DRAFT
ENVIRONMENTAL IMPACT REPORT
GRIFFITH ENERGY STORAGE PROJECT



SAN JOAQUIN COUNTY
Greatness grows here.

COMMUNITY DEVELOPMENT DEPARTMENT
1810 East Hazelton Avenue
Stockton, California 92505

State Clearinghouse No. 2022120675

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EXECUTIVE SUMMARY

INTRODUCTION

Griffith Energy Storage, LLC (Applicant), a wholly owned, indirect subsidiary of NextEra Energy Resources, LLC (NEER), has applied to the San Joaquin County Community Development Department for a Site Approval (SA)[1] to construct, operate, maintain, and decommission a 400-megawatt (MW) battery energy storage system (BESS) and associated facilities and infrastructure, to be known as the Griffith Energy Storage Project (Project) in San Joaquin County. Additionally, because the Project includes an access road and interconnection generation-tie (gen-tie) line directly adjacent to the battery storage site in Alameda County, the Applicant seeks approval of a Utility Roadway Permit from Alameda County. Approval of such an encroachment permit would be a discretionary action, making Alameda County a Responsible Agency for the Project, pursuant to California Environmental Quality Act (CEQA) Section 15381.

The energy storage facility would house lithium-ion batteries (or similar technology) totaling 400 MW of energy on a 106-acre site, owned by a private landowner in unincorporated San Joaquin County. To avoid environmental constraints, only an estimated 32 acres of the 106-acre site would be used for the Project within San Joaquin County. The proposed BESS would provide reliable and flexible power to the local electrical system. In addition to the energy storage facility, the Project would interconnect at the Pacific Gas and Electric (PG&E) Tesla Substation in close proximity to the site in Alameda County via a 230-kilovolt (kV) interconnection generation tie (gen-tie) line that extends from the energy storage facility within a gen-tie corridor partially within Alameda County.

“Projects” within the State of California are required to undergo environmental review to determine the environmental impacts associated with implementation of the project in accordance with CEQA. For the proposed Project, San Joaquin County is the lead agency, and thus is required to conduct an environmental review to analyze the potential environmental effects associated with the proposed Project.

This document is a Draft Environmental Impact Report (EIR) prepared in accordance with CEQA. It provides an overview of the proposed Project and considers alternatives, identifies the anticipated environmental impacts from the proposed Project and the alternatives, and identifies mitigation measures designed to reduce the level of significance of any significant impact.

PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The primary purpose of CEQA is to inform the public and decision makers as to the potential impacts of a project and to allow an opportunity for public input to ensure informed decision making. CEQA requires all state and local government agencies to consider the environmental effects of projects over which they have discretionary authority. CEQA also requires each public

[1] The Site Approval process provides a method for reviewing proposed uses which possess characteristics that require special appraisal in order to determine if the uses have the potential to adversely affect other land uses, transportation, or facilities in the vicinity. The Review Authority may require conditions of approval necessary to eliminate, or minimize to an acceptable level, any potentially adverse effects of a use.

agency to mitigate or avoid the significant environmental impacts resulting from proposed projects, when feasible, and to identify a range of feasible alternatives to the proposed Project that could reduce those environmental effects. The EIR must include the contents required by CEQA and the CEQA Guidelines, and examine all phases of the project, including planning, construction, operation, and any reasonably foreseeable future phases.

PROJECT LOCATION

The Project site is situated roughly in the southwestern corner of Township 2 South, Range 4 East, southeast portion of Section 32 of the Midway, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The Project site is centered at a latitude of 37.710 degrees and longitude of -121.554 degrees (in decimal degrees). The Property is approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy, and in proximity to the PG&E Tesla Substation. The Project site consists of Assessor Parcel Number (APN) 209-10-19 in San Joaquin County and APN 99B-7885-002 and 99B-7590-1-3 in Alameda County for the access road and gen-tie line.

PROJECT OBJECTIVES

The Applicant has identified the following Project Objectives:

1. Construct and operate a 400-MW BESS in San Joaquin County with an interconnection at the Tesla Substation (located in Alameda County) in a cost-competitive manner.

2. Assist California utilities in meeting their obligations under California's Renewable Portfolio Standard Program and Senate Bill (SB) 100, which calls for 100 percent of all electricity sold in California to come from carbon-free resources by the year 2045, including 60 percent renewables by 2030, and SB 1020, which requires utility providers to supply 90 percent and 95 percent of supplied electricity from renewable sources by 2035 and 2040, respectively.

3. Assist California utilities in meeting their obligations under the California Public Utilities Commission's (CPUC) Mid-Term Reliability Procurement Requirements.

4. Provide for the economically viable, commercially financeable, and environmentally beneficial use of the site's limited agricultural capacity due to the absence of available irrigation.

5. Develop a site in proximity to transmission infrastructure in order to minimize environmental impacts.

6. Develop a battery energy storage facility in San Joaquin County, which would support the economy by investing in the local community, creating local construction jobs and increasing tax and fee revenue to the County.

PROJECT DESCRIPTION

The proposed project is designed to absorb or output approximately 400 MW of electricity within the BESS (on 32 acres in San Joaquin County) and would include a 230-kilovolt overhead or underground gen-tie line that will extend to the PG&E Tesla Substation within Alameda County. The gen-tie corridor is 14,920 feet long and 100 feet wide, such that the corridor incorporates approximately 8 acres. The Project would contain pad-mounted energy storage units, in addition to inverters, supervisory control and data acquisition (SCADA) equipment, a collector substation, and an interconnection gen-tie line to the Tesla Substation. The Project would also include related and supporting facilities, such as on-site service roads, gates and security fencing, and temporary laydown and construction areas.

PROJECT IMPLEMENTATION SCHEDULE

Construction is expected to begin in 2024 and be completed in approximately 15 months, including 3 months of testing and commissioning, with a workforce of 20 to 60 workers, depending on the phase. Once operational, the Project would operate 24 hours per day, 7 days a week, 365 days a year. Routine operations would require one or two workers in a light utility truck to visit the facility on a weekly basis. Typically, one major maintenance inspection would take place annually. The expected lifespan of the Project is 35 years.

SUMMARY OF IMPACTS

Table EX-1, Summary of Potential Impacts and Mitigation Measures, summarizes the potential impacts for the proposed Project. The table also identifies mitigation measures recommended to reduce, avoid, or minimize significant impacts and indicates the net level of impact following implementation of all mitigation measures.

The potentially adverse effects of the proposed Project are discussed in Sections 4.1 through 4.18 of this Draft EIR. Mitigation measures have been recommended that would avoid, reduce, or minimize impacts. All of the potential impacts associated with the proposed Project would be either less than significant or mitigated to less than significant. The proposed Project would not result in any significant unavoidable impacts.

PROJECT ALTERNATIVES

Section 15126.6 of the CEQA Guidelines requires consideration and discussion of alternatives to the proposed Project, which would feasibly attain most of the basic objectives of the Project and would avoid or substantially lessen any of the significant effects of the proposed Project. In addition to the proposed Project, three project alternatives were considered and are briefly summarized here (and are discussed in detail in Chapter 5 of this Draft EIR).

- **No Project Alternative:** The Project site would not be developed and would remain in its existing condition and continue to experience a reduction in agricultural production from water resource allocation constraints.
- **Three-Terrace Southeast Corner Alternative**: The Project site would be set back from residences along West Patterson Pass to the north and Midway Road to the west. The

facilities would be sited on three terraces with approximately the same final footprint as the Project. Site preparation would require 472,822 cubic yards of cut (65,898 cubic yards more than the Project) and 476,911 cubic yards of fill (71,270 cubic yards more than the Project), as shown in Figure 3-1.

- **Northern Site Alternative**: The Northern Site Alternative would relocate the Project to the parcel north of the Project site and north of West Patterson Pass Road, which consists of a parcel approximately 142 acres in size, shown in Figure 3-2.

AREAS OF CONTROVERSY

Areas of controversy were identified through written agency and public comments received during the scoping period. Public comments received during the scoping period are provided in Appendix A. In summary, the following issues were identified during scoping and are addressed in the appropriate sections of Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*:

- Impacts related to air quality
- Impacts related agricultural resources
- Impacts to hydrology and water quality resources
- Impacts related to wildfire

Table EX-1. Summary of Potential Impacts and Mitigation Measures

Potential Impacts	Level of Significance	Mitigation Measures
AESTHETICS		
IMPACT 4.1-1: Would the project have substantial adverse effect on a scenic vista?	Less than Significant	No mitigation required.
IMPACT 4.1-2: Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No Impact	No mitigation required.
IMPACT 4.1-3: In non-urbanized area, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations of governing scenic quality?	Construction/ Decommissioning: Less than Significant; Operations: Less than Significant Impact with Mitigation Incorporated	**AES-1.** The following measure will be implemented as feasible to reduce visual impacts for Project components and activities: · Use and maintain, as feasible, non-reflective materials, finishes, and surface treatments. · Maintain painted, treated, stained, or coated surfaces properly. · Direct lights properly to eliminate light spill and trespass. · Use timers or motion sensors, as feasible, on all project lighting to minimize unnecessary lighting. · Minimize lighting usage, as feasible, during construction and operations.
IMPACT 4.1-4: Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less than Significant Impact	No mitigation required.
Agriculture and Forestry Resources		
IMPACT 4.2-1: Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	No Impact	No mitigation required
IMPACT 4.2-2: Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	Less than Significant Impact with Mitigation Incorporated	**AGR-1: Williamson Act Cancellation** The Applicant shall file a Petition for Cancellation of Contract for the Williamson Act Contract on the San Joaquin County portion of the Project site, for consideration by the San Joaquin County Board of Supervisors, prior to construction.
IMPACT 4.2-3: Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resource Code	No Impact	No mitigation required.

