Archaic Period into Lower (8550 BCE to 5550 BCE), Middle (5550 BCE to 550 BCE), and Upper (550 BCE to CE 1100). The prehistoric chronological sequence for the Central Valley presented below is based on Rosenthal et al. (2007) and Moratto (1984).

Paleoindian Period (11,550 to 8550 BCE)

Little is currently known about the Paleoindian Period in the Central Valley. Geoarchaeological studies have demonstrated that erosion and deposition have buried or destroyed early archaeological deposits. Most claims of ancient human occupation have been dismissed by Moratto (1984) based on radiocarbon dating. This period is represented by isolated finds, and currently, the earliest accepted date of human occupation in the Central Valley ranges from 11,550 to 9550 BCE and comes from fluted projectile points similar to Clovis points found at sites near Tracy Lake and the Tulare Lake Basin. Along with fluted projectile points, concave base points have been discovered along the Tulare Lake shoreline which was occupied during the Late Pleistocene (Rosenthal et al. 2007).

Lower Archaic (8550 to 5550 BCE)

Climate change at the end of the Pleistocene caused significant periods of alluvial deposition beginning around 9050 BCE. These new alluvial deposits created a clear stratigraphic boundary between the Late Pleistocene and Holocene sediments. The Lower Archaic, like the Paleoindian Period, is represented only by limited isolated finds. Only one Lower Archaic site (KER-116) has been identified in the Central Valley proper and few in the foothills surrounding the valley (Rosenthal et al. 2007).

The relationship between foothill and valley floor adaptations is largely unknown during the Lower Archaic; however, it is suggested that the foothill sites may have been seasonally used during this time. More distinct adaptations are apparent in the Middle Archaic, and it is possible that these divergent traditions first emerged in the Lower Archaic (Rosenthal et al. 2007).

Middle Archaic (5550 to 550 BCE)

The Middle Archaic began with substantial climate change to much warmer, drier conditions. Tulare Lake shrank and eventually disappeared. With this came new wetlands that created new habitats, and rising sea levels led to the creation of the Sacramento-San Joaquin Delta, creating new deposits. Fans and floodplains stabilized after an initial period of deposition in 5550 BCE. Archaeological deposits dating to the Middle Archaic are rare in the Central Valley proper due to these geomorphic changes. The Middle Archaic record has revealed a pattern of organized subsistence strategies and increased residential stability. The archetypal pattern of the Middle Archaic has been identified as the Windmiller Pattern. This pattern is represented by extended burials oriented to the west and a sophisticated material culture (Rosenthal et al. 2007).

During this time, the mortar and pestle become more widespread, suggesting a shift toward more intensive subsistence practices and a higher reliance on acorn. Fishing technologies, such as bone gorges, hooks, and spears, also appear during the Middle Archaic, suggesting a new focus on fishing, especially in the Marsh Creek area. Several other technologies become apparent during this time.

Baked-clay impressions of twined basketry, simple pottery, and other baked clay objects have been found at several sites. Personal adornment items also become more frequent. Exchange with outside groups is evidenced by the presence of obsidian, shell beads, and ornaments (Rosenthal et al. 2007, Moratto 1984, Burns et al. 2012). Trade also seemed to be focused on utilitarian items such as obsidian or finished obsidian tools from at least five separate sources (Moratto 1984).

Upper Archaic (550 BCE to CE 1100)

The Upper Archaic began with the onset of the Late Holocene, marked by a cooler, wetter climate. The environmental conditions of the Upper Archaic were characterized by the return of lakes that had disappeared during the Middle Archaic and a renewed fan and floodplain deposition. The Upper Archaic is better represented in the archaeological record than earlier periods. Cultural diversity was more pronounced and is marked by contrasting material cultures throughout the valley (Rosenthal et al. 2007).

During this period, numerous specialized technologies were developed such as bone tools, and implements, manufactured goods such as Olivella and *Haliotis* beads and ornaments, well-made ceremonial blades, and ground-stone plummets. People living in the San Joaquin Valley region traded with neighboring groups for obsidian.

Upper Archaic Period economies varied by region throughout the Central Valley. Economies were primarily focused on seasonal resources such as acorns, salmon, shellfish, rabbits, and deer (Rosenthal et al. 2007).

Emergent Occupation (CE 1000 to Historic)

The stable climatic conditions of the Upper Archaic continued into the Emergent Period. There has been sporadic research in the San Joaquin Valley on this time period, and thus only the Pacheco Complex on the western edge of the valley has been formally defined. After CE 1000, many of the technologies witnessed during the Archaic disappeared to be replaced by cultural traditions witnessed at European contact. During the Emergent Period, the bow and arrow replaced the atlatl as the preferred hunting method sometime between CE 1000 and 1300.

Increased social complexity is evidenced by increased variation in burial types and offerings and larger residential communities. Grave offerings such as shell beads, ornaments, and ritually “killed” mortars and pestles are often found in burials. Pottery was frequently obtained through trade with groups living in the foothills to the east. The Panoche side-notched point became important in the western side of the San Joaquin Valley (Rosenthal et al. 2007). In addition to the side-notched point, the Panoche Complex featured large circular structures, flexed burials, marine shell beads, bone awls, milling stones, and mortars and pestles (Moratto 1984).

As with the Archaic Period, Emergent Period economies varied geographically, although throughout the Central Valley fishing and plant harvesting increased in importance. Most Emergent Period residential sites contain diverse assemblages of mammal and bird remains and large amounts of fish bone. After 1,000 years, the mortar and pestle become the dominant tool type and small seeds increase in archaeological deposits over time (Rosenthal et al. 2007).

3.2.2 Ethnographic Overview

The Study Area is located in the traditional territory of the Penutian-speaking Yokuts, which includes San Joaquin Valley and surrounding foothills (Kroeber 1925, Wallace 1978). Three geographical divisions of the Yokuts are the Northern Valley, Southern Valley, and Foothill Yokuts. The distinction between the three groups is primarily based on language dialect (Mithun 2001). The Study Area is located at the approximate boundary between the ethnographic territories of the Northern and Southern Valley Yokuts, though is likely located within the ethnographic territory of the Northern Valley Yokuts (Wallace 1978).

The Yokuts established large permanent village settlements, or closely associated smaller settlements, which includes the principal Yokut village of Tulamniu. Residential structures were most often of two types: single-family dwellings and larger communal residences that housed 10 families or more. Villages frequently included mat-covered granaries and a sweathouse (Mithun 2001, Sutton et al. 2016).

The basic economic unit among the Yokuts is the nuclear family. Traditionally the nuclear family was linked to totemic lineages based on patrilineal descent. Totem symbols were passed from father to offspring. Families that shared the same totem formed an exogamous lineage. Totems were associated with one of two moieties. This moiety division played a role during ceremonies and other social events (Wallace 1978).

Yokuts split into self-governing local groups that included several villages. Each group had a chief who directed ceremonies, mediated disputes, handled punishment of those doing wrong, hosted visitors, and provided aid to the impoverished. In certain cases, settlements had two chiefs, one for each moiety. Other political positions included the chief's messenger and the spokesman (Wallace 1978).

Shamans were an important part of Yokut village life. A Yokut Shaman gained power through a dream or vision. If, after this vision, the man accepted the role as shaman, he would pray, fast, and acquire talismans to aid him in his future work. Shamans have the ability to heal the sick and serve a primary role in religious life (Wallace 1978).

Traditional Yokuts subsistence strategy was based on a mixed economy focused on fishing, collecting, and hunting small game. Fishermen employed tule rafts and caught fish with nets, spears, basket traps, and bow and arrow. They often gathered mussels and hunted turtles in lakes, rivers, and streams. Wild seeds and roots contributed a large portion to the Yokuts diet. Tule roots were gathered, dried, and pounded into a flour that was prepared as a mush. Tule seeds and grass and flowering herb seeds were prepared in the same way. Leaves and stems of certain plants, such as clover and fiddleneck, were also collected. Acorns, a staple of most California Native Americans, were not readily available in the ethnographic territory of the Yokuts. Some Yokuts tribes traded for acorns with neighboring groups, such as the Salinan and Chumash to the west, the Foothill Yokuts to the east, and the Kawaiisu and Kitanemuk to the southeast (Kroeber 1925). Waterfowl was frequently hunted with snares, nets, and bow and arrow. Land mammals and birds contributed a smaller part of the Yokuts diet. Small game was occasionally taken in snares or traps or shot with bow and arrow (Wallace 1978, Sutton et al. 2016).

Early Yokuts technology depended primarily on tule. Stems of the plant served as the raw material for baskets, cradles, boats, housing, and many other items. Manos and metates were used to process food and animal hides (Barton et al. 2010, Sutton et al. 2016). Tools such as knives, projectile points, and scraping tools were made from imported lithic materials, because stone was not readily available in the Central Valley. Some tools, such as bead drills, could be made from obsidian obtained from some distance or obtained through trade (Sutton et al. 2016). Marine shells secured through trade with coastal groups were used as shell money and personal adornment items, such as Olivella beads (Sutton et al. 2016, Wallace 1978).

Determining the precise historical-era Yokut population in the region remains challenging for researchers, yet it was not uncommon for the Yokut tribes to consist of approximately 2,000 members. For thousands of years, the Yokuts stewarded the lands until the California Gold Rush brought settlers that disrupted their ancestral hunting and fishing territories. This upheaval not only displaced them from their lands but also resulted in violence when they resisted the encroachment. Furthermore, they were particularly vulnerable to diseases introduced by European settlers. By 1970, the Yokut population in San Joaquin County had dwindled to a mere 363 individuals. The Yokuts community continues to maintain a presence in the region to this day. As of the 2010 census, the tribe had a total population of 3,162 (U.S. Census Bureau 2014, Fresno County Historical Society 2023).

3.2.3 Post-Contact Setting

Post-contact history for the state of California is generally divided into three periods: the Spanish Period (1769 to 1822), Mexican Period (1822 to 1848), and American Period (1848 to present). Although Spanish, Russian, and British explorers visited California for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769 to 1822)

Spanish explorers made sailing expeditions along the coast of California between the mid-1500s and mid-1700s. Juan Rodriguez Cabrillo in 1542 led the first European expedition to observe what was known by the Spanish as Alta (upper) California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968, Rolle 2003). The Spanish crown laid claim to Alta California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885, Gumprecht 1999). Inland expeditions made use of trails already established by Native American groups, such as El Camino Viejo located in the western interior of San Joaquin Valley (Hoover et al. 1966).

By the eighteenth century, Spain developed a three-pronged approach to secure its hold on the territory and counter against other foreign explorers. The Spanish established military forts known as presidios, as well as missions and pueblos (towns) throughout Alta California. The 1769 overland expedition by Captain Gaspár de Portolá marks the beginning of California's Historic Period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. Construction of missions and associated presidios was a major emphasis during the Spanish Period in California to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles).

Although no missions are located near the Study Area, baptismal records indicate that Yokuts speakers comprised a significant portion of the populations at multiple missions, including Mission Santa Clara (founded in 1777), Mission Nuestra Senora de la Soledad (founded in 1791), Mission Santa Cruz (founded in 1791), Mission San Juan Batista (founded in 1797), and Mission San José (founded in 1797) (Milliken et al. 2009). Individuals from two Yokuts groups, the Eyulaluas of the Firebaugh vicinity and the Copchas from the vicinity of Mendota, were relocated to Mission San Juan Batista between 1817 and 1819 (Milliken et al. 2009: 146–147). Baptismal records also indicate that small groups of Yokuts speakers linked to the Mendota-Tranquillity and Tulare Lake regions relocated to Mission Nuestra Senora de la Soledad between 1806 and 1817.

Spain began making land grants in 1784, typically to retiring soldiers, although the grantees were only permitted to inhabit and work the land. The land titles technically remained property of the Spanish king (Livingston 1914).

Mexican Period (1822 to 1848)

Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. The secularization of the missions following Mexico’s independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos. Commonly, former soldiers and well-connected Mexican families were the recipients of these land grants, which now included the title to the land.

During the supremacy of the ranchos (1834 to 1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary Southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

American Period (1848 to Present)

The United States went to war with Mexico in 1846. During the first year of the war, John C. Fremont traveled from Monterey to Los Angeles with reinforcements for Commodore, Stockton, and evaded Californian soldiers in Santa Barbara’s Gaviota Pass by taking the route over the San Marcos grade instead (Kyle 2002). The war ended in 1848 with the Treaty of Guadalupe Hidalgo, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as United States territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the Southern California economy through 1850s. The discovery of gold in the northern part of the state led to the Gold Rush beginning in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from Southern to Northern California to feed that region’s burgeoning mining and commercial boom.

A severe drought in the 1860s decimated cattle herds and drastically affected rancheros’ source of income. In addition, property boundaries that were loosely established during the Mexican era led to disputes with new incoming settlers, problems with squatters, and lawsuits. Rancheros often were encumbered by debt and the cost of legal fees to defend their property. As a result, much of the rancho lands were sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1994).

Fresno County

Following the arrival of the railroad in 1872, the population of Fresno County soared as speculators acquired undeveloped land for subdivision. The vision of German immigrant Bernard Marks, the Central California Colony was established in 1875 just south of the City of Fresno, approximately 25 miles northwest of the Study Area (Hattersley-Drayton 2013). Although other agricultural colonies had existed prior, the Central California Colony is considered the first successful agricultural colony in Fresno County (Thickens 1946). After the initial success of the Central California Colony, other similar colonies were established throughout the county by a diverse group of settlers. A map dated 1903 depicts 48 agricultural colonies in Fresno County (Panter 1994).

To enable the success of agricultural enterprise in the San Joaquin Valley's arid climate, the final quarter of the nineteenth century saw several large-scale irrigation projects in Fresno County. Irrigation projects were undertaken by one of many entities such as Moses Church's Fresno Canal and Irrigation Company and L.A. Gould's Kings River and Fresno Canal Company, among others (Thickens 1946). By the turn of the century, much of the county's previously undeveloped land had been converted into prosperous farmland. As many of the area's early settlers were former miners, immigration was diverse, including Chinese, Scandinavian, German, Japanese and Armenian settlers (Hattersley-Drayton 2013). Over the course of the 1920s and into the 1940s, much of the land in the Western San Joaquin Valley was bought up by Russell Giffen, who purchased large swaths of land for relatively cheap prices in the arid region before irrigation infrastructure had caught up to demand (*The Fresno Bee* 1971). While Giffen's farm holdings produced a variety of crops, including tomatoes, melons, alfalfa, safflower, sugar beets, and barley, Giffen's influence and success as a large-scale cotton farmer greatly contributed to the overall agricultural success of Fresno County. By the early twentieth century, cotton was Fresno County's most profitable crop, with the growth of the industry supported by fiber shortages during the first World War (Hattersley-Drayton 2013).

The largest agricultural operation within the county was likely the Vista del Llano Farms. This farming operation was established in 1946 when Russell Giffen sold 54,000 acres of land to Anderson, Clayton & Company, a cotton firm that would establish Vista Del Llano Farms near Cantua and Mendota (*The Fresno Bee* 1946). The same cotton firm that established Vista del Llano Farms also contributed to the operation of Fresno County cotton oil mills, fertilizer plants, and cotton gins, primarily through its involvement with the San Joaquin Cotton Oil Company. Anderson, Clayton & Co. likely purchased Giffen's extensive lands out of concern that the cotton produced there would fall into their competitors' reach (*The Fresno Bee* 1971). The labor force for Vista del Llano Farms was often provided housing by the ranch, with seasonal workers and their families living on-site until the work was complete. The labor camps maintained by Vista del Llano Farms were not noted for their quality until the latter half of the 1950s, when updated housing, amenities, and hot meals were provided to retain workers and improve morale (*The San Francisco Examiner* 1957). In 1950, Vista del Llano Farms worked all 54,000 acres of its property in the San Joaquin Valley, with cotton listed as one its most prominent crops (*The Modesto Bee* 1950).

Cotton continued to act as a main crop for the region after the establishment of Vista del Llano Farms in the 1950s. However, despite cotton's continued importance to the region's agriculture, cotton production was forcibly reduced by federal legislation aimed at preventing overproduction and stabilizing prices (*The Fresno Bee* 1949). In later years, cotton production was again dinged by congressional moves to cut the agricultural subsidies that made American cotton competitive in the broader market (*The Los Angeles Times* 1970). In response, large growers spearheaded the diversification of crops. Vista del Llano Farms planted 1,500 acres of canning tomatoes and 200 acres of pimiento peppers in 1966 and sought further diversification with a move towards establishing a sesame crop in the 1970s (*The Fresno Bee* 1966, 1971). However, before the end of the 1970s, provisions to the United States Reclamation Act required the sale of all properties over 160 acres if federally controlled water was used for irrigation. Since Vista del Llano Farms fell into the Westlands Water District, the ranch opted to sell approximately 50,000 acres in 160-acre parcels, essentially dissolving the operation for good (*The Hanford Sentinel* 1976). Today, the land that was part of Vista del Llano Farms includes some single-family residences, while most of the former property has been continuously utilized as agricultural fields.

Other than agriculture, the main industry of Fresno County is petroleum extraction. The largest oil field in the county is located in Coalinga, where production began in the late nineteenth century. By the early twentieth century, the Coalinga field was yielding the majority of Fresno County's crude oil production (Andreano 1970). This boom in oil production attracted more workers to the area, with expansive work camps established by multiple enterprises in the Coalinga oil field. In addition to the larger work camps in Coalinga, bungalows and bunkhouses were built at pumping stations along pipelines to accommodate workforces in isolated locations (Hinton 2008). Today, oil production continues in Fresno County, though no oil fields exist within the Study Area.

4 Methods

This section presents the methods for each task completed during the preparation of this assessment.

4.1 Background and Archival Research

4.1.1 California Historical Resources Information System

Rincon requested a cultural resources records search of the California Historical Resources Information System (CHRIS) located at the Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield in July 2023. The search was conducted by SSJVIC staff to identify previously conducted cultural resources studies and previously recorded cultural resources within the Study Area and a one-mile radius surrounding it. Results from the records search can be found in Appendix A of this report.

4.1.2 Background Research

As part of the background research for this Project, Rincon also reviewed the State Built Environment Resources Directory (BERD), NRHP, CRHR, California Historical Landmarks, California Points of Historic Interest, and the California Office of Historic Preservation Archaeological Determinations of Eligibility.

Additionally, the following resources were reviewed:

- Google Earth imagery
- Historical aerial photographs accessed via NETR Online
- Historical aerial photographs accessed via University of California, Santa Barbara Library FrameFinder.
- Historical U.S. Geological Survey topographic maps
- Geologic Maps via USGS National Geologic Map Database
- California Soil Resource Lab, hosted by University of California, Davis

4.1.3 Native American Outreach

Rincon contacted the Native American Heritage Commission (NAHC) on July 12, 2023, to request a search of the Sacred Lands File (SLF) and a contact list of Native Americans culturally affiliated with the Study Area vicinity (Appendix B).

4.2 Field Survey

Under the direction of Rincon Architectural Historian Rachel Perzel and Archaeologist Mark Strother, Rincon Archaeologist Heriberto Trevino, conducted a cultural and built environment resources survey of the Study Area on August 4 and November 17, 2023. The second survey covered an additional 9 acres added to the southern extent of the Study Area. Built environment resources within the Study Area were photographed and documented. Pursuant to California Office of Historic Preservation (OHP) Guidelines (California OHP 1995: 2), properties over 45 years of age were evaluated for listing in the NRHP and recorded on California Department of Parks (DPR) 523 series forms (Appendix C). Both of the previously recorded resources within the Study Area (P-10-006612 and P-10-006614) were relocated during the survey. Overall condition and integrity of these resources were documented and assessed.

Heriberto Trevino conducted the pedestrian field surveys of the Study Area using transect intervals of 10-meters. Exposed ground surfaces were examined for artifacts (e.g., flaked stone tools, tool-making debris, ground stone milling tools), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, and historic-period debris (e.g., metal, glass, ceramics). Ground disturbances such as rodent burrows and drainages were also visually inspected. Survey accuracy was maintained using a handheld Global Positioning Satellite unit and a georeferenced map of the Study Area. Site characteristics and survey conditions were documented using field records and a digital camera. Copies of the survey notes and digital photographs are maintained at Rincon’s Fresno office.

5 Results

5.1 Known Cultural Resources Studies

The SSJVIC records search identified 14 cultural studies previously conducted within the one-mile records search radius, three of which included portions of the Study Area. Of the three previous studies, one is an archaeological monitoring report (FR-02384), one is a cultural resources sensitivity study letter report (FR-02416), and one is an archaeological survey report (FR-02917). These are discussed in further detail below.

5.1.1 FR-02384

In 2009, URS Corporation prepared a *Cultural Resources Report* for the Starwood Power-Midway LLC Peaking Project (note: this facility is now known as the Midway Peaking Plant). The study was completed to document the monitoring efforts of the Project that occurred between September 2008 and February 2009 with additional monitoring occurring in March and April 2009. Two historical refuse deposits were discovered over the course of monitoring. The refuse deposits were excavated, analyzed, and evaluated for CRHR eligibility. The study concluded that based on the limited data value and lack of clear association, the refuse deposits were not recommended eligible for the CRHR. FR-02384 encompasses the majority of the northwestern portion of the current Study Area, however no monitoring occurred within the current Study Area. No cultural resources were identified in the current Study Area.

5.1.2 FR-02416

In 2010, Far Western prepared a *Cultural Resources Sensitivity Study* for the Fresno Reliability Transmission Project. The report gives details of the background research that was conducted for the study. The background research identified one historic-age built environment resource, the Crescent irrigation canal (P-16-000118) within the project corridor. Additionally, eight cultural resources, consisting of both prehistoric and historical archaeological sites and historical buildings and structures were recorded within one-quarter mile of the project area. None of the identified resources are located within the current Study Area.

5.1.3 FR-02917

In 2018, Environmental Science Associates prepared a *Cultural Resources Survey Report* for Hudson Solar I LLC’s Hudson Solar I Project in Fresno County. The study included background research and a pedestrian survey of the project area. No archaeological resources were identified within or near the project site. Two previously recorded built environment resources were identified within the project site (the Panoche Substation and transmission line), although the authors noted that neither resource would be impacted by project activities. The Panoche transmission line (P-10-006612) is located within the current Study Area as it crosses both project site boundaries.

5.2 Known Cultural Resources

The CHRIS records search and background research identified ten previously recorded cultural resources within one mile of the Study Area. Two (P-10-006612 and P-10-006614) of the ten resources are located within the Study Area. Resources recorded in the search radius are listed in Table 1 and the previously recorded resources within the Study Area are further described below the table. Review of the BERD for Fresno County did not identify any properties within one mile of the Study Area which are designated in the NRHP or CRHR. A review of the NRHP, CRHR and other local historical databases was negative for listings within one mile of the Study Area.

5.2.1 P-10-006612

The Schindler-Panoche 115 kV power line, owned by the PG&E Company, spans 33.5 miles from the Schindler Substation to the Panoche Substation, utilizing double-circuit steel lattice towers. Constructed between 1937 and 1956, evidence suggests it was likely built in the late 1940s. A 2007 record of the Panoche Substation indicates its association with the Moss Landing power line, dating its construction to the late 1940s. The power line is part of PG&E's extensive network in northern California and is recorded as a linear resource. The powerline lacks historical significance under Criterion A/1, B/2, C/3 or D/4. Consequently, the Schindler-Panoche 115 kV power line is not deemed historically significant and is ineligible for inclusion in the NRHP or CRHR.

5.2.2 P-10- 006614

The Panoche-Kearney 230 kV Transmission Line, owned by the PG&E Company, spans 49 miles from the Panoche Substation to the Kearney Substation, utilizing double-circuit steel lattice towers. Constructed between 1937 and 1956, evidence suggests it was likely built in the late 1940s. The line appears to have coincided with the building of the Kearney Substation. A recorded segment features a double-circuit lattice steel tower with minor changes, located 278 feet west of the Kearney Substation, suggesting originality with possible conductor and insulator replacements. The tower, with four concrete footings, suspends five conventional insulators, each containing 15 units or discs corresponding to the 230 kV line. Not meeting historical significance criteria under any of the four categories (A/1, B/2, C/3, D/4), the Panoche-Kearney 230 kV transmission line is deemed ineligible for inclusion in the NRHP or CRHR. Formal integrity assessment is unnecessary due to its lack of significance.

5.3 Review of Historical Topographic Maps and Aerial Imagery

Rincon completed a review of historical topographic maps and aerial imagery to ascertain the development history of the Study Area. The earliest topographic maps that depict the Study Area are from 1913, with historical aerial imagery from 1953 (NETR 2023, FrameFinder 2023, USGS 2023). The topographic map from 1913 illustrates the Study Area characterized by a predominantly flat topography (USGS 2023). Topographic maps and historical aerial imagery from 1953 to 1971 depict the Study Area as developed with the Panoche Substation in the northwestern portion, bordered by agricultural land and dirt roads. The Study Area appears to have been subject to ground disturbance including land clearing, plowing, and tilling, as well as development of adjacent land and

Table 1 Previously Recorded Cultural Resources within One Mile of the Study Area

Primary Number	Trinomial/ Temporary No.	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Eligibility Status	Relation to Study Area
P-10-006612	CA-FRE-003770H	Historic Engineering Structure (HP 11)	The Pacific Gas & Electric Company's Schindler-Panoche transmission line	2015 (Applied EarthWorks, Inc.)	Recommended ineligible for NRHP, CRHR or local designation	Within
P-10-006614	CA-FRE-003772H	Historic Engineering Structure (HP 11)	The Pacific Gas & Electric Company's Panoche-Kearney transmission line	2015 (Applied EarthWorks, Inc.); 2019 (Applied EarthWorks, Inc.)	Recommended ineligible for NRHP, CRHR or local designation	Within
P-10-005817	CA-FRE-003530H	Historic Site (AH 4)	Historic-era trash dump (1914 to 1945)	2008 (Applied EarthWorks, Inc.)	Unknown	Outside
P-10-005818	CA-FRE-003531H	Historic Site (AH 4)	Historic-era trash dump (early 1940s)	2009 (Applied EarthWorks, Inc.)	Unknown	Outside
P-10-005835		Historic Object(AH 1)	White porcelain isolate	2008 (Applied EarthWorks, Inc.)	NRHP/CRHR Ineligible	Outside
P-10-005886		Historic Building (HP 2/HP 4)	Historic-era agricultural complex at 43405 West Panoche Road	2006 (JRP Historical Consulting)	Recommended ineligible for NRHP, CRHR or local designation	Outside
P-10-005887		Historic Building (HP 2)	Historic-era single family property at 43946 Panoche Road	2006 (JRP Historical Consulting); 2014 (Natural Investigations Company)	Recommended ineligible for NRHP, CRHR or local designation	Outside
P-10-005888	CA-FRE-003543H	Historic Road (HP 37)	Historic-era Panoche Road at 43946 West Panoche Road	2006 (JRP Historical Consulting)	Recommended ineligible for NRHP, CRHR or local designation	Outside
P-10-006013		Historic Public Utility (HP 9)	Panoche Substation (1948/1950)	2007 (JRP Historical Consulting, LLC); 2014 (Natural Investigations Company)	Recommended ineligible for NRHP, CRHR or local designation	Outside
P-10-006610	CA-FRE-003769H	Historic Engineering Structure (HP 11)	The Pacific Gas & Electric Company's Gates-Panoche transmission line	2015 (Applied EarthWorks, Inc.)	Recommended ineligible for NRHP, CRHR or local designation	Outside

CRHR = California Register of Historical Resources

NRHP = National Register of Historic Places

Source: Southern San Joaquin Valley Information Center (SSJVIC) 2023 construction of roads since the 1950s. Development appears to have increased in the north central portion of the Study Area between 1971 and 1981, with the construction of additional buildings and roadway (NETR Online 2023). Additionally, between 1981 and 1998 the north central portion of the Study Area was graded. Historical aerial imagery indicates that the footprint of the facility remained relatively the same between 1998 and 2005. Between 2005 and 2009 the facility expanded to the west with additional buildings and landscaping (NETR Online 2023). From 2010 to 2012 the facility added the southern expansion that intersects the southwestern portion of the Study Area. The Study Area appears to have been fully developed and has remained generally unaltered since 2012 (NETR 2023).