Potential Impacts	Level of Significance	Mitigation Measures
section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?		
IMPACT 4.2-4: Would the project result in loss of forest land or conversion of forest land to non-forest use?	No Impact	No mitigation required.
IMPACT 4.2-5: Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Less than Significant Impact	No mitigation required.
AIR QUALITY		
IMPACT 4.3-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?	Less than Significant Impact	**AQ-1** Implement NO_x and diesel PM_{10} emission-reduction measures during construction. To control NOx and diesel PM_{10} emissions during construction and in accordance with Rule 9510, the Project proponent/operator and/or its contractor(s) shall implement the following measures during construction of the project, subject to verification by the County: · Off-road equipment engines over 85 horsepower shall be equipped with USEPA Tier 4 engines unless Tier 4 construction equipment is not locally available. · All equipment shall be maintained in accordance with the manufacturer's specifications. · Construction-related equipment, including heavy duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes. · Notification shall be provided to trucks and vehicles in loading or unloading queues that their engines shall be turned off when not in use for more than 5 minutes. · Electric equipment shall be used to the extent feasible in lieu of diesel- or gasoline-powered equipment. · All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_x emissions. · On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.

Potential Impacts	Level of Significance	Mitigation Measures
		· Existing electric power sources shall be used to the extent feasible. This measure would minimize the use of higher polluting gas or diesel generators. · The hours of operation of heavy duty equipment and/or the quantity of equipment in use shall be limited to the extent feasible. **AQ-2**: Prepare and implement a dust control plan in accordance with Rule 8021 and Table 8021-1. The Project proponent/operator and/or its contractor(s) shall implement the following measures during construction of the Project, subject to verification by the County. The plan shall include all SJVAPCD-recommended measures, including, but not limited to, the following: · Pre-water the site before construction begins. Land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled utilizing application of water or by presoaking to limit visible dust emissions to less than 20 percent opacity. · Phase work to reduce the amount of disturbed area at any one time. · Minimize and clean up track-out onto paved roads. · Cover haul trucks. · Rapid cleanup of Project-related track-out or spills on paved roads. · Minimize grading and soil movement when winds exceed 30 miles per hour. · Implement a speed limit of 15 miles per hour during all construction phases for vehicles traveling on unpaved roads.
IMPACT 4.3-2: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Less than Significant Impact	Implement **AQ-1** and **AQ-2.**
IMPACT 4.3-3: Would the project expose sensitive receptors to substantial pollutant concentrations?	Less than Significant Impact	Implement **AQ-1**and **AQ-3** **AQ-3**: Minimize exposure to potential Valley Fever-containing dust. To minimize personnel and public exposure to potential Valley Fever-containing dust onsite and offsite, the following control measures shall be implemented during Project construction:

Potential Impacts	Level of Significance	Mitigation Measures
		· Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved offsite to other work locations. · Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind 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. · In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying. · All heavy duty earth-moving vehicles shall be closed-cab and equipped with an high efficiency particulate-filtered air system. · 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. · A Valley Fever informational handout shall be provided to all onsite construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment. · Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health–approved respirators shall be provided to onsite personnel upon request.
IMPACT 4.3-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than Significant Impact	No mitigation required
IMPACT 4.3-5: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?	Less than Significant Impact	Implement measures **AQ-1**, **AQ-2**, and **AQ-3**
BIOLOGICAL RESOURCES		
IMPACT 4.4-1: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local	Less than Significant Impact with Mitigation Incorporated.	**BIO-1: Protection of Special-status Species** **SJMSCP Covered Species** Prior to commencement of grading activities, the Project applicant shall obtain coverage under the SJMSCP to mitigate for habitat impacts to SJMSCP Covered

Potential Impacts	Level of Significance	Mitigation Measures
or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?		Species. Coverage involves minimizing habitat impacts through implementation of Incidental Take Minimization Measures and payment of fees for conversion of lands that may provide habitat for SJMSCP Covered Species. These fees are then used to preserve and/or create habitat in preserves to be managed in perpetuity. Coverage for a Project includes incidental take authorization in the form of an ITP. Coverage under the SJMSCP would fully mitigate all habitat impacts on SJMSCP Covered Species. ***California Tiger Salamander*** This species is covered under the SJMSCP. The following measures would be implemented in accordance with the SJMSCP (see Section 5.2.4.6) and as best management practices to mitigate impacts: A qualified biologist shall conduct preconstruction surveys prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species are present and/or verify that the appropriate Incidental Take Minimization Measures have been implemented, as specified in the conditions of Project approval (see SJMSCP, Section 5.2.2.1b). The results of the preconstruction surveys shall be submitted to the implementing agency prior to start of construction. Before Project construction, and under the direction of a qualified biologist, a wildlife exclusion fence shall be installed at strategic locations (e.g., where a work area occurs within 500 feet of suitable breeding habitat). The exclusion fence will remain in place and be maintained for the duration of ground disturbance. The wildlife exclusion fence will be tall enough to discourage dispersal of CTS into active work areas. Any damage or gaps in the wildlife exclusion fence will be repaired immediately during routine inspections. Pools shall be retained, and appropriate pool hydrology shall be maintained to enable successful metamorphosis of larvae to occur but shall not allow for non-native aquatic predators. Small mammal burrows and other suitable estivation habitat (e.g., underground holes, cracks, or niches) shall be retained in adjacent upland habitat. For impacts to CTS upland dispersal habitat, compensatory mitigation shall be completed by the Project owner in accordance with the mitigation ratios and requirements in the SJMSCP. Compensatory mitigation shall be provided for permanent impacts at a ratio of 3:1 for natural lands (e.g., non-wetland agricultural rangelands) in accordance with the SJMSCP. Temporary impacts shall be restored to pre-Project conditions. A fee-based approach could be used for compensatory mitigation under the SJMSCP at a fee per acre set in the current SJMSCP fee schedule for natural lands (SJCOG 2022). Alternatively, credits at an agency approved mitigation bank if available for purchase or a habitat

Potential Impacts	Level of Significance	Mitigation Measures
		enhancement/conservation easement on a protected property could be used as mitigation. Compensatory mitigation may be combined with other special-status plant and animal species. If the Project owner chooses to establish an on-site or off-site conservation easement as compensatory mitigation, it must be managed in perpetuity to provide suitable habitat for the target species and to prohibit development/disturbance. A qualified biologist shall prepare a Habitat Mitigation and Monitoring Plan to ensure success of the compensatory mitigation site, which shall describe the long-term management plan, routine monitoring methods, and success criteria. The implementing agency shall approve the Plan prior to implementation. ***California Red-legged Frog*** This species is covered under the SJMSCP. The following measure would be implemented in accordance with the SJMSCP (see Section 5.2.4.7) and as best management practices to mitigate impacts: A qualified biologist shall conduct preconstruction surveys for CRLF within 48 hours prior to the start of construction activities, including ground disturbance, vegetation clearing, and staging of equipment. The biologist shall survey the Project site and all suitable habitat within 300 feet of the Project site. If CRLF are identified during the preconstruction survey, a 300-foot no-disturbance setback would be established in accordance with the SJMSCP to protect the species. No construction or other ground disturbances would be allowed within the setback unless concurrence was obtained by USFWS and SJCOG. The setback distance may be reduced by a qualified biologist with concurrence from the implementing agency if determined to not result in an adverse impact to the species or a reduction in the biological values of the habitat. Setbacks would be delineated with brightly colored flagging during the construction process and shown on maps that would be provided to on-site staff. If impacts are required within a setback occupied by CRLF and the species cannot or does not move off-site on its own, consultation with the USFWS and CDFW would be required to determine the appropriate course of action. The results of the preconstruction surveys shall be submitted to the implementing agency prior to start of construction. Water quality within water bodies inhabited by CRLF shall be maintained by implementing appropriate erosion control measures to reduce siltation and contaminated runoff from Project site (e.g., maintaining vegetation within buffers, and/or through the use of hay bales, filter fences, vegetative buffer strips, or other acceptable options per Section 5.2.4.7 of the SJMSCP).