5.4 Sacred Lands File Search

A response from the NAHC was received on August 14, 2023, stating the results of the SLF search were negative. A list of nine individuals from five tribal groups in the region was provided (see Appendix B). As the CEQA lead agency, the County will be responsible for completing AB 52 consultation with Native American tribes and individuals for both projects.

5.5 Field Survey

Rincon conducted a cultural and built environment resources pedestrian survey of the Study Area on August 4 and November 17, 2023. Collectively, the surveys covered the entirety of the Study Area.

Approximately 80 percent of the Study Area is developed including the existing P-10-006612 Schindler-Panoche 115 kV Power Line, P-10-006614 Panoche Kearney 230 kV Transmission Line, imported gravel roads, and grapevines (Figure 3, Figure 4, and Figure 5). The north central boundary of the Study Area is located adjacent to and partially within the existing Midway and Panoche facilities (Figure 6). Modern disturbance such as paved roads, facility buildings, landscaping, irrigation, and imported soils are seen throughout the Study Area and reduced ground surface visibility to 60 percent during the survey (Figure 7 and Figure 8).

The previously recorded resources inspected during the survey (P-10-006612 and P-10-006614) appear in a condition consistent with their last recordation in 2019. The current condition of the resources was documented on California Department of Parks and Recreation (DPR) Series 523 update forms (Appendix C).

No additional cultural resources were identified in the Study Area during the pedestrian surveys.

Figure 3 P-10-006612. Schindler-Panoche 115 kV Power Line, View North

Figure 4 P-10-006614. Panoche Kearney 230 kV Transmission Line, View North

Figure 5 South Central Boundary of the Study Area, View Northeast

Figure 6 North Central portion of the Study Area (Panoche Access Road), View South

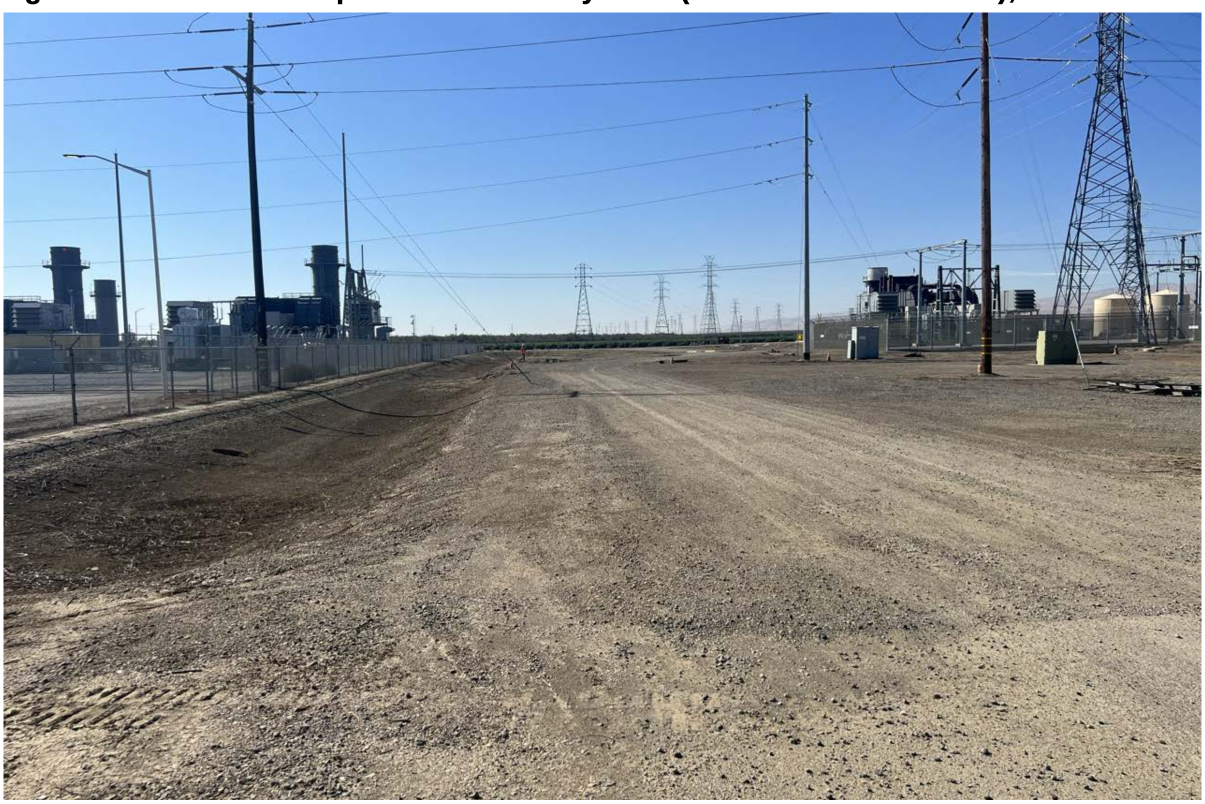
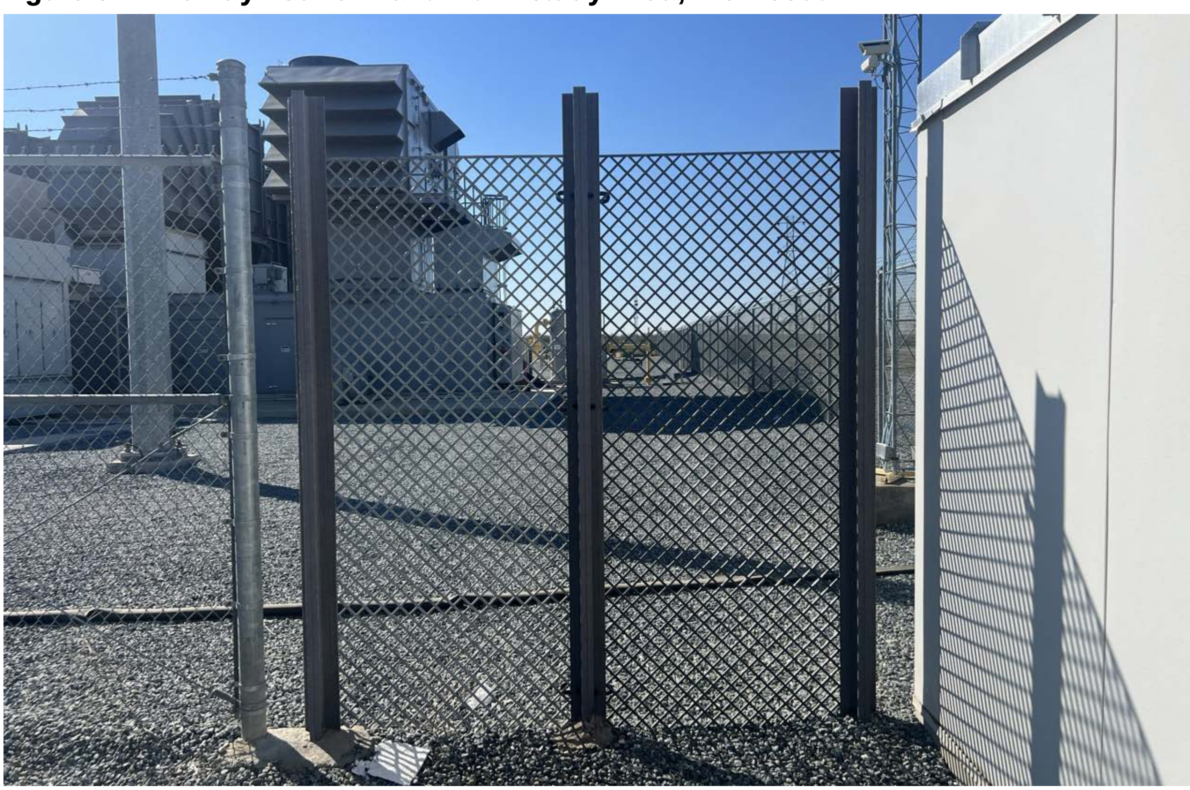


Figure 7 Northeastern Boundary of Study Area (Midway Access Road), View South

Figure 8 Midway Peaker Plant Within Study Area, View South



6 Impacts Analysis and Conclusions

The impact analysis included here is organized based on the cultural resources thresholds included in CEQA Guidelines Appendix G: Environmental Checklist Form:

a) Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?
b) Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?
c) Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?

Threshold A broadly refers to historical resources. To more clearly differentiate between archaeological and built environment resources, we have chosen to limit analysis under Threshold A to built environment resources. Archaeological resources, including those that may be considered historical resources pursuant to Section 15064.5 and those that may be considered unique archaeological resources pursuant to Section 21083.2, are considered under Threshold B.

6.1 Historical Built Environment Resources

The background research identified two previously recorded built environment historical resources in the Study Area. Resources P-10-006612 and P-10-006614, located within both project areas, are historic-aged transmission lines. Both resources were previously found ineligible for the NRHP or CRHR through survey evaluation. The current condition of both resources was documented on DPR update forms following as a result of this assessment. The current assessment indicated that the transmission lines are in a condition consistent with their previous recordation and did not identify any information to suggest that the lines may constitute historical resources pursuant to CEQA. Additionally, both transmission lines will be avoided through project design and will not be physically altered by the projects. The Midway and Panoche BESS projects would therefore result in ***no impact to historical resources*** pursuant to CEQA.

6.2 Historical and Unique Archaeological Resources

The background research, SSJVIC and SLF searches, and survey conducted for this study did not identify any archaeological resources within the Study Area, and only three historical archaeological resources are located within a one-mile radius. Although both the Midway and Panoche project sites should be considered low sensitivity for buried archaeological resources, a lack of surface evidence of archaeological material does not preclude their subsurface existence and the following standard unanticipated discovery mitigation measure is recommended for both projects. With adherence to this measure, Rincon recommends a finding of ***less-than-significant impact with mitigation for archaeological resources*** under CEQA. The projects are also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

6.2.1 Recommended Mitigation

Unanticipated Discovery of Cultural Resources

In the event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 50 feet of the find should halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric, a Native American representative should also be contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or Native American representative determines it to be appropriate, archaeological testing for CRHR eligibility should be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via project redesign, a qualified archaeologist should prepare a data recovery plan tailored to the physical nature and characteristics of the resource, per the requirements of the California Code of Regulations (CCR) Guidelines Section 15126.4(b)(3)(C). The data recovery plan should identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative, as appropriate, should recover and document the scientifically consequential information that justifies the resource's significance. The County should review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation should be submitted to the regional repository of the CHRIS, per CCR Guidelines Section 15126.4(b)(3)(C).

6.2.2 Human Remains

No human remains are known to be present within the Study Area. However, the discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be of Native American origin, the Coroner will notify the NAHC, which will determine and notify an MLD. The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance. With adherence to existing regulations, Rincon recommends a finding of ***less-than-significant impact to human remains*** under CEQA.

7 References

Bancroft, Hubert Howe

1885 *History of California, Volume III: 1825-1840.* San Francisco, California: A.L. Bancroft & Co.

Barton, Amber, Maria Del Carmen Guzman, and Breeann Romo

2010 "The Preliminary Results of the 2008 Archaeological Investigations at the Bead Hill Site (KER-450), Buena Vista Lake, California." *SCA Proceedings* 24: 1–12.

Bean, Walton

1968 California: An Interpretive History. McGraw-Hill Book Company.

Burns, Gregory, Susan Talcott, Kathryn Demps, Jason Edmonds, John Lambert, Andrew Tremayne, Jelmer Eerkens, and Eric Bartelink

2012 "Isotopic Evidence for Changing Residence Patterns through the Middle to Late Holocene in Central California." *SCA Proceedings* 26: 164–171.

California Geological Survey

2002 Generalized Geologic Map of California. Electronic document: https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-17.pdf. Accessed November 30, 2023.

California Office of Historic Preservation

2003 *California Historical Resources Status Codes*. Electronic document, http://www.ohp.parks.ca.gov/pages/1069/files/tab8.pdf. Accessed November 14, 2023.

California Soil Resource Lab

2023 Soil Web. Fresno, California. Electronic document: https://casoilresource.lawr.ucdavis.edu/gmap/. Accessed November 30, 2023.

City of Firebaugh

2023 Firebaugh History; https://firebaugh.org/history/. Accessed August 7, 2023

Dallas, S.F.

1955 "The Hide and Tallow Trade in Alta California 1822-1848." Ph.D. dissertation. Indiana University, Bloomington.

Dumke, Glenn S.

1994 "The Boom of the 1880s in Southern California." *Southern California Quarterly* 76(1): 99–114.

Durham, David L.

1998 California's Geographic Names: A Gazetteer of Historic and Modern Names of the State. Clovis, Calif.: Word Dancer Press. ISBN 1-884995-14-4.

Fredrickson, David A.

1973 “Early Cultural of the North Coast Ranges, California.” Ph.D. dissertation, University of California, Davis.

1974 “Cultural Diversity in Early Central California: A View from the North Coast Ranges.” *The Journal of California Anthropology* 1(1): 41–53.

Fresno County Historical Society

2023 The People and Communities Of The 19th Century Central Valley - Native Americans; https://www.valleyhistory.org/native-americans . Accessed August 7, 2023

The Fresno Bee

1946 “Russell Giffen Sells West Side Holdings in $7,000,000 Deal.” June 14, 1946. https://www.newspapers.com/image/701616049/ (accessed November 2022).

1949 “Cotton Quota Bill is Aimed at Price Stabilization.” August 30, 1949. https://www.newspapers.com/image/707510611/ (accessed November 2022).

1966 “Central Tomato Sorting Helps Efficiency, Cost.” September 18, 1966. https://www.newspapers.com/image/702985006/ (Accessed November 2022).

1966 “West Side Pimiento Try Alters US Crop Pattern.” December 11, 1966. https://www.newspapers.com/image/704794026/ (accessed November 2022).

1971 “Sesame May Counteract Cotton Troubles.” February 21, 1971. https://www.newspapers.com/image/703446817/ (accessed November 2022).

1971 “Russell Giffen: His West Side Gamble Made Him State’s No. 1 Farmer.” April 18, 1971. https://www.newspapers.com/image/703445423/ (accessed November 2022).

Gumprecht, Blake

1999 *The Los Angeles River: Its Life, Death, and Possible Rebirth.* Baltimore, Maryland: Johns Hopkins University Press.