		Western Spadefoot This species is covered under the SJMSCP. The following measures would be implemented in accordance with the SJMSCP (see Section 5.2.4.6) and as best management practices to mitigate impacts: A qualified biologist shall conduct preconstruction surveys prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species are present and/or verify that the appropriate Incidental Take Minimization Measures have been implemented, as specified in the conditions of Project approval (see SJMSCP, Section 5.2.2.1b). The results of the preconstruction surveys shall be submitted to the Implementing agency prior to start of construction. Before Project construction, and under the direction of a qualified biologist, a wildlife exclusion fence shall be installed at strategic locations (e.g., where a work area occurs within 500 feet of suitable breeding habitat). The exclusion fence will remain in place and be maintained for the duration of ground disturbance. The wildlife exclusion fence will be tall enough to discourage dispersal of western spadefoot into active work areas. Any damage or gaps in the wildlife exclusion fence will be repaired immediately during routine inspections. For impacts to spadefoot toad upland dispersal habitat, compensatory mitigation shall be completed by the Project owner in accordance with the mitigation ratios and requirements in the SJMSCP. Compensatory mitigation may be combined with other special-status plant and animal species, such as the CTS. ***San Joaquin Coachwhip*** The San Joaquin coachwhip (also called the San Joaquin whipsnake) is covered under the SJMSCP, but is considered of very limited distribution in the County and specific Incidental Take Minimization Measures are not provided for this species (see Section 5.2.4.9). This species is not a focal species in the EACCS. The following measure would be implemented in accordance with the SJMSCP to mitigate impacts to this species in all Project areas: A qualified biologist shall conduct preconstruction surveys prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species are present and/or verify that the appropriate Incidental Take Minimization Measures have been implemented, as specified in the conditions of Project approval (see SJMSCP, Section 5.2.2.1b). If any special-status reptiles are found and cannot or do not move off-site on their own, work would not begin until coordination with the USFWS and/or CDFW has occurred to determine the appropriate course of action. Incidental Take Minimization Measures shall be formulated by the Technical Advisory Committee (TAC) and approved by the Joint Powers Authority (JPA) with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP's Adaptive Management Plan (see Section 5.9.4).

Potential Impacts	Level of Significance	Mitigation Measures
		Special-status Vernal Pool Invertebrates The longhorn fairy shrimp and vernal pool fairy shrimp are covered species under the SJMSCP (see Sections 5.2.4.4 and 5.5.9). Per the SJMSCP, if final site design is confirmed to be within 250 feet of the ephemeral pond, then one of the following will occur: 1. Receive concurrence from USFWS that the ephemeral pond does not support special-status vernal pool invertebrate species given the lack of ponding observed in historic aerial imagery. 2. Conduct pre-construction surveys in compliance with current USFWS protocols to determine the presence or absence of longhorn fairy shrimp within ponds southwest of I-580 unless complete avoidance of vernal pools and/or wetlands is achieved, per Section 5.2.2 of SJMSCP. 3. Conduct a hydrologic study to determine if a setback less than 250 feet would maintain the hydrology of the ephemeral pond and achieve the same, if not greater, habitat value as a 250-foot setback. If verified, conduct a site visit with USFWS to inspect the unique characteristics of the Project site to request approval to reduce the setback to be less than 250 feet. If approved, ensure activities inconsistent with the maintenance of the ephemeral pond within the approved setback are prohibited, per Section 5.5.9 of SJMSCP. This option provides an alternative mitigation approach which allows complete avoidance of SJMSCP Covered Species and habitats through the implementation of the measures established in Section 5.5.9. Under this scenario, compensation is not required as long as the Section 5.5.9 measures are followed. 4. If pre-construction surveys are found to be prohibitively expensive or result in Project delays and a setback less than 250 feet is not feasible, assume presence of longhorn fairy shrimp and vernal pool fairy shrimp and pay compensatory mitigation in accordance with the mitigation ratios and requirements in the SJMSCP. ***Burrowing Owl*** This species is covered under the SJMSCP. The following measure would be implemented in accordance with the SJMSCP (see Section 5.2.4.15) and as best management practices to mitigate impacts: A qualified biologist shall conduct preconstruction surveys prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species are present and/or verify that the appropriate Incidental Take Minimization Measures have been implemented, as specified in the conditions of Project approval (see SJMSCP, Section 5.2.2.1b). Specifically, the Project owner shall have preconstruction surveys performed no less than 14 days prior to the initiation of equipment staging or ground disturbing

Potential Impacts	Level of Significance	Mitigation Measures
		activities (e.g., vegetation clearing or grading) and again within 24 hours prior to these activities. A qualified biologist shall conduct preconstruction surveys on the Project site and 150 meters around the Project site (access permitting) in areas with suitable burrowing habitat to locate any active breeding or wintering BUOW burrows. The survey methodology shall be consistent with the Take Avoidance Survey methods outlined in the CDFW (2012) Staff Report on Burrowing Owl Mitigation and shall consist of walking parallel transects 7 to 20 meters apart, noting any potential burrows with fresh BUOW sign or presence of BUOWs, and visiting potential burrows during the time of day described in the protocol. If the work activity halts for a period of 7 days or more, the survey would need to be conducted again prior to the continuation of site activities. Copies of the survey results shall be submitted to the CDFW. If BUOWs are found during the preconstruction surveys, the following measures shall be implemented. Buffer distances may be modified based on the judgement of a qualified biologist, in coordination with CDFW, USFWS, and SJCOG. · If BUOWs are detected on the Project site or within 150 meters during the breeding season (February 1 to August 31) or non-breeding (winter) season, no ground disturbing activities, such as vegetation clearance, grading, or equipment staging, shall be permitted within 75 meters of the occupied burrow until and unless the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, or unless a qualified biologist approved by the Permitting Agencies verifies through non-invasive means that either 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and capable of independent survival. Once the fledglings are capable of independent survival, the burrow can be destroyed per Section 5.2.4.15 of the SJMSCP. · If avoidance of occupied burrows is infeasible during the non-breeding season (September 1 to January 31) or during the breeding season (February 1 to August 31) where resident BUOWs have not yet begun egg laying or incubation or where the juveniles are foraging independently and capable of independent survival, a qualified biologist shall implement a passive relocation program in accordance with the CDFW (2012) Staff Report on Burrowing Owl Mitigation. If passive relocation is anticipated due to on-site BUOW populations, a Burrowing Owl Exclusion Plan in accordance with CDFW Staff Report on Burrowing Owl Mitigation would be prepared by a qualified biologist prior to passive relocation activities. ***Swainson's Hawk*** This species is covered under the SJMSCP but is not a focal species in the EACCS (see Section 5.2.4.11). Participation in the SJMSCP affords the Project applicant Incidental Take authorization for Swainson's hawk pursuant to ESA, CESA, and

Potential Impacts	Level of Significance	Mitigation Measures
		CEQA. The following measure would be implemented in accordance with the SJMSCP to mitigate impacts in all Project areas: The Project owner has the option of retaining known or potential Swainson's hawk nest trees (i.e., trees that hawks are known to have nested in within the past 3 years or trees that the hawks prefer for nesting) or removing the nest trees. Trees occur on the Project Property in residential areas but do not occur on the Project site. If trees are retained, the following applies: · If construction (i.e., equipment staging, vegetation removal, or ground disturbance) is scheduled to commence outside of the Swainson's hawk nesting season (September 1 to February 15), no preconstruction surveys are required. During the nesting season (February 16 to August 31), a qualified biologist shall conduct preconstruction surveys for nesting Swainson's hawk within the Project site and at any potential nesting trees that are within a distance from the site of two times the dripline of the tree, and are accessible to survey. Surveys shall occur no more than 10 days prior to construction activities. · If a nest tree becomes occupied during construction activities, then all construction activities shall remain a distance of two times the dripline of the tree, measured from the nest. No construction within the buffer shall be allowed until the biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest), adult and juvenile Swainson's hawks have left the area, or the nesting season has ended. Encroachment into the buffer for Swainson's hawk must be authorized by the CDFW. ***White-tailed Kite*** This species is covered under the SJMSCP. The following measures would be implemented in accordance with the SJMSCP (see Section 5.2.4.19) to mitigate impacts: Prior to Project tree removal/pruning or ground-disturbing activities, such as grubbing, grading, or excavation during the nesting season (e.g., typically February 15 to September 15), a qualified biologist shall perform a preconstruction survey. All potential nesting trees on the Project site and within 100-feet of the Project site shall be surveyed. If a nest is observed during the preconstruction survey, a 100-foot setback shall be established and maintained during the nesting season until the fledglings leave nests. The setback shall be applied whenever construction or ground-disturbing activities begin during the nesting season with known occupied nests. Setbacks shall be marked by brightly colored temporary fencing. ***San Joaquin Kit Fox***

Potential Impacts	Level of Significance	Mitigation Measures
		This species is covered under the SJMSCP. Participation in the SJMSCP affords the Project applicant Incidental Take authorization for San Joaquin kit fox pursuant to ESA, CESA, and CEQA. The following measure would be implemented in accordance with the SJMSCP (see Section 5.2.4.25) and per the most current USFWS Standardized Recommendations for SJKF (USFWS 2011) to mitigate impacts from the project: Preconstruction surveys for SJKF shall be conducted 14 to 30 days prior to commencement of ground disturbance by a qualified biologist. Surveys shall be performed of the Project site and within a 250 feet buffer around the site. When surveys identify potential dens (potential dens are defined as burrows at least 4 inches in diameter which open up within 2 feet), den entrances shall be dusted and cameras will be set up and monitored for 3 days to find any SJKF present. If no SJKF activity is identified, potential dens may be destroyed. If SJKF activity is identified, then dens shall be monitored to determine if occupation is by an adult fox only or is a natal den (natal dens usually have multiple openings). If the den is occupied by an adult only, the den may be destroyed when the adult fox has moved or is temporarily absent. If the den is a natal den, a buffer zone of 250 feet shall be maintained around the den until the qualified biologist determines that the den has been vacated. If SJKF are identified, the provisions of the USFWS (2011) Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance will be followed (except that preconstruction survey protocols shall remain as established in this measure). These standards include provisions for educating construction workers, keeping heavy equipment operating at safe speeds, and checking construction pipes for SJKF occupation during construction and similar activities. ***American Badger*** This species is covered under the SJMSCP. The following measure would be implemented in accordance with the SJMSCP (see Section 5.2.4.26) to mitigate impacts from the Project: · A preconstruction survey for the American badger shall occur during the SJKF preconstruction surveys. If occupied badger dens are located on the Project site or within 200 feet, then dens shall be monitored by a qualified biologist to determine if occupation is by an adult badger only or is a natal den. This can occur during San Joaquin kit fox den monitoring using tracking medium and cameras. If the den is unoccupied it can be collapsed, if it is occupied by an adult only, the den may be destroyed when the adult has moved or is temporarily absent. If the den is a natal den, a buffer zone of 200 feet shall be maintained around the den until the qualified biologist determines that den has been vacated.

		Non-SJMSCP Covered Species ***Big Tarplant*** This species is not covered under the SJMSCP. Big tarplant is a focal species in the EACCS. The following measure would be implemented to mitigate impacts in all Project areas: · For big tarplant populations that are not within the direct impact area but are located within 50 feet of disturbance, a qualified biologist shall flag a minimum no-disturbance buffer of at least 30 feet around the populations in the field (or other distance as approved by a qualified biologist), and maps shall be provided to on-site staff. These areas shall be avoided during construction if feasible. To delineate the areas of avoidance, a preconstruction survey would be required during the blooming period for this species (July to November) prior to the start of construction. For example, if construction was planned to start in June 2024, the area would be surveyed between July and November 2023 and those results would be used to determine the extent of the population areas. · If big tarplant populations cannot be avoided by the Project, a restoration/enhancement plan to reduce impacts to big tarplant shall be prepared by a qualified biologist. The plan shall include the following components as needed: description of Project site, including maps, goals/objectives of the Project; description of the proposed site; implementation plan, including topsoil and/or seed collection and dispersal protocols; maintenance requirements, including weed removal and invasive species management during the monitoring period; monitoring plan; success criteria/performance standards; adaptive management program and remedial measures; and reporting requirements. If permanent impacts occur to big tarplant, the actual areas impacted would be mapped post-construction to quantify the amount of big tarplant impacted and the amount required to be restored. Temporary impacts (i.e., impacts in areas that would be restored to natural conditions) may be mitigated by salvaging topsoil during ground disturbance, storing the soil on-site and protecting it from weed seed dispersal, and then returning the soil horizon to its original profile to keep seeds at the appropriate soil depth. All permanent impacts shall be mitigated at a minimum ratio of 1:1 (1 acre restored for 1 acre impacted) terms are otherwise agreed to with CDFW and USFWS. ***California Glossy Snake*** The California glossy snake is not covered under the SJMSCP. The following measure would be implemented to mitigate impacts to this species in all Project areas: Preconstruction surveys for special-status reptiles shall be conducted by a qualified biologist within 14 days prior to the start of construction. The surveys shall cover

Potential Impacts	Level of Significance	Mitigation Measures
		suitable habitat within the Project site and a minimum 100-foot buffer, where accessible. If any special-status reptiles are found and cannot or do not move off-site on their own, work would not begin until coordination with the USFWS and/or CDFW has occurred to determine the appropriate course of action. ***Crotch's Bumble Bee*** This species is not covered under the SJMSCP. The following measures would be implemented to mitigate impacts to this species in all Project areas: · Conduct Surveys and Implement Avoidance Measures for Crotch's Bumble Bee. Preconstruction surveys for Crotch's bumble bee habitat (as identified by species habitat suitability modeling) within the Project disturbance footprint and a 50-foot buffer around the footprint will be conducted by qualified biologists within two weeks prior to the start of construction. The purpose of this pre-construction survey will be to identify active nest colonies and associated floral resources outside of permanent and temporary impact areas that could be avoided by construction personnel. If an active nest colony is found outside of the project footprint but within a 50-foot buffer, the project biologist will establish, monitor, and maintain no-work buffers around nest colonies and floral resources. The size and configuration of the no-work buffer will be based on best professional judgment of the project biologist. At a minimum, the buffer will provide at least 50 feet of clearance around nest entrances and maintain disturbance-free airspace between the nest and nearby floral resources. Construction activities will not occur within the no-work buffers until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for three consecutive days indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony). If an active nest is found within the project footprint, CDFW will be contacted for guidance on next steps, but construction shall be allowed to continue with minimal disruption to the schedule. · Biological Monitoring During Construction. A qualified biologist(s) will be present each day during initial ground disturbance activities if Crotch's bumble bees are identified during preconstruction surveys outside of the Project disturbance footprint. The biologist will monitor the nest to determine when the nest is no longer active. Once the nest has been determined inactive, construction activities within the no-work buffer(s) will be allowed to resume. · Provide Compensatory Mitigation for Impacts on Crotch's Bumble Bee. The applicant will provide compensatory mitigation for impacts on occupied habitat for Crotch's bumble bee. Impacts on occupied habitat (confirmed through surveys as described above) will be compensated for at a ratio of 1:1, unless a higher ratio is required pursuant to an

Potential Impacts	Level of Significance	Mitigation Measures
		authorization issued under CESA, through the purchase of CDFW-approved bank credits or through preservation of habitat in perpetuity, including suitable habitat currently preserved by the applicant.
		BIO-2: Worker Environmental Awareness Program and Best Management Practices for Biological Resources During construction, O&M, and decommissioning of the facility, the Project owner shall implement the following general avoidance and protective measures to protect special-status wildlife species and habitats in all Project areas: · Prior to and for the duration of construction activities, the Project owner, or its contractor, shall implement a Worker Environmental Awareness Program to train all on-site construction personnel how to recognize and protect biological resources on the Project site. The Worker Environmental Awareness Program training shall include a review of the special-status species and other sensitive biological resources that could exist in or near the Project site, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources, highlighting CTS, CRLF, western spadefoot, San Joaquin coachwhip, longhorn fairy shrimp, vernal pool fairy shrimp, BUOW, Swainson's hawk, white-tailed kite, nesting birds, SJKF, American badger, big tarplant, California glossy snake, and Crotch's bumble bee. · The Project owner shall limit and flag the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. To the extent feasible, the Project shall be designed to retain small mammal burrows and other suitable estivation habitat for amphibians (e.g., underground holes, cracks, or niches) and will minimize habitat impacts. Buffers and avoidance areas established for biological resources, as described in **BIO-1** and **BIO-3**, shall be delineated with highly visible stakes and/or flagging prior to construction. Construction-related activities and use of vehicles and equipment shall not occur within protected buffers or avoidance areas. · If at any time during Project construction a special-status species enters the site or otherwise may be impacted by the Project, all Project activities shall cease. The appropriate measures from the SJMSCP relevant to the species found would be implemented, and the USFWS and/or CDFW shall be contacted if necessary to determine the appropriate course of action. No special-status species shall be captured or relocated without prior authorization from the CDFW and/or USFWS.

Potential Impacts	Level of Significance	Mitigation Measures
		· To protect special-status amphibians, ground-disturbing activities shall occur during the dry season from April 1 to October 31, if feasible and in accordance with other mitigation measures. Work outside of the dry season may occur with prior approval from CDFW and USFWS. No ground disturbance shall occur during wet weather. Wet weather is defined as 0.25 inch or more of rain in a 24-hour period. Activities may resume 24 hours after wet weather has ended and is no longer forecasted (60 percent chance or less) within 24 hours. · Trenches will be backfilled as soon as possible. Excavated, steep-walled holes or open trenches shall be searched each day by on-site workers prior to construction to ensure no special-status species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist. Before such holes or trenches are filled, they shall be thoroughly inspected by on-site workers for trapped animals. If trapped animals are observed, escape ramps shall be installed immediately to allow escape. If a special-status species is trapped, the USFWS and/or CDFW shall be contacted immediately. No handling or moving of special-status species shall occur without prior authorization from the USFWS and/or CDFW. · All pipes, culverts, or similar materials shall be stored so as to prevent special-status wildlife species from using these as temporary refuges, and shall be thoroughly inspected for animals each morning before the pipe is moved or used in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved until a qualified biologist has been consulted to determine the appropriate action. No handling of special-status species shall occur without consultation with the USFWS and/or CDFW. · Vehicles and equipment parked on the site during construction shall have the ground beneath the vehicle or equipment inspected for the presence of wildlife prior to moving. · Vehicular traffic shall use existing routes of travel. Off-road vehicle travel shall be minimized, and equipment use outside of the construction area shall be prohibited. · A speed limit of 20 miles per hour or less shall be enforced within all construction areas. · All trash and food items shall be contained in closed containers and removed regularly during construction, operations, and decommissioning to reduce the