The Hanford Sentinel

1976 “Westlands Farm Quits.” February 17, 1976. https://www.newspapers.com/image/560618231/ (accessed November 2022).

Hattersley-Drayton, Karana

2013 “Garden of Eden: An Historic Context for Fresno’s Fig Gardens.” Prepared for the City of Fresno with funding from a Caltrans Community Based Transportation Planning Grant.

Hinton, Diana Davids

2008 “Creating Company Culture: Oil Company Camps in the Southwest, 1920-1960.” *The Southwestern Historical Quarterly* 11(4): 369–387. http://www.jstor.org/stable/30242400.

Hoover, Mildred Brooke, Hero Eugene Rensch, Ethel Grace, and William N. Abeloe

1966 *Historic Spots in California.* Stanford, California: Stanford University Press.

Johnson, Arthur M.

1970 “California and the National Oil Industry.” *Pacific Historical Review* 39(2): 155–169. https://www.jstor.org/stable/3637434 (accessed December 2022).

Kroeber, Alfred J.

1925 Handbook of the Indians of California. *Bureau of American Ethnology, Bulletin 78*. Originally published 1925, Smithsonian Printing Office, Washington, D.C. Unabridged reprint 1976, Dover Publications, Inc. New York.

Kyle, Douglas E.

2002 *Historic Spots in California.* Stanford, California: Stanford University Press.

Livingston, M.M.

1914 “The Earliest Spanish Land Grants in California.” *Annual Publication of the Historical Society of Southern California* 9(3): 195–199.

The Los Angeles Times

1970 “’Death Blow’ for Cotton Seen if Subsidy is Cut: Congressional Moves to Trim Payments Poorly Received in San Joaquin Valley.” July 24, 1970. https://www.newspapers.com/image/385818752/ (accessed November 2022).

Milliken, Randall, Laurence H. Shoup, Beverly R. Ortiz

2009 “Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today.” *Government Documents and Publications, First Nations Era*, 6. California State University, Monterey Bay.

Mithun, Marianne

2001 *The Languages of Native North America.* Reprinted. Originally published 1999. Cambridge University Press, New York.

2006 *The Languages of Native North America.* Reprinted. Originally published 1999. Cambridge University Press, New York.

The Modesto Bee

1950 “Large Ranches on West Side Use More Machines.” February 25, 1950. https://www.newspapers.com/image/695147436/ (accessed November 2022).

Moratto, Michael J.

1984 *California Archaeology*. Academic Press, New York.

National Park Service

1983 *Archaeology and Historic Preservation: Secretary of the Interior’s Standards and Guidelines*. Electronic document. http://www.nps.gov/history/local-law/Arch_Standards.htm. Accessed April 14, 2022.

Nationwide Environmental Title Research, LLC (NETR)

2023 Historic aerials of Chaney Ranch, Fresno, CA. Electronic document, https://www.historicaerials.com. Accessed November 11, 2023.

Panter, John

1994 “Central California Colony: ‘Marvel of the Desert.’” *Fresno Past and Present.* The Journal of the Fresno City and County Historical Society. Vol. 36, No.2.

Rolle, Andrew

2003 *California: A History*. Revised and expanded sixth edition. Harlan Davidson, Inc., Wheeling, Illinois.

Rosenthal, Jeffrey, Gregory White, and Mark Sutton

2007 “The Central Valley: A View from the Catbird’s Seat.” In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 147–164. AltaMira Press, Lanham Maryland.

The San Francisco Examiner

1957 “Model Farm Labor Camps Paying Off.” June 3, 1949. https://www.newspapers.com/image/459009397/ (accessed November 2022).

State of California

2019 *CEQA: California Environmental Quality Act Statutes and Guidelines*. Office of Planning and Research, Sacramento, CA. Electronic document accessed November 14, 2023, https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf

Sutton, Mark Q., Jill K. Gardner, Kenneth W. Gobalet, and Nancy Valente

2016 “Archaeological Investigations at the Manifold Site (CA-KER-4220), Buena Vista Lake, Southern San Joaquin Valley, California.”

Thickens, Virginia E.

1946 “Pioneer Agricultural Colonies of Fresno County." *California Historical Society Quarterly* 25, *no. 1* (1946): 17–38. www.jstor.org/stable/25155951 (accessed April 2023).

United States Geological Survey (USGS)

2023 1913, Panoche, CA, 1:125000 topographic map. Electronic document accessed November 11, 2023, from: https://ngmdb.usgs.gov/

University of California Santa Barbara FrameFinder

2023 UCSB FrameFinder: Historic Aerial Photographs of Chaney Ranch (Study Area). Electronic document accessed November 11, 2023, from: https://mil.library.ucsb.edu/ap_indexes/FrameFinder/

U.S. Census Bureau

2014 2010 Census Interactive Population Search. Electronic document accessed November 11, 2023, from: https://archive.ph/20140715040425/http://www.census.gov/2010census/popmap/ipmtext.php?fl=06:0673794

Wallace, William J.

1978 “Southern Valley Yokuts.” In “California,” edited by Robert F. Heizer, pp. 448–461. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington.

Waters, Michael

1992 *Principles of Geoarchaeology*: A North American Perspective. Tucson, Arizona: The University of Arizona Press.

Waugh, John C.

2003 *On the Brink of Civil War: The Compromise of 1850 and How it Changed the Course of American History.* Wilmington, Delaware: Scholarly Resources Inc.

This page intentionally left blank.

Appendix A

Southern San Joaquin Valley Information Center Records Search Results

California
Historical
Resources
Information
System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

7/24/2023

Rachel Bilchak
Rincon Consultants, Inc.
180 N. Ashwood Avenue
Ventura, CA 93003

Re: Midway BESS and Panoche BESS Projects (23-14550)
Records Search File No.: 23-276

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on the Chaney Ranch USGS 7.5’ quad. The following reflects the results of the records search for the project area and the 1 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☐ custom GIS maps ☒ GIS data

Resources within project area:	P-10-006612, 006614
Resources within 1 mile radius:	P-10-005817, 005818, 005835, 005886, 005887, 005888, 006013, 006610
Reports within project area:	FR-02384, 02416, 02917
Reports within 1 mile radius:	FR-00320, 00321, 01959, 02015, 02383, 02404, 02411, 02575, 02576, 02689, 03098

Resource Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed
OHP Built Environment Resources Directory:	☐ enclosed	☐ not requested	☒ nothing listed
Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☒ not requested	☐ nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see https://dot.ca.gov/programs/environmental-analysis/cultural-studies/california-historical-bridges-tunnels

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see http://historicalmaps.arcgis.com/usgs/

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC; please see http://www.glorecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1 and/or http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items

Shipwreck Inventory: Not available at SSJVIC; please see https://www.slc.ca.gov/shipwrecks/

Soil Survey Maps: Not available at SSJVIC; please see http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Jeremy E David
Assistant Coordinator

Report List

SSJVIC Record Search 23-276

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
FR-00320	NADB-R - 1140608; Submitter - Subcontract No. 20822-SC-41	1992	Canady, Timothy, Ostrogorsky, Michael, and Hess, Margaret	Archaeological Survey of Right-Of-Way Corridor and Extra Work Spaces Construction Spread 5B, California, PGT-PG&E Pipeline Expansion Project	INFOTEC Research, Inc.	
FR-00321	Submitter - Contract No. 9-A104-89	1990	Moratto, Michael J. and Jackson, Thomas L.	Cultural Resources Assessment Report PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California. Phase 1: Cultural Resources Inventory Atlas	INFOTEC Resarch, Inc. ; BioSystems Analysis, Inc.	
FR-01959		1994	Moratto, Michael J., Pettigrew, Richard M., Price, Barry A., Ross, Lester A., Schalk, Randall F., Atwell, Rick, Bailey, Andrew, Bowyer, Gary, Bryson, Robert U., Canaday, Tim, Gardner, Dianne, Hildebrandt, William, Katsura, Kurt T., Lebow, Clayton G., Mikkelson, Pat, Mumma, Scott, Sekora, Lynda, Sharp, Nancy D., Skinner, Craig, Speulda, Lou Ann, Waechter, Sharon, Willig, Sharon A., Conca, David, Crisson, Fred, De Vries, David, Hodges, Charles, Ostrogorsky, Michael, Renk, Nancy, Weatherby, David, and Jones, Deborah	Archaeological Investigations PGT-PG&E Pipeline Expansion Project Idaho, Washington, Oregon, and California: Volume I: Project Overview, Research Design and Archaeological Inventory	INFOTEC Research, Inc. ; Far Western Anthropological Research Group, Inc.	
FR-01959A		1995	Bowyer, Gary C., Speulda, Lou Ann, Sekora, Lynda J., and Ross, Lester A.	Archaeological Investigations PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California: Volume III - Summary Reports: Historic Sites	INFOTEC Research, Inc. ; Far Western Anthropological Research Group, Inc.	
FR-01959B		1995	Bowyer, Gary C., Speulda, Lou Ann, Sekora, Lynda J., and Ross, Lester A.	Archaeological Investigations, PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California: Volume IV: Synthesis of Findings	INFOTEC Research, Inc. ; Far Western Anthropological Research Group, Inc.	

Report List

SSJVIC Record Search 23-276

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
FR-01959C		1995	Bowyer, Gary C., Speulda, Lou Ann, Sekora, Lynda J., and Ross, Lester A.	Archaeological Investigations, PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California: Volume V: Technical Studies	INFOTEC Research, Inc. ; Far Western Anthropological Research Group, Inc.	
FR-02015	Submitter - Application No. 01-04-012	2001	Unknown	Los Banos-Gates 500 kV Transmission Project Draft Supplemental Environmental Impact Report - Cultural Resources Section.	Aspen Environmental	10-000046, 10-000085, 10-000129, 10-001997, 10-003199
FR-02383	Submitter - URS Project No. 27656130.00260	2006	Solis, Laurie	Cultural Resource Survey for the Starwood Power-Midway, LLC Peaking Project Fresno County, California	URS Corporation	
FR-02384		2009	Fink, Gary R.	Starwood Power-Midway, LLC Peaking Project Cultural Resources Report, Fresno County, California	URS Corporation	10-005817, 10-005818, 10-005835
FR-02404		2009	Baloian, Mary Clark, Werner, Roger H., Baloian, Randy M., and Monastero, Andrew P.	Cultural Resources Inventory and Evaluation Report for the Gill Ranch Gas Storage Project, Gill Ranch Storage, LLC., Pacific Gas and Electric Company, Madera and Fresno Counties, California	Applied EarthWorks, Inc.	10-005714, 10-005715, 10-005716, 10-005717, 10-005718, 10-005719, 10-005815
FR-02411		2006	Hatoff, Brian, Farmer, Reid, Hacking, Christine, and Armstrong, Matthew	Panoche Energy Center 06-AFC-5 Cultural Resources and Paleontological Resources	URS Corporation	
FR-02416		2010	Kaijankoski, Philip	Fresno Reliability Transmission Project	Far Western Anthropological Research Group, Inc.	
FR-02575		2006	Herbert, Rand F.	Historical Resources Inventory and Evaluation Report for the Panoche Energy Center	JRP Historical Consulting	10-005886, 10-005887, 10-005888, 10-006013
FR-02576		2009	Abdo-Hintzman, Kholood, Hamilton, M. Colleen, Price, David D., and Morlet, Aubrie	California Register Eligibility Evaluation of Two Historic-Era Deposits Discovered During Archaeological Monitoring for the Starwood Power-Midway Project, Fresno County, California	Applied EarthWorks, Inc.	10-005817, 10-005818
FR-02689		2014	Sikes, Nancy E., Hanes, Phil, and Arrington, Cindy J.	Cultural Resources Inventory for the Panoche Valley Solar Farm Project Telecommunications Services San Benito and Fresno Counties, California	Natural Investigations Company	10-000046, 10-005463, 10-005887, 10-006013
FR-02917	IC Record Search Nbr - 17-463	2018	Koenig, Heidi and Alexander, Doug	Hudson Solar I LLC Hudson Solar I Project Fresno County, California	ESA- Cultural Resources Group	

Report List

SSJVIC Record Search 23-276

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
FR-03098		2021	Hudlow, Scott M.	A Phase I Cultural Resource Survey for the Proposed Monitoring Well Location: Panoche Energy Center Fresno County, California	Hudlow Cultural Resource Associates	

Resource List

SSJVIC Record Search 23-276

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-10-005817	CA-FRE-003530H	Resource Name - AE-KDB-1	Site	Historic	AH04	2008 (D. Price, Applied EarthWorks, Inc.)	FR-02384, FR-02576
P-10-005818	CA-FRE-003531H	Resource Name - AE-KDB-2	Site	Historic	AH04	2009 (B. Bufford, Applied EarthWorks, Inc.)	FR-02384, FR-02576
P-10-005835		Resource Name - AE-AM-ISO-1	Object	Historic	AH01	2008 (Aubrie Morlet, Applied EarthWorks, Inc.)	FR-02384
P-10-005886		Resource Name - Map Reference #1; Resource Name - 43405 West Panoche Road	Building	Historic	HP02; HP04	2006 (N. Hallam, S. Melvin, JRP Historical Consulting)	FR-02575
P-10-005887		Resource Name - Map Reference #2; Resource Name - 43946 West Panoche Road, Firebaugh Ranch; OTIS Resource Number - 659979	Building	Historic	HP02	2006 (N. Hallam, S. Melvin, JRP Historical Consulting); 2014 (Phil Hanes, Natural Investigations Company)	FR-02575, FR-02689
P-10-005888	CA-FRE-003543H	Resource Name - Map Reference #3; Resource Name - Panoche Road	Structure	Historic	HP37	2006 (N. Hallam, S. Melvin, JRP Historical Consulting)	FR-02575
P-10-006013		Resource Name - Panoche Substation; OTIS Resource Number - 695588	Structure	Historic	HP09	2007 (Steven Melvin, Cheryl Brookshear, JRP Historical Consulting, LLC); 2014 (Phil Hanes, Natural Investigations Company)	FR-02575, FR-02689
P-10-006610	CA-FRE-003769H	Resource Name - AE-3043-BE-002; Resource Name - Gates-Panoche 230kV No. 1 & 2	Structure	Historic	HP11	2015 (Randy Baloian, Applied EarthWorks, Inc.)	FR-02769
P-10-006612	CA-FRE-003770H	Resource Name - AE-3043-BE-004; Resource Name - Schindler-Panoche 115 kV power line	Structure	Historic	HP11	2015 (Randy Baloian, Applied EarthWorks, Inc.)	FR-02769
P-10-006614	CA-FRE-003772H	Resource Name - AE-3043-BE-013; Resource Name - Panoche-Kearney 230 kV transmission line	Structure	Historic	HP11	2015 (Randy Baloian, Applied EarthWorks, Inc.); 2019 (Carlos van Onna, Applied EarthWorks, Inc.)	FR-02769, FR-03026

Appendix B

Native American Heritage Commission Sacred Land Files Search Results

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 14, 2023

Rachel Bilchak
Rincon Consultants, Inc.