Potential Impacts	Level of Significance	Mitigation Measures
		attractiveness to wildlife, such as common raven (*Corvus corax*), coyote (*Canis latrans*), and feral dogs. · Workers shall be prohibited from bringing pets to the Project site and from feeding wildlife in the vicinity. · Intentional killing or collection of any wildlife species shall be prohibited. · Rodenticides shall not be used within the Project site except within buildings and disturbance to mammal burrows shall be avoided and minimized. · Use of insecticides, herbicides, rodenticides, and pesticides shall only be allowed within established aquatic setbacks in accordance with U.S. Environmental Protection Agency guidelines for use within occupied CRLF habitat and, if applicable, any requirements established by the San Joaquin County Agricultural Commissioner. · Vehicles or equipment will not be refueled within 100 feet of a wetland, stream, or other body of water unless a bermed and lined refueling area is constructed. · Erosion control measures will be implemented to reduce sedimentation in nearby aquatic habitat during construction activities. Tightly woven fiber netting or similar material will be used for erosion control to avoid trapping CTS and other special-status amphibians. This specification will be required by the contractor in the bid solicitation package. Plastic monofilament netting will not be used because amphibians could be become entangled or trapped in this material. · The Project proponent/operator shall install powerlines in conformance with APLIC standards (APLIC 2012) for electrocution-reducing techniques. · Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives. Down-shielding or directional lighting shall be used to avoid light trespass into adjacent areas. Illumination of lighting on associated construction and operation structures shall be minimized by using motion sensors.

Potential Impacts	Level of Significance	Mitigation Measures
		BIO-3: Protection of Nesting Birds If construction (i.e., vegetation removal or ground disturbance) is scheduled to commence outside of the bird nesting season (September 1 to January 31), no preconstruction surveys or additional measures are required for nesting birds, including raptors. During the bird nesting season (February 1 to August 31), a qualified biologist shall conduct preconstruction surveys of all potential nesting habitat within the Project site where construction is planned. The survey shall focus on potential nest sites within the Project site and a 500-foot buffer around the Project site in areas where access is available or visible using a spotting scope or binoculars. Surveys shall be conducted no more than 10 days prior to construction activities. If the work activity halts for a period of 10 days or more, the survey would need to be conducted again prior to the continuation of site activities. If active nests are found, a suitable buffer for the species found shall be established by a qualified biologist around active nests, and no construction within the buffer shall be allowed until the biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest) or the breeding season has ended.
IMPACT 4.4-2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	No Impact	No mitigation required
IMPACT 4.4.-3: Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Less than Significant Impact with Mitigation Incorporated	**BIO-4: Protection of Jurisdictional Waters and Wetlands** If it is determined that the ephemeral pond would be impacted by Project activities, coordination with USACE and RWQCB will be performed to determine if permits are needed prior to initiating ground-disturbing activities. Impacts to the ephemeral pond shall also be minimized by the use of BMPs to ensure water quality standards are not compromised. These practices can include installing orange construction fencing buffers, straw waddles to keep fill from entering preserved/avoided wetlands and other waters, and other protective measures. If it is determined that the ephemeral pond falls within state jurisdiction and would be impacted by Project activities, mitigation compensation shall be completed. As approved by the RWQCB, the applicant may purchase mitigation credits from an approved mitigation bank or an approved in-lieu fee mitigation entity at a minimum 1:1 ratio. Alternatively, wetlands may be created onsite and, if so, have an equal or higher functional value than the ephemeral pond affected by the Project.

Potential Impacts	Level of Significance	Mitigation Measures
IMPACT 4.4-4: Would the project 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?	Less than Significant Impact with Mitigation Incorporated	Implement **BIO-2**.
IMPACT 4.4-5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Less than Significant Impact with Mitigation Incorporated	Implement **BIO-1**, **BIO-2**, and **BIO-3**.
IMPACT 4.4-6: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Less than Significant Impact with Mitigation Incorporated	Implement **BIO-1**, **BIO-2**, and **BIO-3**.
CULTURAL RESOURCES		
IMPACT 4.5-1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	Less than Significant	No mitigation required.
IMPACT 4.5-2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	Less than Significant Impact with Mitigation Incorporated	**CUL-1: Cultural Resource Worker Education/Training** Prior to Project construction-related, ground disturbing activities (e.g., vegetation removal, excavation, trenching, grading), a cultural resource worker education awareness program shall be conducted for Project construction personnel. A qualified archaeologist pre-approved by San Joaquin County will be retained to prepare the initial cultural resource briefing of the worker education awareness program prior to ground disturbing activities. During construction, the training will be provided to all new construction personnel. The cultural resource training will include: · An overview of applicable laws and penalties pertaining to disturbing cultural resources; · A brief discussion of the prehistoric and historic regional context and archaeological sensitivity of the area; · Types of cultural resources found in the area; · Instruction that Project workers will halt construction if a cultural resource is inadvertently discovered during construction; and · Procedures to follow in the event an inadvertent discovery (Inadvertent Discovery Plan discussed below) is encountered, including appropriate

Potential Impacts	Level of Significance	Mitigation Measures
		treatment and respectful behavior of a discovery (e.g., no posting to social media or photographs). **CUL-2: Inadvertent Discovery of Archaeological Resources During Construction** A qualified archaeologist pre-approved by San Joaquin County shall prepare an Inadvertent Discovery Plan for the Project. The Inadvertent Discovery Plan will provide protocols and notification procedures in the event of an inadvertent discovery. During Project construction (e.g., ground disturbing activities, such as vegetation removal, excavation, trenching, grading), should subsurface archaeological resources be discovered, all ground disturbing activities within 50 feet of the find shall cease and the qualified archaeologist shall be contacted to assess the significance of the find according to CEQA Guidelines Section 15064.5. If any find is determined to be significant, the archaeologist shall determine, in consultation with the implementing agencies and any local consulting Native American groups expressing interest, appropriate avoidance measures or other appropriate mitigation. Under CEQA Guidelines Section 15126.4(b)(3), preservation in place shall be the preferred means to avoid impacts to archaeological resources qualifying as historical resources. Methods of avoidance may include, but shall not be limited to, Project reroute or redesign, or identification of protection measures, such as capping or fencing. Consistent with CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures, such as data recovery or other appropriate measures, in consultation with the implementing agency and any local consulting Native American representatives expressing interest in prehistoric or tribal resources. If an archaeological site does not qualify as a historical resource but meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site shall be treated in accordance with the provisions of Section 21083.2. If inadvertent discoveries are identified, all findings and treatments shall be documented in a cultural resources report that is submitted to San Joaquin County.
IMPACT 4.5-3: Would the project disturb any human remains, including those interred outside of formal cemeteries?	Less than Significant Impact	No mitigation required.

Potential Impacts	Level of Significance	Mitigation Measures
ENERGY		
IMPACT 4.6-1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than Significant Impact	No mitigation required.
IMPACT 4.6-2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	No Impact	No mitigation required.
GEOLOGY AND SOILS		
IMPACT 4.7-1: Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; landslides?	Less than Significant Impact	No mitigation required.
IMPACT 4.7-2: Would the project result in substantial soil erosion or the loss of topsoil?	Less than Significant Impact with Mitigation Incorporated	**GEO-1: Stormwater Pollution Prevention Plan.** The construction contractor shall incorporate best management practices (BMP) consistent with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit Program and shall prepare a Stormwater Pollution Prevention Plan (SWPPP). The plan shall be prepared by a Qualified SWPPP Developer (QSD) and submitted for review and approval by San Joaquin County. The SWPPP BMPs shall include, but not be limited to, the following: · Scheduling to avoid construction during rain events to the maximum extent possible; · Preservation of existing vegetation and topography to the maximum extent practicable; · Stabilized construction entrances and exits; · Erosion control (including all pertinent temporary erosion control practices as specified in Chapter 17.28.140 of the Kern County Grading Code), such as mulching, temporary drains and cullies, sandbag barrier, geotextiles and mats, silt fences, brush or rock filters, earth dikes, straw bale barriers, and sediment traps; · Sediment control; · Waste management; · Good housekeeping; and

Potential Impacts	Level of Significance	Mitigation Measures
		· Post-construction site stabilization. Prior to initial construction mobilization, preconstruction surveys shall be performed and sediment and erosion controls shall be installed in accordance with the approved SWPPP.
IMPACT 4.7-3: Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Less than Significant Impact	No mitigation required.
IMPACT 4.7-4: Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less than Significant Impact	No mitigation required.
IMPACT 4.7-5: Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	Less than Significant Impact	No mitigation required.
IMPACT 4.7-6: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less than Significant Impact with Mitigation Incorporated	**GEO-2: Paleontological Worker Education and Awareness Program (WEAP)** Before starting construction activities, on-site personnel should be trained in basic recognition of fossils and appropriate procedures to notify management in order to engage a qualified paleontological specialist in the event that fossils are discovered during construction activities (an unanticipated find). **GEO-3: Unanticipated Find Contingency** A qualified paleontological specialist (paleo specialist), meeting the Secretary of the Interior's Professional Qualification Standards for the Society of Vertebrate Paleontology, shall be retained by the Project Owner on an on-call status. The paleo specialist must be approved by both San Joaquin County and Alameda County prior to any on-site activity. The paleo specialist will be brought on-site to evaluate the significance of any unanticipated discovery of paleontological resources (an unanticipated find) and determine if additional study is warranted. If the significance of the find under CEQA or California Public Resources Code, Section 21082, does not warrant such study, the qualified paleontologist may decide to record the find and allow work to continue. If the discovery proves significant under CEQA, preparation of a paleontological treatment, testing, or data recovery plan (Paleo Plan) may be required at the discretion of the paleontological specialist. Any Paleo Plan that is prepared will be submitted for approval, to the appropriate agency within San Joaquin County or Alameda County, depending upon the location of the find.

Potential Impacts	Level of Significance	Mitigation Measures
GREENHOUSE GAS EMISSIONS		
IMPACT 4.8-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than Significant Impact	No mitigation required.
IMPACT 4.8-2: Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	No Impact	No mitigation required.
HAZARDS AND HAZARDOUS MATERIAL		
IMPACT 4.9-1: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less than Significant Impact	No mitigation required.
IMPACT 4.9-2: Would the project create a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Less than Significant Impact	No mitigation required.
IMPACT 4.9-3: Would the project emit hazardous emissions or handle hazardous materials or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	No Impact	No mitigation required.
IMPACT 4.9-4: Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	No Impact	No mitigation required.
IMAPCT 4.9-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	No Impact	No mitigation required.
IMAPCT 4.9-6: Would the project impair implementation of or physically interfere with an adopted emergency response plan?	No Impact	No mitigation required.
IMPACT 4.9-7: Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Less than Significant Impact	No mitigation required.

Potential Impacts	Level of Significance	Mitigation Measures
HYDROLOGY AND WATER QUALITY		
IMPACT 4.10-1: Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	Less than Significant Impact with Mitigation Incorporated	Implementation of Mitigation Measure **GEO-1** would be required. **HYDRO-1: Hydrology and Hydraulics Study.** The Applicant shall engage a qualified practitioner or firm to prepare a comprehensive watershed hydrology evaluation as well as a targeted analysis of hydraulic conditions within specific portions of the drainage conveyances in the Project site drainage area. This evaluation and analysis will address both existing conditions and proposed (i.e., after development) conditions. The results shall provide data of sufficient detail and quality to allow preparation of a Project Site Drainage Plan that will be implemented during construction of the Project and provide extended controls for facility operations. The Site Drainage Plan will include detention ponds to provide adequate control of stormwater runoff and channel armoring to prevent erosion at detention pond outlets and new drainage channels.
IMPACT 4.10-2: Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less than Significant Impact	No mitigation required.
IMPACT 4.10-3: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) Result in substantial erosion or siltation on- or off-site? ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? iv) Impede or redirect flood flows?	Less than Significant Impact with Mitigation Incorporated	Implementation of Mitigation Measures **GEO-1** and **HYDRO-1** would be required.
IMPACT 4.10-4: Is the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to the project inundation?	No Impact	No mitigation required.
IMPACT 4.10-5: Would the project conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan?	Less than Significant Impact with mitigation incorporated	Implementation of Mitigation Measure **GEO-1** would be required.

Potential Impacts	Level of Significance	Mitigation Measures
LAND USE AND PLANNING		
IMPACT 4.11-1: Would the project physically divide an established community?	No Impact	No mitigation required.
IMPACT 4.11-2: Would the project cause significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Less than Significant Impact	No mitigation required.
MINERAL RESOURCES		
IMPACT 4.12-1: Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	No Impact	No mitigation required.
IMAPCT 4.12-2: Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	No Impact	No mitigation required.
NOISE		
IMPACT 4.13-1: 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 with Mitigation Incorporated	**NOISE-1:** The Project will include sound walls along the perimeter of the Project and between select BESS units. The sound walls will be of various heights and at least 3 pounds per square foot with minimal cracks or gaps. This mitigation measure is a result of the current operational equipment selected for the Project. When updated equipment is selected, another assessment will be conducted to evaluate the need for this mitigation measure. **NOISE-2:** The Project shall construct two 26-foot soundwalls on the western and eastern portions of the Project site to shield the surrounding residential properties.
IMPACT 4.13-2: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Less than Significant Impact	No mitigation required.
IMPACT 4.13-3: For a project 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	No mitigation required.

Potential Impacts	Level of Significance	Mitigation Measures
PUBLIC SERVICES		
IMPACT 4.14-1: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	--	--
i) Fire protection?	Less than Significant Impact	No mitigation required.
ii) Police protection?	Less than Significant Impact	No mitigation required.
iii) Schools?	No Impact	No mitigation required.
iv) Parks?	No Impact	No mitigation required.
v) Other public facilities?	No Impact	No mitigation required.
TRANSPORTATION		
IMPACT 4.15-1: Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Less than Significant Impact	No mitigation required.
IMAPCT 4.15-2: Would the project conflict or be inconsistent with CEQA Guidelines 15064.3, subdivision (b)?	Less than Significant Impact	No mitigation required.
IMPACT 4.15-3: Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Less than Significant Impact	No mitigation required.
IMPACT 4.15-4: Would the project result in inadequate emergency access?	Less than Significant Impact	No mitigation required.
TRIBAL RESOURCES		
IMPACT 4.16-1: Would the project cause adverse change in the significance of a tribal cultural resource, defined in Public Resource Code Section 21074 as either a site, feature, place, cultural landscape that is geologically defined in terms of the size and scope of the landscape, sacred plan, or object with cultural value to a California Native American tribe that is:	Less than Significant Impact with Mitigation Incorporated	Implementation of **Mitigation Measures CUL-1** and **CUL-2** would be required.

Potential Impacts	Level of Significance	Mitigation Measures
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code 5020.1(k) or **ii)** 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 (s) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code 5024.1, as the CEQA lead agency, has considered the significance of the resource to a California Native American tribe.		
UTILITIES AND SERVICE SYSTEMS		
IMPACT 4.17-1: Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation which would cause significant environmental effects?	Less than Significant Impact with Mitigation Incorporated	Implementation of **Mitigation Measure GEO-1** would be required.
IMPACT 4.17-2: Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	Less than Significant Impact	No mitigation required.
IMPACT 4.17-3: Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	No Impact	No mitigation required.
IMPACT 4.17-4: Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Less than Significant Impact	No mitigation required
IMPACT 4.17-5: Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	No Impact	No mitigation required.
WILDFIRE		
IMPACT 4.18-1: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	No Impact	No mitigation required.

Potential Impacts	Level of Significance	Mitigation Measures
IMPACT 4.18-2: Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Less than Significant Impact	No mitigation required.
IMPACT 4.18-3: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Less than Significant Impact	No mitigation required.
IMPACT 4.18-4: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Less than Significant Impact with Mitigation Incorporated	Implementation of **Mitigation Measure GEO-1** would be required.

AREAS OF CONTROVERSY

Section 15123 (b)(2) of the CEQA Guidelines requires that an EIR Executive Summary identify areas of controversy known to the lead agency, including issues raised by other agencies and the public.

In accordance with the CEQA Guidelines, a Notice of Preparation (NOP) was prepared and distributed to responsible agencies, affected agencies, and other interested parties on December 28, 2022. The NOP was posted in the County Clerk's office for 30 days. The NOP was submitted to the State Clearinghouse to officially solicit participation from interested public agencies in determining the scope of the EIR.

Comment letters were received in response to the NOP for this EIR from the California Department of Conservation, Central Valley Regional Water Quality Control Board, Federal Emergency Management Agency, San Joaquin County Environmental Health Department, San Joaquin Valley Air Pollution Control District, and Tracy Rural County Fire Protection District

The issues raised in these comment letters are addressed in this EIR. A copy of the NOP and the comment letters are included in Appendix A of this Draft EIR. No outstanding issues of controversy are known at this time.

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1 INTRODUCTION

1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

In accordance with the California Environmental Quality Act of 1970 (CEQA; California Public Resources Code [PRC], Sections 21000 through 21189), all “projects” within the State of California are required to undergo environmental review to determine the environmental impacts associated with implementation of the project.

CEQA was enacted in 1970 by the California Legislature to disclose to decision-makers and the public the anticipated significant environmental effects of a proposed project and identify possible ways to avoid or minimize those significant environmental effects by recommending mitigation measures or feasible alternatives to the project. As the “Lead Agency” under CEQA, the San Joaquin County Community Development Department is required to conduct an environmental review to analyze the potential environmental effects associated with proposed projects located within San Joaquin County (County). When an Environmental Impact Report (EIR) is to be prepared, the Community Development Department is the Lead Agency for the preparation of the EIR.

1.2 SCOPE OF THE EIR

The required contents and scope of an EIR are set forth in CEQA and its companion document, the CEQA Guidelines (California Code of Regulations [CCR], Sections 15000 through 15387). This section provides a summary of the issues addressed in this Draft EIR. Under the CEQA Guidelines, the analysis in the Draft EIR need only focus on issues determined to be potentially significant, whereas issues found to have less than significant impacts or no impact do not require further evaluation.

As Lead Agency, the County completed a preliminary analysis of the proposed Griffith Energy Storage Project (the “proposed Project”) and determined that, due to the potential for significant environmental effects, an EIR must be prepared.