Via Email to: rbilchak@rinconconsultants.com

Re: Midway BESS and Panoche BESS Projects, Fresno County

Dear Ms. Bilchak:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst
Attachment

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person
Fresno	North Valley Yokuts Tribe	N	Timothy Perez,
	North Valley Yokuts Tribe	N	Katherine Perez, Chairperson
	Santa Rosa Rancheria Tachi Yokut Tribe	F	Leo Sisco, Chairperson
	Table Mountain Rancheria	F	Brenda Lavell, Chairperson
	Table Mountain Rancheria	F	Bob Pennell, Cultural Resource Director
	Tule River Indian Tribe	F	Kerri Vera, Environmental Department
	Tule River Indian Tribe	F	Joey Garfield, Tribal Archaeologist
	Tule River Indian Tribe	F	Neil Peyron, Chairperson
	Wuksachi Indian Tribe/Eshom Valley Band	N	Kenneth Woodrow, Chairperson

This list is current only as of the date of this document. Distribution of this list does not relieve any person

This list is only applicable for contacting local Native Americ

Native American Heritage Commission
Native American Contact List
Fresno County
8/14/2023

Contact Address	Phone #	Fax #	Email Address
P.O. Box 717 Linden, CA, 95236	(209) 662-2788		huskanam@gmail.com
P.O. Box 717 Linden, CA, 95236	(209) 887-3415		canutes@verizon.net
P.O. Box 8 Lemoore, CA, 93245	(559) 924-1278	(559) 924-3583	
P.O. Box 410 Friant, CA, 93626	(559) 822-2587	(559) 822-2693	rpennell@tmr.org
P.O. Box 410 Friant, CA, 93626	(559) 325-0351	(559) 325-0394	rpennell@tmr.org
P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	kerri.vera@tulerivertribe-nsn.gov
P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	joey.garfield@tulerivertribe-nsn.gov
P.O. Box 589 Porterville, CA, 93258	(559) 781-4271	(559) 781-4610	neil.peyron@tulerivertribe-nsn.gov
1179 Rock Haven Ct. Salinas, CA, 93906	(831) 443-9702		kwood8934@aol.com

of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resour

cans with regard to cultural resources assessment for the proposed Midway BESS and Panoche BESS Projects, Fresno Cou

Cultural Affiliation	Counties	Last Updated
Costanoan Northern Valley Yokut	Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa	5/12/2020
Costanoan Northern Valley Yokut	Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa	
Southern Valley Yokut	Fresno,Kern,Kings,Merced,Monterey,San Benito,San Luis Obispo,Tulare	
Yokut	Fresno,Madera,Merced	
Yokut	Fresno,Madera,Merced	
Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	7/22/2016
Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	7/22/2016
Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	
Foothill Yokut Mono	Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey,San Benito,San	6/19/2023

ce Section 5097.98 of the Public Resources Code.

unty.

Record: PROJ-2023-004057
Report Type: List of Tribes
Counties: Fresno
NAHC Group: All

Appendix C

Department of Parks and Recreation 523 Update Forms

Form Prepared by: R. Bilchak **Date:** 8/31/2023 ☐ **Continuation** ■ **Update**

***P3a. Description (continued):**

This form serves as an update to the previously recorded resource P-10-006612. During the Midway BESS and Panoche BESS Projects, Rincon Consultants Inc., on behalf Patch Services, revisited the resource P-10-006612.

Resource P-10-006612 is located within the Project area but adjacent to the development footprint. During the survey, the resource was noted to be in the same condition as its previous recordation. The resource will not be affected by the project activities.

P5a. Photo or Drawing (continued):

Photo 1 The base of resource P-10-006612 surrounded by grapevines, Facing North.

Form Prepared by: R. Bilchak **Date:** 8/31/2023 ☐ **Continuation** ■ **Update**

Photo 2 **The mid-view of resource P-10-006612 surrounded by grapevines, Facing North.**

Photo 3 **The top-view of resource P-10-006612, Facing North.**

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-10-006612
HRI #
Trinomial CA-FRE-3770H
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

 Resource Name or # AE-3043-BE-004

P1. Other Identifier: Schindler-Panoche 115 kV power line

***P2. Location: a. County:** Fresno ☐ **Not for Publication** ☒ **Unrestricted**

b. USGS 7.5' Quad: (Recorded Segment) Westside, CA **Date:** 1956 (1971) T18S/R16E; Section 1 M.D. **B.M.**
T18S/R17E; Section 6

c. Address:

d. UTM: NAD 83, Zone 10; Schindler Substation 218524 **mE /** 4033203 **mN**
Panoche Substation 179815 **mE /** 4062340 **mN**

e. Other Locational Data: From the small community of Five Points, proceed southwest on Highway 145 (the Fresno-Coalinga Road) for about 5.75 miles to Yuba Avenue; turn right (north) and follow Yuba Avenue for 2 miles to the recorded segment.

***P3a. Description:** The Pacific Gas and Electric Company's Schindler-Panoche power line conveys electricity through two sets of 115 kV three-phase conductors supported by 100-foot-high double-circuit steel lattice towers. It originates at the company's Schindler Substation (located in the small community of Westside) and runs west/northwest for 33.5 miles where it terminates at the Panoche Substation. Based on USGS maps and aerial photographs, the line was built between 1937 and 1956; circumstantial evidence suggest that it was built in the late 1940s.

***P3b. Resource Attributes:** HP 11 Engineering Structure

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

***P5a. Photograph or Drawing:**

P5b. Description of Photo: Looking northeast at the power line.

***P6. Date Constructed/Age and Sources:** circa 1940s, aerial photographs and historical USGS Maps
☐ Prehistoric ☒ Historic ☐ Both

***P7. Owner and Address:**
Pacific Gas and Electric Co.
3754 E California Ave.
Fresno, CA 93725

***P8. Recorded By:** Randy Baloian
Applied EarthWorks, Inc.
1391 W. Shaw Ave., Suite C
Fresno, CA 93711

***P9. Date Recorded:** February 8 , 2015

***P10. Survey Type:** ☒ Intensive
☐ Reconnaissance ☐ Other
Describe:

***P11. Report Citation:**
Asselin, Katie, Randy Baloian, Aubrie Morlet, Michael Mirro, Jenn Whiteman, Josh Tibbet, and Mary Baloian
2015 *Cultural Resource Inventory and Evaluation for the Central Valley Power Connect Project, Fresno, Kings, and Madera Counties, California.* Applied EarthWorks, Inc., Fresno, California. Prepared for Pacific Gas and Electric Company, San Francisco, California.

***Attachments:** ☐ NONE ☒ Location Map (2) ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary # P-10-006612
HRI #/Trinomial CA-FRE-3770H
*NRHP Status Code 6Z«NRHP_Statu»

 Resource Name or #: AE-3043-BE-004

B1. Historic Name: Schindler-Panoche 115 kV

B2. Common Name: Schindler-Panoche 115 kV

B3. Original Use: Electrical power line **B4. Present Use:** Same

***B5. Architectural Style:** n/a

***B6. Construction History (construction date, alterations, and dates of alterations):** The current investigation employed USGS topographic maps, aerial photography, and other background research to determine the age of the subject resource. Available aerial photographs indicate the line was built between 1937 and 1956; the line does not appear on the 1937 image but does on the 1956 version.

More relevant is a 2007 site record of the Panoche Substation, prepared by JRP Historical Consulting (JRP) (Melvin and Brookshear 2007). Although JRP was unable to cite primary documents regarding the construction of the station, it does convincingly demonstrate that the Panoche Substation was built in the late 1940s, based on its direct association with the 340 kV Moss Landing power line, which began operations in 1950 (Coleman 1952:334).

Similarly, the construction of the Schindler-Panoche 115 kV appears to have corresponded with the building of the substation. The subject resource could not have predated the Panoche Substation, given that the substation is the western terminal point of the line. The line was constructed mostly likely as part of this larger Moss Landing project or possibly shortly afterwards.

Subsequent aerial photos and USGS topographic maps indicate that the line retains its original alignment. It seems likely, however, that given the passage of more than 60 years, the original conductors and (at least a portion of) insulators have been replaced.

***B7. Moved?:** ☒ No ☐ Yes ☐ Unknown Date: Original Location:

***B8. Related Features:**

B9. a. Architect: n/a **b. Builder:** Pacific Gas & Electric Company (PG&E)

***B10. Significance:** Theme: Industry/Agriculture Area: West Side of Fresno County
Period of Significance: 1912–1921 Property Type: power line Applicable Criteria: none
The Schindler-Panoche 115 kV power line is part of an extensive network, owned and operated by PG&E, which covers much of northern California. Under the guidelines of the Office of Historic Preservation (1995), the line is recorded as a linear resource; this category also includes canals, roads, railroads, gas lines, and similar structures.

As mentioned above, the Schindler-Panoche 115 kV line is part of a wide network of power facilities that extend throughout northern Calfiornia. Considering its thematic associations (see below), however, its historical significance is most appropriately evaluated within a local context, or more specifically within the history of the western half (or West Side) of Fresno County.

Sketch Map

This space reserved for official comments.

Resource Name or #: AE-3043-BE-004

***B10. Significance (cont.):** Based on its function, the line obviously relates to the theme of industry and, more specifically, hydroelectricity. Its historical associations additionally include agriculture, given its historical importance to Fresno County as well as the Central Valley.

Electricity first came to the county's West Side in 1912 when the San Joaquin Light and Power Company (SJLPC) strung a 60kV power line between the Fresno Copper Mine north of Clovis to Midway in the oil fields of west Kern County (SPLPC 1924). Two more lines were built through the area in 1913 and 1921. To step-down and distribute the power, SJLPC also constructed several area substations at Henrietta (built in 1911), Caruthers (put into operation in 1913), Kearney (put into operation in 1917), Kerman (put into operation in 1921), San Joaquin (put into operation in 1921), and Schindler (put into operation in 1922).

The economic importance of these early facilities lay in how they affected agriculture. Beginning at the turn of the century, technological improvements made the water pump a viable alternative to draw ground water for irrigation. The earliest pumps on the West Side were likely run by steam power. Their use was particularly suited to the West Side, where water from above ground canals could be intermittent in availability, less than sufficient in volume, and sometimes expensive. Later, gasoline became a cheap source of fuel to run machinery, particularly in light of the vast volumes of crude drawn from nearby Coalinga. However, most farmers found an even better alternative in electricity, more specifically hydro-generated electricity from SJLPC power plants in the foothills and mountains of the Sierra Nevada. To demonstrate the economic significance of electrically pumped irrigation water to the Central Valley and the SJLPC, in 1914, the company provided power for the irrigation of 100,000 acres—about one-third of the irrigated lands in Fresno, Kern, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties, with increasingly more farmers turning to electric pumps to extract ground water (IRI and TCRI 1985:149). Until 1930, when PG&E gained controlling interest in the SJLPC, the agricultural sector accounted for the largest portion of the power company's revenue.

In the late 1940s to mid-1950s, PG&E understook a second episode of power line construction on the West Side of Fresno County. It was during this period that the subject resource and the Panoche substation were built.

In evaluating the significance of the subject resource, particularly under criteria A/1 and B/2 below, it is important to distinguish events and people that established economic trends from those that merely represent continuations of such trends. The introduction of electrical power to the West Side of Fresno County created a new opportunity for farmers and solidified the pump as a means to procure irrigation water. It is very doubtful whether agrciltur in this part of the county could have arrived at its modern state without an electrical grid. For this reason, the evaluation uses the interval 1912–1921 as its thematic period of significance when the first three power lines were strung through the county's West Side (see above).

Criterion A/1. Construction of the Schindler-Panoche 115 kV power line occurred after the thematic period of significance (1912–1921) given above. It does not follow the right-of-way of one of the three original lines constructed by the SJLPC, nor does it date to the formative period when the company established its historically significant relationship with valley farmers. Moreover, the line was not built by the SJLPC but by its successor PG&E.

Based on available information, the line was constructed inconjunction or possibly shorly after PG&E's Moss Landing project around 1950. The Panoche substation, which is the western terminal point of the line, also appear to have been erected at this time.

As related to both West Side agriculture and the history of PG&E, the Schindler-Panoche 115 kV power line and its associated substations clearly represent a continuation of economic trends set in motion earlier in the century. Construction of the line does not mark a significant event in the history of the company or agricultural region. (Note: JRP found that the Panoche Substation lacks historical significance for the same reasons [Melvin & Brookshear 2005].)

For these reasons, the Schindler-Panoche 115 kV power line is not considered historically significant under Criterion A/1.

Criterion B/2. By far, the most historically significant individual whose accomplishments best illustrate the theme of the SJLPC's effect on valley agriculture was the company's general manager, Albert G. Wishon. Wishon's higher education in electrical and mechanical engineering complemented his business acumen, and his understanding of what the hydroelectric industry could mean to agriculture turned out to be a great boon for both the SJLPC and valley farmers. As with Criterion A/1 above, however, the subject resource was not built during Wishon's tenure with the SJLPC but rather by the company's successor PG&E. Research revealed no other important individual, connected with the Schindler-Panoche 115 kV power line, who would reasonable be significant under this criterion. Thus, the Schindler-Panoche 115 kV power line is not considered historically significant under Criterion B/2.

Criterion C/3. Criterion C/3 usually applies to built-environment resources with distinctive architecture and/or unique or innovative engineering design or construction methods. Inspection of the Schindler-Panoche 115 kV power line indicates, however, that its elements are far from unique or innovative and can be seen on other steel-tower lines throughout the country. Steel tower and suspension insulators have been employed to support electrical conduit since the first decade of the twentieth century (Buck 1914; Rowe 1907:1239–1240). These aspects of the subject resource thus do not represent an important technological advance in the history of electrical transmission. The line is thus not considered historically significant under Criterion C/3.

Criterion D/4. Although Criterion D is most relevant for archaeological sites, it can be applied to intact structures in instances where examination of the structure's features would result in historical information that cannot be obtained from other sources. However, this is not the case for the subject resource. Further study about its elements would not yield more information about the history and engineering methods of power line construction and operation beyond what is already know from existing sources. The Schindler-Panoche 115 kV power line is not considered significant under Criterion D/4.

Because the Schindler-Panoche 115 kV power line is not considered historically significant under any of the four criteria, formal assessment of integrity is not necessary. Due to a lack of significance, the Schindler-Panoche 115 kV power line is not considered eligible for inclusion in the NRHP or CRHR.

B11. Additional Resource Attributes (list attributes and codes):

***B12. References:**

Buck, H. W.
1914 Practical Operation of Suspension Insulators. In *Transactions of the American Institute of Electrical Engineers, January to June 24, 1914,* Vol. XXXIII, Part I, pp. 131–137. American Institute of Electrical Engineers, New York. Electronic document, http://books.google.com/books?id=bzESAAAAIAAJ&pg=PA131&dq=Buck+suspension+insulators+American+Institute+Electrical+Engineers#v=onepage&q=&f=false, accessed May 2015.

Coleman, Charles M.
1952 *PG and E of California: The Centennial Story of Pacific Gas and Electric Company, 1852–1952.* McGraw-Hill, New York.

INFOTEC Research, Inc., and Theodoratus Cultural Research, Inc. (IRI and TCRI)
1985 Ethnographic, Historic, and Archaeological Overviews and Archaeological Survey. In *Cultural Resources of the Crane Valley Hydroelectric Project Area, Madera County, California,* vol. I, edited by Susan K. Goldberg. INFOTEC Research, Inc., Sonora, California, and Theodoratus Cultural Research, Inc., Fair Oaks, California. Submitted to Pacific Gas and Electric Company, San Francisco.

Melvin, Steven, and Cheryl Brookshear
2007 Site Record for the Panoche Substation, JRP Historical Consulting, LLC, Davis, California. Electronic document, http://www.energy.ca.gov/sitingcases/panoche/documents/applicant/data_request_responses_2/Appendix%20A/Appendix%20A%20-%20Panoche%20Substation%20DPR.pdf, accessed April 2015.

National Park Service (NPS)
2002 *How to Apply the National Register Criteria for Evaluation.* Revised. U.S. Department of the Interior, National Park Service, Cultural Resources, National Register, History, and Education, Washington, D.C. Electronic document, www.nps.gov/history/nr/publications/bulletins/nrb15, accessed May 2015.

Office of Historic Preservation
1995 *Instructions for Recording Historical Resources.* Sacramento, California.

Resource Name or #: AE-3043-BE-004

Rowe, Norman

1907 Lightning-Rods and Grounded Cables as a Mean of Protecting Transmission Lines against Lightning. In *Transactions of the American Institute of Electrical Engineers* Vol. XXVI, Part II, pp. 1239–1248. American Institute of Electrical Engineers, New York. Electronic document, http://books.google.com/books?id=eywSAAAAIAAJ&pg=PA1129&dq=Transactions+of+the+American+Institute+of+Electrical+Engineers+Vol.+XXIV,+Part+II,+1907#v=onepage&q=&f=false, accessed May 2015.

San Joaquin Light and Power Company (SJLPC)

1924 Unpublished summary of SJLPC with a hand-written title "Historical Data." Records, text, and maps indicate the documents were prepared in 1924.

B13. Remarks:

***B14. Evaluator: Randy Baloian**
Date of Evaluation: May 2015

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-10-006612
HRI #/Trinomial CA-FRE-3770H

 Resource Name or #: AE-3043-BE-004

L1. Historic and/or Common Name: Schindler-Panoche 115 kV

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:** AE-3043-BE-004

b. Location of point or segment: Intersection of the power line and Yuba Road 214902 **mE /** 4033058 **mN**

L3. Description: The recorded segment includes two towers spaced approximately 1175 feet apart. They are of the type referred to as double-circuit lattice steel towers. Four concrete circular footings (2 feet in diameter) anchor the tower to the ground. Six conventional suspension insulators hang from the six arms of each tower; each insulator contains 8 units or discs, which correspond to the 115 kilowatt voltage of the line.

L4. Dimensions:
- **a. Top Width:** 30 feet, from arm to arm
- **b. Bottom Width:** 30 feet, from footing to footing
- **c. Height or Depth:** 100 feet high
- **d. Length of Segment:** 1175 feet

L4e. Sketch or Cross Section ☐ attached ☐ none **Facing:**

L5. Associated Resources: Schindler and Panoche substations

L6. Setting: Rural; located in the West Side region of the Central Valley

L7. Integrity Considerations: The towers appear to be original with only minor changes; the original conductors and insulators have probably been replaced since the line's construction.

L8a. Photo, Map, or Drawing:

L8b. Description of Photo, Map, or Drawing: (See Primary Record)

L9. Remarks: not historically significant

L10. Form Prepared By: Randy Baloian

L11. Date: April 2015

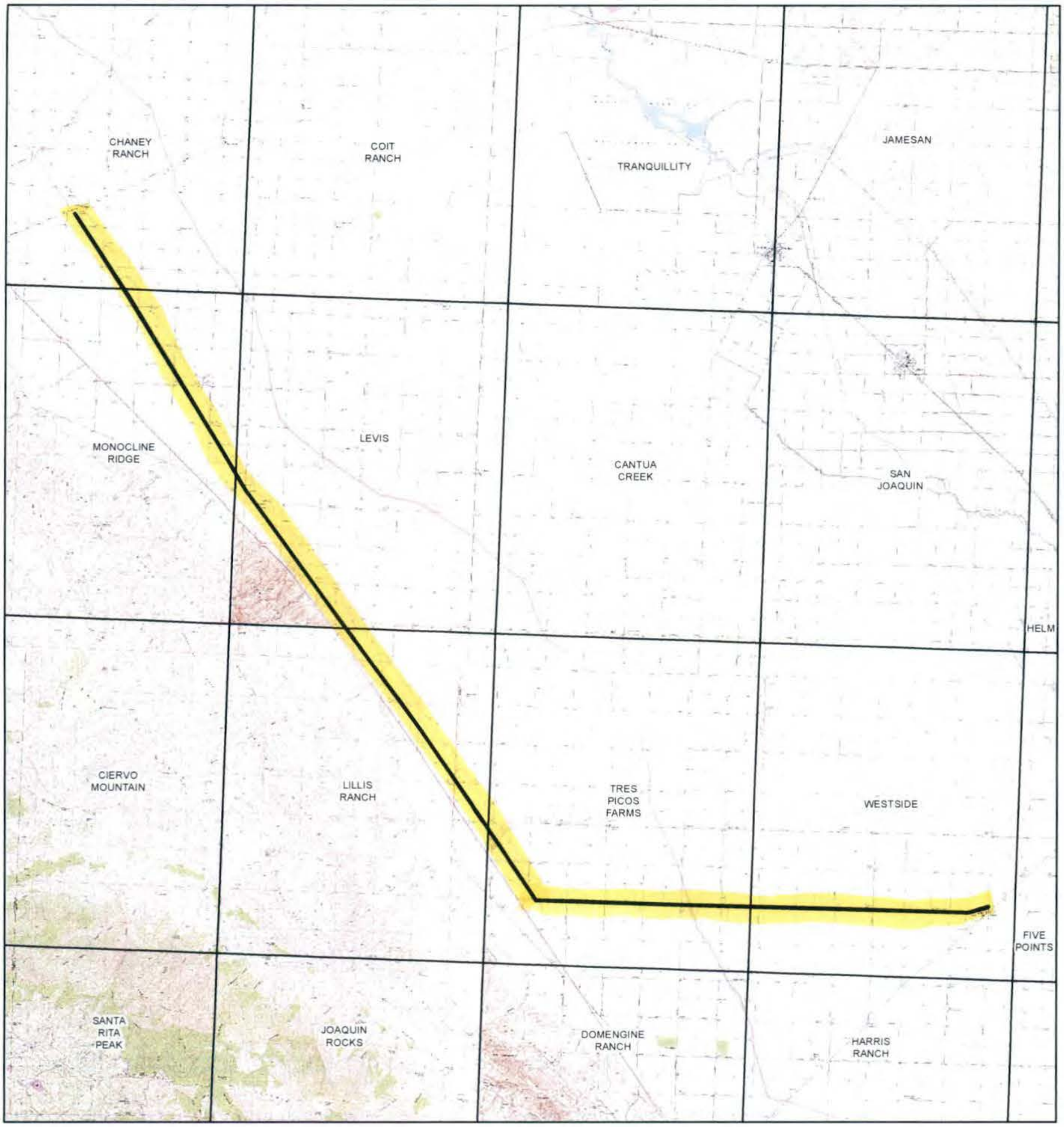
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

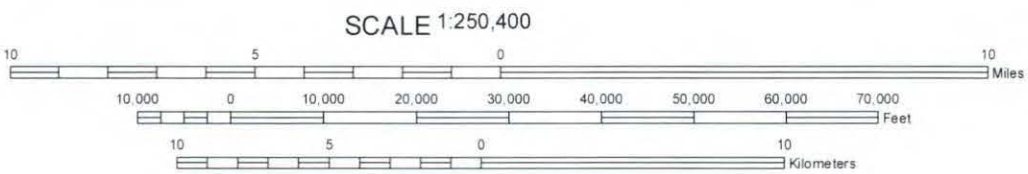
Primary # P-10-006612
HRI#
Trinomial CA-FRE-3770H

Resource Name or #: AE-3043-BE-004

Map Name: Multiple quadrangles

**Full extent of resource shown at reduced scale.





State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # P-10-006612
HRI#
Trinomial CA-FRE-3770H

Page 8 of 8

Resource Name or #: AE-3043-BE-004

Scale: 1:24,000

Map Name: Westside, CA, USGS 7.5' quadrangle(s)

Date: 1956 (PR1971)

DPR 523K (1/95)

*Required information

***P3a. Description (continued):**

This form serves as an update to the previously recorded resource P-10-006614. During the Midway BESS and Panoche BESS Projects, Rincon Consultants Inc., on behalf Patch Services, revisited the resource P-10-006614.

Resource P-10-006614 is located within the Project area but adjacent to the development footprint. During the survey, the resource was noted to be in the same condition as its previous recordation. The resource will not be affected by the project activities.

P5a. Photo or Drawing (continued):

Photo 1 The base of resource P-10-006614 surrounded by grapevines, Facing North.

Form Prepared by: R. Bilchak **Date:** 8/31/2023 ☐ **Continuation** ■ **Update**

Photo 2 **The mid-view of resource P-10-006614 surrounded by grapevines, Facing North.**

Photo 3 **The top-view of resource P-10-006614 surrounded by grapevines, Facing North.**

SUPPLEMENT

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # 10-006614
HRI #/Trinomial CA-FRE-3772H

 Resource Name or #:

L1. Historic and/or Common Name: Panoche-Kearney 230 kV Transmission Line

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:**

b. Location of point or segment:

L3. Description: The 350-foot-long recorded segment includes one double-circuit lattice steel tower along the Panoche-Kearney 230 kilovolt (kV) Transmission Line. The tower has four concrete footings, each measuring 2 feet in diameter. Five conventional suspension insulators hang from the three arms of the tower, three on the south end of each arm, and two on the north end. Each insulator contains 15 units or discs, which correspond to the 230 kilovolts of the line.

L4. Dimensions:

a. Top Width: 30 feet, from arm to arm

b. Bottom Width: 30 feet, from footing to footing

c. Height or Depth: 100 feet

d. Length of Segment: 350 feet

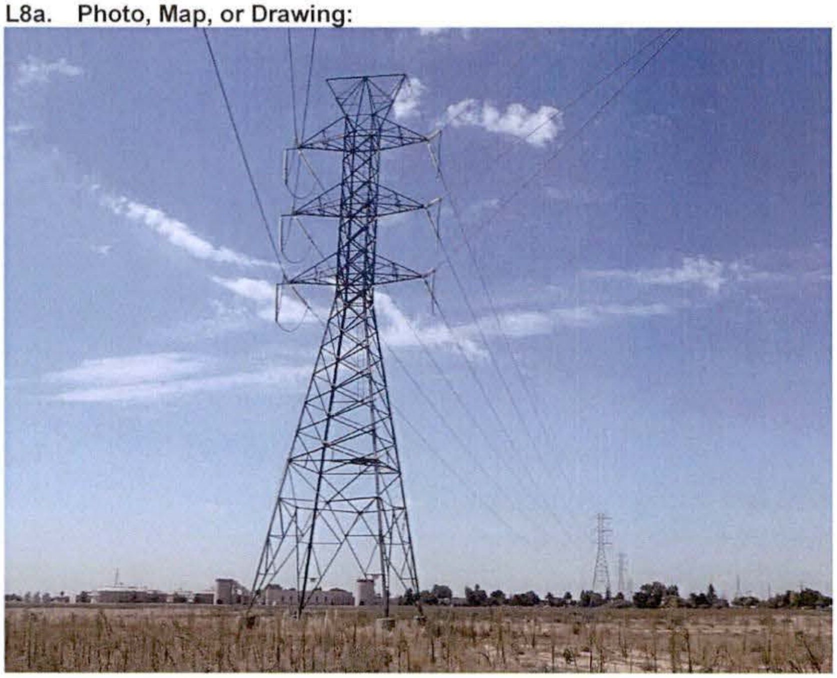
L4e. Sketch or Cross Section ☐ attached ☒ none **Facing:**

L5. Associated Resources: Panoche and Kearney substations

L6. Setting: Rural; located in an agricultural field approximately 278 feet west of Kearney Substation. This is the easternmost tower on the Panoche to Kearney line and the first tower leaving Kearney Substation.

L7. Integrity Considerations: The tower appears to be original with only minor changes; the original conductors and insulators were likely replaced since the line's construction, which at least in part seems to have taken place during the second half of the 1950s.