Based on that preliminary review, the County concluded that the proposed Project is not anticipated to result in significant changes to Population and Housing and Recreation and therefore analysis of these resources was not required in the EIR. Environmental effects that were determined to be potentially significant or less than significant after mitigation are discussed in detail under Chapter 4 of this Draft EIR and include the following:

- Aesthetics;
- Agriculture and Forestry Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Energy;

- Geology, Soils, and Paleontological Resources;
- Greenhouse Gas Emissions;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning;
- Mineral Resources;
- Noise;
- Public Services;
- Transportation;
- Tribal Cultural Resources;
- Utilities and Service Systems; and
- Wildfire.

Mitigation measures to reduce impacts to a less than significant level are proposed whenever feasible and appropriate. In addition to the environmental issues identified above, this Draft EIR includes all of the sections required by the CEQA Guidelines, including a discussion of feasible alternatives to the proposed Project, evaluation of cumulative and other related projects, growth-inducing effects of the proposed Project, and irreversible environmental changes.

1.3 PUBLIC SCOPING PROCESS

This Draft EIR was prepared following input from the public, responsible agencies, and affected agencies through the EIR scoping process (see Appendix A), which included the following:

- In accordance with the CEQA Guidelines, a Notice of Preparation (NOP) was prepared and distributed to responsible agencies, affected agencies, and other interested parties on December 28, 2022.
- The NOP was posted in the County Clerk's office for 30 days. The NOP was submitted to the State Clearinghouse to officially solicit participation from interested public agencies in determining the scope of the EIR.
- Information requested and input provided during the 30-day public review period, regarding the contents of the NOP and the scope of the Draft EIR, were incorporated in this Draft EIR (see Appendix A).

In addition to the EIR scoping process, the County conducted California Native American tribal outreach through the Assembly Bill (AB) 52 process for input regarding potential impacts to tribal cultural resources. The County sent formal AB 52 notification letters on September 21, 2022, to the following Tribes:

- Buena Vista Rancheria;
- California Tribal TANF Partnership;

- California Valley Miwok Tribe;
- North Valley Yokuts Tribe; and
- United Auburn Indian Community.

No responses were received to the letters.

1.4 ORGANIZATION OF THE DRAFT EIR

The Draft EIR is organized into the following chapters so the reader can easily obtain information about the proposed Project and related environmental issues:

Chapter 1: Executive Summary – Consistent with CEQA Guidelines, Section 15123, the Executive Summary chapter provides a summary of the proposed Project and discussion of the Project alternatives, areas of controversy and issues to be resolved, and conclusions regarding growth inducement and cumulative impacts. A summary of Project impacts and recommended mitigation measures is also provided.

Chapter 2: Introduction – Describes the purpose and use of the Draft EIR, provides a brief overview of the proposed Project, and outlines the organization of this Draft EIR. It includes a discussion of issues required by CEQA that are not covered in other chapters. This includes unavoidable adverse impacts, impacts found not to be significant, irreversible environmental changes, and growth-inducing impacts.

Chapter 3: Project Description – Describes the environmental setting, proposed Project objectives, characteristics, land uses, and requested Project actions.

Chapter 4: Environmental Analysis – Describes the existing physical and regulatory conditions; methods and assumptions used in impact analysis; thresholds criteria used to determine the impact significance; impacts that would result from the proposed Project; and applicable mitigation measures that would eliminate or reduce significant impacts for each environmental issue of concern.

Chapter 5: Alternatives – Consistent with CEQA Guidelines, Section 15126.6, this chapter evaluates feasible alternatives to the proposed Project and the potential environmental effects of those alternatives. The analysis includes evaluation of the No-Project Alternative and discusses the Environmentally Superior Project Alternative.

Chapter 6: List of Preparers – Lists the individuals involved in preparing the Draft EIR and organizations and persons consulted.

Appendices – The appendices include technical studies and reports and other relevant reference material used in evaluating the impacts of the proposed Project and referenced in the environmental analysis.

1.5 GROWTH INDUCEMENT

Section 15126.2(e) of the CEQA Guidelines provides the following guidance regarding growth-inducing impacts:

> "A project is identified as growth inducing if it would foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment."

Growth inducement can be a result of new development that increases employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the Project would require up to approximately 60 workers; the average number of workers onsite is anticipated to be approximately 10 to 60, depending on the construction activity. The existing construction labor pool in San Joaquin County and nearby Alameda County is sufficient for meeting Project needs. Following construction, only occasional onsite maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. Decommissioning and site restoration activities are expected to require a smaller workforce than construction; decommissioning activities are expected to take several months to complete. Because construction and decommissioning are temporary, the Project is unlikely to cause substantial numbers of people to relocate to San Joaquin County and the surrounding area. Therefore, this Project would not result in a large increase in employment levels that would significantly induce growth.

Although the Project would increase the reliability of energy supply, which supports growth, the development of energy infrastructure is a response to increased market demand, and the availability of electrical capacity by itself does not ensure or encourage growth within a particular area. Other factors, such as economic conditions, land availability, population trends, availability of water supply or sewer services, and local planning policies, have a more direct effect on growth.

1.6 IRREVERSIBLE IMPACTS

Section 15126.2(d) of the CEQA Guidelines defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continuing phases of a project. Irreversible impacts also can result from damage caused by environmental accidents associated with a project. Irretrievable commitments of resources should be evaluated to ensure that such consumption is justified.

Building the Project would commit nonrenewable resources during Project construction and ongoing utility services during Project operations. During operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed and irreversible commitments of small quantities of nonrenewable resources would occur as a result of long-term operations. However, once operational, the Project would result in a substantial net benefit associated with the reliability of energy availability.

1.7 MANDATORY FINDINGS OF SIGNIFICANCE

CEQA requires preparation of an EIR when certain specified impacts may result from construction or implementation of a project. A Draft EIR has been prepared for the proposed plan, which fully addresses all of the Mandatory Findings of Significance, as described below.

1.7.1 Degradation of the Environment

CEQA Guidelines Section 15065(a) requires a finding of significance if a project "has the potential to substantially degrade the quality of the environment." In practice, this is the same standard as a significant effect on the environment, which is defined in CEQA Guidelines, Section 15382, as "a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

This Draft EIR, in its entirety, addresses and discloses all potential environmental effects associated with construction and operation of the proposed plan, including direct, indirect, and cumulative impacts, in the resource areas listed above.

As summarized in Table ES-1, this Draft EIR discloses all potential environmental impacts, the level of significance, and Project requirements that are otherwise required by law or are incorporated as part of the Project description.

1.7.2 Long-term Impacts

CEQA Guidelines Section 15065(a)(2) states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals. Chapter 4, *Environmental Analysis*, of this document addresses the short-term and irretrievable commitment of natural resources to ensure that the consumption is justified on a long-term basis.

1.7.3 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less than significant impact, potentially significant impact unless mitigated, or significant and unavoidable impact. A cumulative impact analysis is not provided for No Impact, which does not result in project-related impacts.

CEQA Guidelines, Section 15065, states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has potential environmental effects that are individually limited, but cumulatively considerable. As defined in CEQA Guidelines, Section 15065(a)(3), cumulatively considerable means "that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Cumulative impacts are addressed for each of the environmental topics listed above and are provided in Chapter 4, *Environmental Analysis*, of this Draft EIR.

1.7.4 Impacts on Species

CEQA Guidelines, Section 15065(a)(1), states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to: (1) substantially reduce the habitat of a fish or wildlife species; (2) cause a fish or wildlife population to drop below self-sustaining levels; or (3) substantially reduce the number or restrict the range of an endangered, rare, or threatened species. Section 4.4, *Biological*

Resources, of the Draft EIR fully addresses any impacts that might relate to the reduction of the fish or wildlife habitat, the reduction of fish or wildlife populations, and the reduction or restriction of the range of special status species as a result of Project implementation.

1.7.5 Impacts on Historical Resources

CEQA Guidelines, Section 15065(a)(1), states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to eliminate important examples of a major period of California history or prehistory. CEQA Guidelines, Section 15065(a)(1), amplifies PRC Section 21001(c) by requiring preservation of major periods of California history for the benefit of future generations. It also reflects the provisions of PRC Section 21084.1 in requiring a finding of significance for substantial adverse changes to historical resources. CEQA Guidelines, Section 15064.5, establishes standards for determining the significance of impacts to historical resources and archaeological sites that are a historical resource. Section 4.5, *Cultural Resources*, of this Draft EIR fully addresses impacts related to California history and prehistory, historic resources, archaeological resources, and paleontological resources.

1.7.6 Impacts on Human Beings

As required by CEQA Guidelines, Section 15065(a)(4), a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to cause substantial adverse effects on human beings, either directly or indirectly. Under this standard, a change to the physical environment that might otherwise be minor must be treated as significant if people would be significantly affected. This factor relates to adverse changes to the environment of human beings generally, and not to effects on particular individuals. While changes to the environment that could indirectly affect human beings would be represented by all of the designated CEQA issue areas, those that could directly affect human beings are addressed in Section 4.3, *Air Quality*; Section 4.7; *Geology, Soils, and Paleontological Resources*; Section 4.8, *Greenhouse Gas Emissions*; Section 4.9, *Hazards and Hazardous Materials*; Section 4.10, *Hydrology and Water Quality*; Section 4.13, *Noise*; Section 4.14, *Public Services*; Section 4.15, *Transportation*; Section 4.17, *Utilities and Service Systems*; and Section 4.18, *Wildfire*.