L8a. Photo, Map, or Drawing:



L8b. Description of Photo, Map, or Drawing: Transmission line tower, facing west.

L9. Remarks: None.

L10. Form Prepared By: Carlos van Onna
Applied EarthWorks, Inc.
1391 W. Shaw Ave., Suite C
Fresno, CA 93711

L11. Date: October 2019

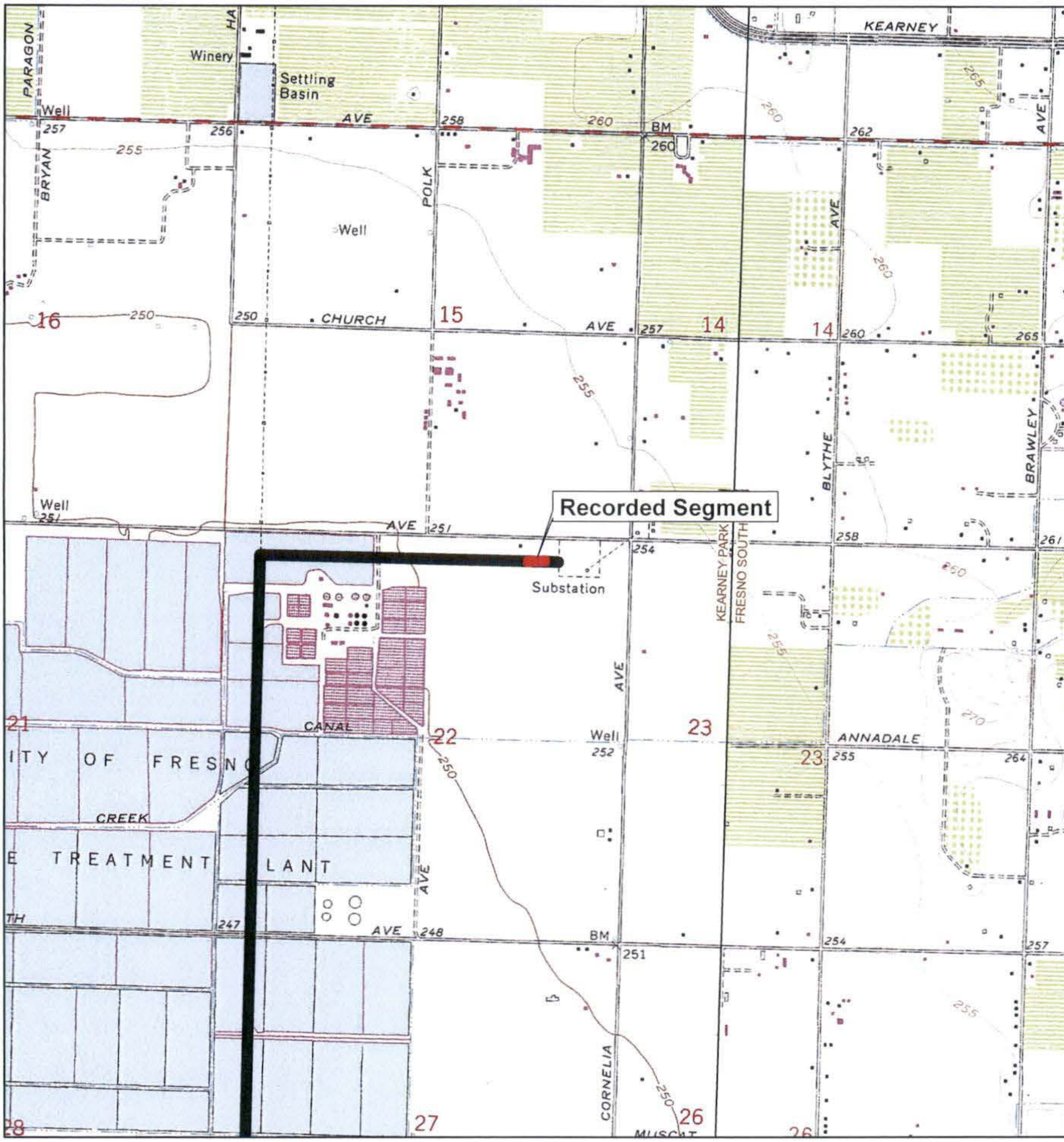
SUPPLEMENT

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

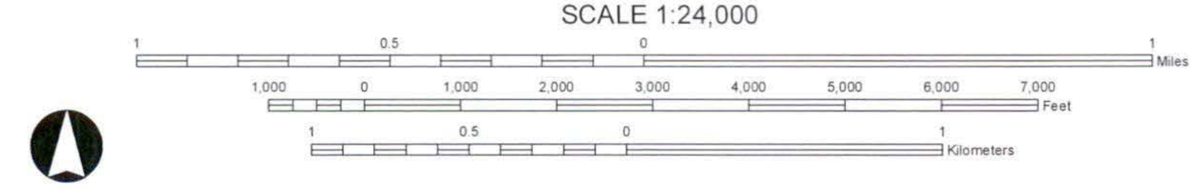
Primary # 10-006614
HRI#
Trinomial CA-FRE-3772H

Page 2 **of** 2 **Resource Name or #:** Panoche-Kearney 230 kV Transmission Line **Scale:** 1:24,000

Map Name: Kearney Park (1952-PR 1979), CA, USGS 7.5' quadrangle **Date:** 2015



SCALE 1:24,000



State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-10-006614
HRI #
Trinomial CA-FRE-3772H
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

 Resource Name or # AE-3043-BE-013

P1. Other Identifier: Panoche-Kearney 230 kV

***P2. Location: a. County:** Fresno ☐ Not for Publication ☒ Unrestricted

b. USGS 7.5' Quad: (Recorded Segment) San Joaquin, CA **Date:** 1963 T15S, R16E Sections 26,27 M.D. **B.M.**

c. Address:

d. UTM: NAD 83, Zone 10; Panoche Substation 179865 **mE / 4062341 mN**
Kearney Substation 242431 **mE / 406642 mN**

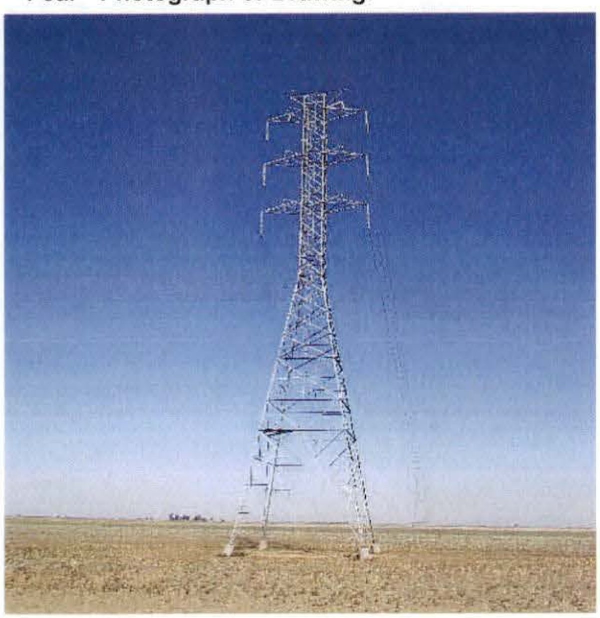
e. Other Locational Data: From the community of San Joaquin, proceed about 1 mile west on Manning Avenue to Eldorado Avenue; turn left (south) and proceed about 0.7 mile to the recorded segment.

***P3a. Description:** The Pacific Gas and Electric Company's Panoche-Kearney transmission line convyes electricity through two sets of 230 kV three-phase conductors supported by 100-foot-high double circuit steel lattice towers. It originates at the company's Panoche Substation (located 13 miles southwest of Mendota) and proceeds in a generally eastward direction for 49 miles to the Kearney Substation (southwest of Fresno). Based on USGS maps and aerial photographs, the line was built between 1937 and 1956; circumstantial evidence suggests it was built in the late 1940s.

***P3b. Resource Attributes:** HP 11 Engineering Structure

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

***P5a. Photograph or Drawing:**



P5b. Description of Photo: Looking

***P6. Date Constructed/Age and Sources:** circa 1940s; Aerial photographs and historical USGS Maps
☐ Prehistoric ☒ Historic ☐ Both

***P7. Owner and Address:**
Pacific Gas and Electric Co.
3754 E California Ave.
Fresno, CA 93725

***P8. Recorded By:** Randy Baloian
Applied EarthWorks, Inc.
1391 W. Shaw Ave., Suite C
Fresno, CA 93711

***P9. Date Recorded:** February-April 2015

***P10. Survey Type:** ☒ Intensive
☐ Reconnaissance ☐ Other
Describe:

***P11. Report Citation:**
Asselin, Katie, Randy Baloian, Aubrie Morlet, Michael Mirro, Jenn Whiteman, Josh Tibbet, and Mary Baloian
2015 *Cultural Resource Inventory and Evaluation for the Central Valley Power Connect Project, Fresno, Kings, and Madera Counties, California.* Applied EarthWorks, Inc., Fresno, California. Prepared for Pacific Gas and Electric Company, San Francisco, California.

***Attachments:** ☐ NONE ☒ Location Map (2) ☐ Sketch Map ☐ Continuation Sheet
☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record
☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record
☐ Photograph Record ☐ Other (list):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary # P-10-006614
HRI #/Trinomial CA-FRE-3772H
***NRHP Status Code** 6Z«NRHP_Statu»

 Resource Name or #: AE-3043-BE-013

B1. Historic Name: Panoche-Kearney 230 kV

B2. Common Name: Panoche-Kearney 230 kV

B3. Original Use: Electrical transmission line **B4. Present Use:** Same

***B5. Architectural Style:** n/a

***B6. Construction History (construction date, alterations, and dates of alterations):** The current investigation employed USGS topographic maps, aerial photography, and other background research to determine the age of the subject resource. Available aerial photographs indicate the line was built between 1937 and 1956; the line does not appear on the 1937 image but does on the 1956 version.

More relevant is a 2007 site record of the Panoche Substation, prepared by JRP Historical Consulting (JRP) (Melvin and Brookshear 2007). Although JRP was unable to cite primary documents regarding the construction of the station, it does convincingly demonstrate that the Panoche Substation was built in the late 1940s, based on its direct association with the 340 kV Moss Landing transmission line, which began operations in 1950 (Coleman 1952:334).

Similarly, the construction of the Panoche-Kearney 230 kV line appears to have corresponded with the building of the substation. The subject resource could not have predated the Panoche Substation, given that the substation is the western terminal point of the line. The line was constructed mostly likely as part of this larger Moss Landing project or possibly shortly afterwards.

Subsequent aerial photos and USGS topographic maps indicate that the line retains its original alignment. It seems likely, however, that given the passage of more than 60 years, the original conductors and (at least a portion of) insulators have been replaced.

***B7. Moved?:** ☒ No ☐ Yes ☐ Unknown Date: Original Location:

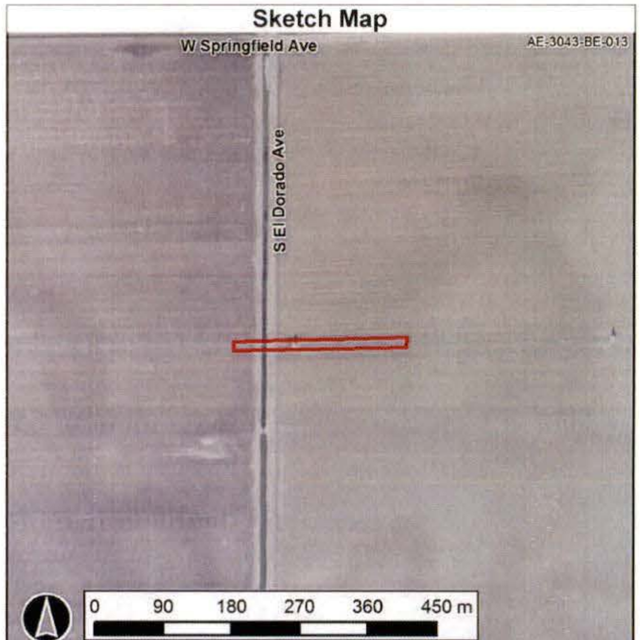
***B8. Related Features:**

B9. a. Architect: n/a **b. Builder:** Pacific Gas & Electric Company (PG&E)

***B10. Significance:** Theme: industry/agriculture Area: West Side of Fresno County
Period of Significance: 1912–1921 Property Type: transmission line Applicable Criteria: none
The Panoche-Kearney 230 kV transmission line is part of an extensive network, owned and operated by PG&E, which covers much of northern California. Under the guidelines of the Office of Historic Preservation (1995), the line is recorded as a linear resource; this category also includes canals, roads, railroads, gas lines, and similar structures.

As mentioned above, the Panoche-Kearney 230 kV line is part of a wide network of transmission facilities that extend throughout northern Calfiornia. Considering its thematic associations (see below), however, its historical significance is most appropriately evaluated within a local context, or more specifically within the history of the western half (or West Side) of Fresno County.

Sketch Map



This space reserved for official comments.

***B10. Significance (cont.):** Based on its function, the line obviously relates to the theme of industry and, more specifically, hydroelectricity. Its historical associations additionally include agriculture, given its historical importance to Fresno County as well as the Central Valley.

Electricity first came to the county's West Side in 1912 when the San Joaquin Light and Power Company (SJLPC) strung a 60 kV power line between the Fresno Copper Mine north of Clovis to Midway in the oil fields of west Kern County (SPLPC 1924). Two more lines were built through the area in 1913 and 1921. To step-down and distribute the power, SJLPC also constructed several area substations at Henrietta (built in 1911), Caruthers (put into operation in 1913), Kearney (put into operation in 1917), Kerman (put into operation in 1921), San Joaquin (put into operation in 1921), and Schindler (put into operation in 1922).

The economic importance of these facilities lay in how they affected agriculture. Beginning at the turn of the century, technological improvements made the water pump a viable alternative to draw ground water for irrigation. The earliest pumps on the West Side were likely run by steam power. Their use was particularly suited to the West Side, where water from above ground canals could be intermittent in availability, less than sufficient in volume, and sometimes expensive. Later, gasoline became a cheap source of fuel to run machinery, particularly in light of the vast volumes of crude drawn from nearby Coalinga. However, most farmers found an even better alternative in electricity, more specifically hydro-generated electricity from SJLPC power plants in the foothills and mountains of the Sierra Nevada. To demonstrate the economic significance of electrically pumped irrigation water to the Central Valley and the SJLPC, in 1914, the company provided power for the irrigation of 100,000 acres—about one-third of the irrigated lands in Fresno, Kern, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties, with increasingly more farmers turning to electric pumps to extract ground water (IRI and TCRI 1985:149). Until 1930, when PG&E gained controlling interest in the SJLPC, the agricultural sector accounted for the largest portion of the power company's revenue.

In the late 1940s to mid-1950s, PG&E understook a second episode of transmission line construction on the West Side of Fresno County. It was during this period that the subject resource and the Panoche substation were built.

In evaluating the significance of the subject resource, particularly under criteria A/1 and B/2 below, it is important to distinguish events and people that established economic trends from those that merely represent continuations of such trends. The introduction of electrical power to the West Side of Fresno County created a new opportunity for farmers and solidified the pump as a means to procure irrigation water. It is very doubtful whether agriculture in this part of the county could have arrived at its modern state without an electrical grid. For this reason, the evaluation uses the interval 1912–1921 as its thematic period of significance when the first three transmission lines were strung through the county's West Side (see above)

Criterion A/1. Construction of the Panoche-Kearney 230 kV transmission line occurred after the thematic period of significance (1912–1921) given above. It does not follow the right-of-way of one of the three original lines constructed by the SJLPC, nor does it date to the formative period when the company established its historically significant relationship with valley farmers. Moreover, the line was not built by the SJLPC but by its successor PG&E.

Based on available information, the line was constructed in conjunction with or possibly shorly after PG&E's Moss Landing project around 1950. The Panoche substation, which is the western terminal point of the line, also appears to have been erected at this time.

As related to both West Side agriculture and the history of PG&E, the Panoche-Kearney 230 kV transmission line and its associated substations clearly represent a continuation of economic trends set in motion earlier in the century. Construction of the line does not mark a significant event in the history of the company or agricultural region. (Note: JRP found that the Panoche Substation lacks historical significance for the same reasons [Melvin & Brookshear 2005].)

For these reasons, the Panoche-Kearney 230 kV transmission line is not considered historically significant under Criterion A/1.

Criterion B/2. By far, the most historically significant individual whose accomplishments best illustrate the theme of the SJLPC's effect on valley agriculture was the company's general manager, Albert G. Wishon. Wishon's higher education in electrical and mechanical engineering complemented his business acumen, and his understanding of what the hydroelectric industry could mean to agriculture turned out to be a great boon for both the SJLPC and valley farmers. As with Criterion A/1 above, however, the subject resource was not built during Wishon's tenure with the SJLPC but rather by the company's successor PG&E. Research revealed no other important individual, connected with the Panoche-Kearney 230 kV transmission line, who would reasonable be significant under this criterion. Thus, the Panoche-Kearney 230 kV transmission line is not considered historically significant under Criterion B/2.

Criterion C/3. Criterion C/3 usually applies to built-environment resources with distinctive architecture and/or unique or innovative engineering design or construction methods. Inspection of the Panoche-Kearney 230 kV transmission line indicates, however, that its elements are not unique or innovative and can be seen on other steel-tower lines throughout the country. Steel tower and suspension insulators have been employed to support electrical conduit since the first decade of the twentieth century (Buck 1914; Rowe 1907:1239–1240). These aspects of the subject resource thus do not represent an important technological advance in the history of electrical transmission. The line is thus not considered historically significant under Criterion C/3.

Criterion D/4. Although Criterion D is most relevant for archaeological sites, it can be applied to intact structures in instances where examination of the structure's features would result in historical information that cannot be obtained from other sources. However, this is not the case for the subject resource. Further study about its elements would not yield more information about the history and engineering methods of transmission line construction and operation beyond what is already know from existing sources. The Panoche-Kearney 230 kV transmission line is not considered significant under Criterion D/4.

Because the Panoche-Kearney 230 kV transmission line is not considered historically significant under any of the four criteria, formal assessment of integrity is not necessary. Due to a lack of significance, the Panoche-Kearney 230 kV transmission line is not considered eligible for inclusion in the NRHP or CRHR.

B11. Additional Resource Attributes (list attributes and codes):

***B12. References:**

Buck, H. W.
1914 Practical Operation of Suspension Insulators. In *Transactions of the American Institute of Electrical Engineers, January to June 24, 1914,* Vol. XXXIII, Part I, pp. 131–137. American Institute of Electrical Engineers, New York. Electronic document, http://books.google.com/books?id=bzESAAAAIAAJ&pg=PA131&dq=Buck+suspension+insulators+American+Institute+Electrical+Engineers#v=onepage&q=&f=false, accessed May 2015.

Coleman, Charles M.
1952 *PG and E of California: The Centennial Story of Pacific Gas and Electric Company, 1852–1952.* McGraw-Hill, New York.

INFOTEC Research, Inc., and Theodoratus Cultural Research, Inc. (IRI and TCRI)
1985 Ethnographic, Historic, and Archaeological Overviews and Archaeological Survey. In *Cultural Resources of the Crane Valley Hydroelectric Project Area, Madera County, California,* vol. I, edited by Susan K. Goldberg. INFOTEC Research, Inc., Sonora, California, and Theodoratus Cultural Research, Inc., Fair Oaks, California. Submitted to Pacific Gas and Electric Company, San Francisco.

Melvin, Steven, and Cheryl Brookshear
2007 Site Record for the Panoche Substation, JRP Historical Consulting, LLC, Davis, California. Electronic document, http://www.energy.ca.gov/sitingcases/panoche/documents/applicant/data_request_responses_2/Appendix%20A/Appendix%20A%20-%20Panoche%20Substation%20DPR.pdf, accessed April 2015.

National Park Service (NPS)
2002 *How to Apply the National Register Criteria for Evaluation.* Revised. U.S. Department of the Interior, National Park Service, Cultural Resources, National Register, History, and Education, Washington, D.C. Electronic document, www.nps.gov/history/nr/publications/bulletins/nrb15, accessed May 2015.

Office of Historic Preservation
1995 *Instructions for Recording Historical Resources.* Sacramento, California.

Resource Name or #: AE-3043-BE-013

Rowe, Norman

1907 Lightning-Rods and Grounded Cables as a Mean of Protecting Transmission Lines against Lightning. In *Transactions of the American Institute of Electrical Engineers* Vol. XXVI, Part II, pp. 1239–1248. American Institute of Electrical Engineers, New York. Electronic document, http://books.google.com/books?id=eywSAAAAIAAJ&pg=PA1129&dq=Transactions+of+the+American+Institute+of+Electrical+Engineers+Vol.+XXIV,+Part+II,+1907#v=onepage&q=&f=false, accessed May 2015.

San Joaquin Light and Power Company (SJLPC)

1924 Unpublished summary of SJLPC with a hand-written title "Historical Data." Records, text, and maps indicate the documents were prepared in 1924.

B13. Remarks:

***B14. Evaluator:**
Date of Evaluation:

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-10-006614
HRI #/Trinomial CA-FRE-3772H

 Resource Name or #: AE-3043-BE-013

L1. Historic and/or Common Name:

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:** AE-3043-BE-013
b. Location of point or segment: Intersection of the line and El Dorado Avenue: 213103 **mE / 4054460 mN**

L3. Description: The recorded segment includes two towers spaced approximately 1200 feet apart. They are of the type referred to as double-circuit lattice steel towers. Four concrete circular footings (2 feet in diameter) anchor the tower to the ground. Six conventional suspension insulators hang from the six arms of each tower; each insulator contains 15 units or discs, which correspond to the 230 kilowatt voltage of the line.

L4. Dimensions:
a. Top Width: 30 feet, from arm to arm
b. Bottom Width: 30 feet, from footing to footing
c. Height or Depth: 100 feet high
d. Length of Segment: 1,200 feet

L4e. Sketch or Cross Section ☐ attached **Facing:** ☐ none

L5. Associated Resources: Panoche and Kearney substations

L6. Setting: Rural; located in the West Side region of the Central Valley.

L7. Integrity Considerations: The towers appear to be original with only minor changes; the original conductors and insulators have probably been replaced since the line's construction.

L8a. Photo, Map, or Drawing:

L8b. Description of Photo, Map, or Drawing: (See Primary Record)

L9. Remarks:

L10. Form Prepared By: Randy Baloian

L11. Date: April 2015

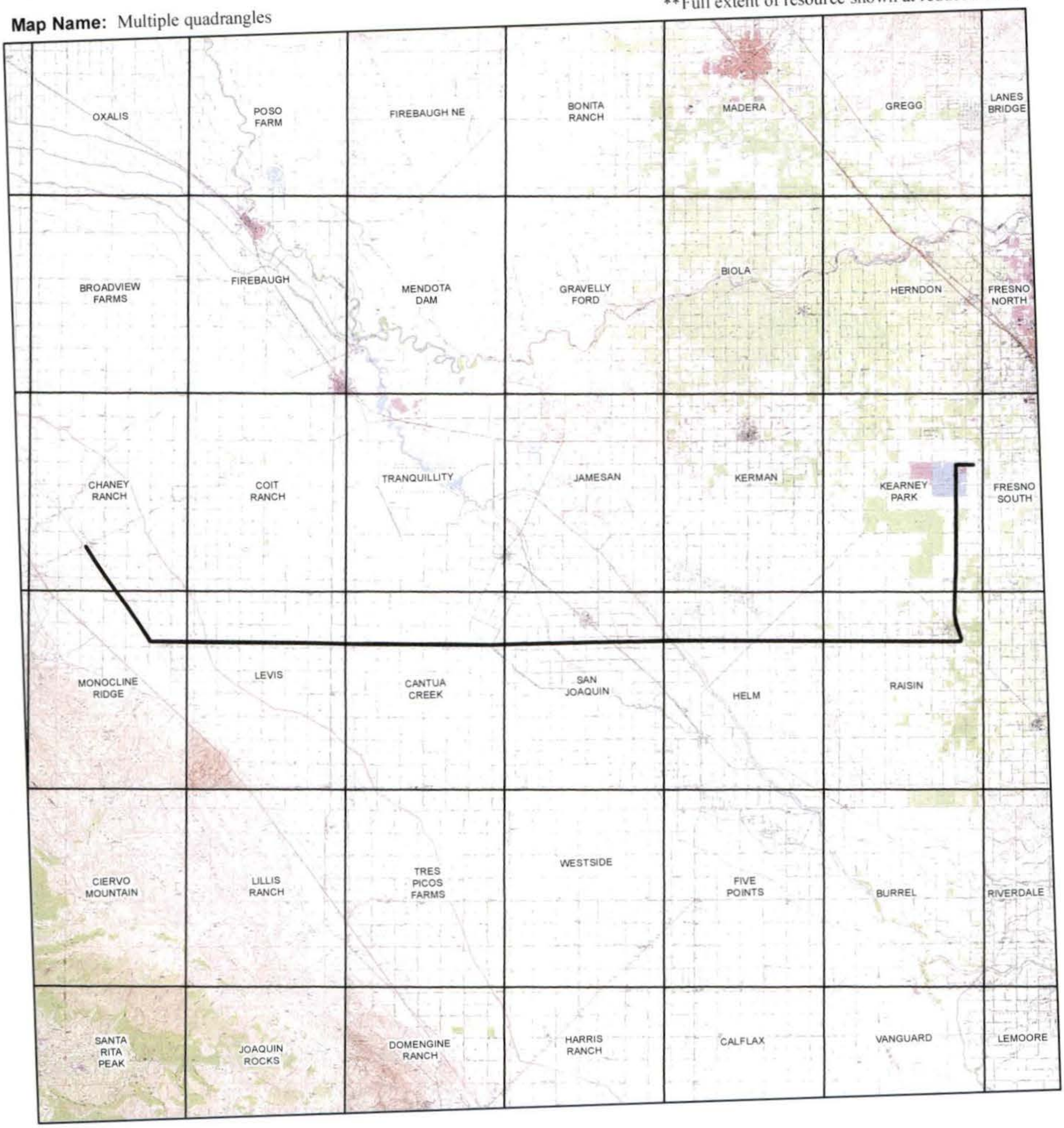
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # P-10-006614
HRI#
Trinomial CA-FRE-3772H

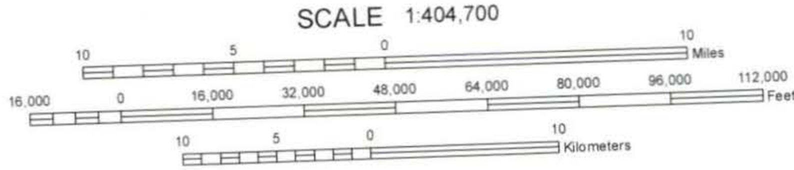
Resource Name or #: AE-3043-BE-013

Map Name: Multiple quadrangles

**Full extent of resource shown at reduced scale.



SCALE 1:404,700



TRUE NORTH

*Required information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # P-10-006614
HRI#
Trinomial CA-FRE-3772H

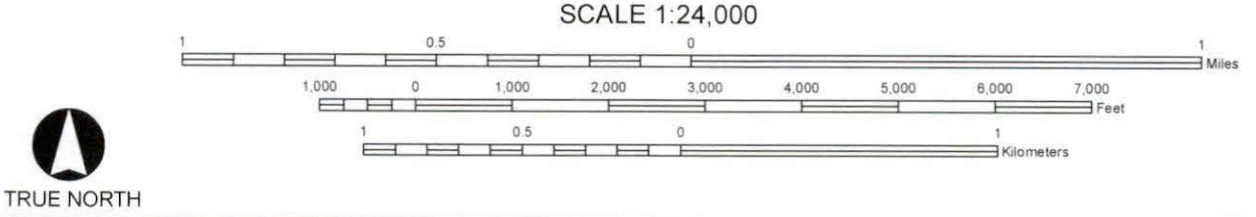
Resource Name or #: AE-3043-BE-013

Scale: 1:24,000

Map Name: San Joaquin, CA, USGS 7.5' quadrangle(s)

Date: 1963

SCALE 1:24,000



*Required information