1.8 AREAS OF CONTROVERSY

Areas of controversy were identified through written agency and public comments received during the scoping period. Public comments received during the scoping period are provided in Appendix A. In summary, the following issues were identified during scoping and are addressed in the appropriate sections of Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*:

- Impacts related to air quality
- Impacts related agricultural resources
- Impacts to hydrology and water quality resources
- Impacts related to wildfire

2 PROJECT DESCRIPTION

2.1 OVERVIEW

San Joaquin County (County), as the California Environmental Quality Act (CEQA) Lead Agency, is preparing this Environmental Impact Report (EIR) (State Clearinghouse No. 2022120675) to document its analysis of the potential direct, indirect, and cumulative impacts of the Project described in this chapter, and the alternatives described in Chapter 3, *Alternatives,* in conformance with the requirements of the CEQA Public Resources Code Division 13, California Code of Regulations section 15000 et seq. (CEQA Guidelines). Griffith Energy Storage, LLC (Applicant), a wholly owned, indirect subsidiary of NextEra Energy Resources, LLC (NEER), has applied to the San Joaquin County Community Development Department for a Site Approval (SA)[1] to construct, operate, maintain, and decommission a 400-megawatt (MW) battery energy storage system (BESS) and associated facilities and infrastructure, to be known as the Griffith Energy Storage Project (Project) in San Joaquin County. Additionally, because the Project includes an access road and interconnection generation-tie (gen-tie) line directly adjacent to the battery storage site in Alameda County, the Applicant seeks approval of a Utility Roadway Permit from Alameda County. Approval of such an encroachment permit would be a discretionary action, making Alameda County a Responsible Agency for the Project, pursuant to CEQA Section 15381.

The energy storage facility would house lithium-ion batteries (or similar technology) totaling 400 MW of energy on a 106-acre site, owned by a private landowner in unincorporated San Joaquin County. To avoid environmental constraints, only an estimated 32 acres of the 106-acre site would be used for the Project within San Joaquin County. The proposed BESS would provide reliable and flexible power to the local electrical system. In addition to the energy storage facility, the Project would interconnect at the Pacific Gas and Electric (PG&E) Tesla Substation in close proximity to the site in Alameda County via a 230-kilovolt (kV) interconnection generation tie (gen-tie) line that extends from the energy storage facility within a gen-tie corridor partially within Alameda County.

2.2 PROJECT LOCATION AND CONTEXT

The Project site is situated roughly in the southwestern corner of Township 2 South, Range 4 East, southeast portion of Section 32 of the Midway, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The Project site is centered at a latitude of 37.710 degrees and longitude of -121.554 degrees (in decimal degrees). The Property is approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy, and in close proximity to the PG&E Tesla Substation, as shown on Figure 2-1. The Project site consists of Assessor Parcel Number (APN) 209-10-19 in San Joaquin County and APN 99B-7885-002 and 99B-7590-1-3 in Alameda County for the access road and gen-tie line.

[1] The Site Approval process provides a method for reviewing proposed uses which possess characteristics that require special appraisal in order to determine if the uses have the potential to adversely affect other land uses, transportation, or facilities in the vicinity. The Review Authority may require conditions of approval necessary to eliminate, or minimize to an acceptable level, any potentially adverse effects of a use.



Figure 2-1. Project Site Location

2.3 EXISTING SETTING

2.3.1 On-site Land Uses

The portion of the Project site in San Joaquin County is private land zoned as Agricultural General-160 and designated as General Agriculture, as shown on Figure 2-1. The portion of the Project site in San Joaquin County is under Williamson Act Contract No. 770255. The site includes Grazing Land and Farmland of Local Importance, as classified by the California Department of Conservation, and it is unirrigated grazing land.

Based on historical aerial imagery (Google Earth©), the Project site has consisted of herbaceous vegetation and has been used for grazing since 1985. Two houses were built within the boundary of Project site, but outside of the area that would be disturbed by the Project, between 2002 and 2003. Site topography consists of four gently sloping hills as well as flat terrain. Based on information provided by the landowner, the Project site is annually grazed by cattle.

The portion of the Project site where the proposed gen-tie transmission line would be located is within the jurisdiction of Alameda County, is zoned as Agriculture (A), and is not under a Williamson Act Contract. The topography of the gen-tie corridor includes a crossing at Midway Road and unirrigated grazing land. The gen-tie corridor would cross Midway Road and would then be located within unirrigated grazing land.

2.3.2 Surrounding Land Uses

The Project, including the gen-tie line, is bounded to the north by grazing land, rural residences, the West Patterson Pass, and the Union Pacific Railroad (UPRR). To the east lay grazing land and open space. Rural residences, grazing land, and open space bound the Project to the south. The Project is bounded by rural residences, grazing land, and the PG&E Tesla Substation to the west.

The PG&E Tesla Substation is located approximately 0.25 mile to the west. Multiple transmission towers and lines are located approximately 0.1 mile southwest and 0.17 northwest of the Project site. The closest residences on land not owned by the current property owner are approximately 0.2 miles (approximately 1,000 feet) north of the Project site on the other side of West Patterson Pass and 0.2 miles (approximately 1,000 feet) southwest of the Project site at the southern terminus of Midway Road.

2.4 OBJECTIVES

The Project is designed to meet a series of Project objectives and to also support the state of California in meeting its renewable area goals, objectives, and standards.

2.4.1 Project Objectives

The Applicant has identified the following Project Objectives:

1. Construct and operate a 400-MW BESS in San Joaquin County with an interconnection at the Tesla Substation (located in Alameda County) in a cost-competitive manner.

2. Assist California utilities in meeting their obligations under California's Renewable Portfolio Standard Program and Senate Bill (SB) 100, which calls for 100 percent of all electricity sold in California to come from carbon-free resources by the year 2045, including 60 percent renewables by 2030, and SB 1020, which requires utility providers to supply 90 percent and 95 percent of supplied electricity from renewable sources by 2035 and 2040, respectively.

3. Assist California utilities in meeting their obligations under the California Public Utilities Commission's (CPUC) Mid-Term Reliability Procurement Requirements.

4. Provide for the economically viable, commercial financeable, and environmentally beneficial use of the site's limited agricultural capacity due to the absence of available irrigation.

5. Develop a site in proximity to transmission infrastructure in order to minimize environmental impacts.

6. Develop a battery energy storage facility in San Joaquin County, which would support the economy by investing in the local community, creating local construction jobs and increasing tax and fee revenue to the County.

2.5 PROJECT DESCRIPTION

2.5.1 Project Overview

The proposed Project is designed to absorb or output approximately 400 MW of electricity within the BESS (on 32 acres in San Joaquin County) and would include a 230-kilovolt overhead or underground gen-tie line that will extend to the PG&E Tesla Substation within Alameda County. The gen-tie corridor is 14,920 feet long and 100 feet wide, incorporating approximately 8 acres. The Project would contain pad-mounted energy storage units, in addition to inverters, supervisory control and data acquisition (SCADA) equipment, a collector substation, and an interconnection gen-tie line to the Tesla Substation. The Project would also include related and supporting facilities, such as on-site service roads, gates and security fencing, and temporary laydown and construction areas. Construction is expected to begin in 2024 and be completed in approximately 15 months, including 3 months of testing and commissioning, with a workforce of 20 to 60 workers, depending on the phase. Once operational, the Project would operate 24 hours per day, 7 days a week, 365 days a year. Routine operations would require one or two workers in a light utility truck to visit the facility on a weekly basis. Typically, one major maintenance inspection would take place annually. The expected lifespan of the Project is 35 years.

2.5.2 Battery Energy Storage System

2.5.2.1 Batteries

Individual lithium-ion, or similar technology, battery cells form the core of the energy storage system. The battery cells are assembled either in series or parallel connection in sealed battery modules. The battery modules would be installed in self-supporting racks electrically connected either in a series or parallel to each other. The individual battery racks are connected in series or parallel configuration to deliver the energy storage system power rating. Approximately 500

battery units would be installed. Each would be approximately 20 feet long, 8 feet wide, and approximately 10 feet high. The associated inverters, transformers, and switchgear would be located adjacent to the structure on concrete pads or driven pier foundations. At this time, the battery technology for the Project has not yet been finalized; the battery type would be selected based on the technology available at the time of construction.

2.5.2.2 Enclosure Units and Controller

Self-contained storage system enclosures would house each of the approximately 500 battery units, described above, as well as the battery storage system controller. The energy storage system controller is a multi-level control system designed to provide a hierarchical system of controls for the battery modules, power conversion system (PCS), medium voltage system, and up to the point of connection with the electrical grid. The controllers ensure that the energy storage system effectively responds to grid emergency conditions and provide a secondary safety system designed to safely shut down the facility.

The storage system enclosure would also house required heating, ventilation, and air conditioning (HVAC) and fire protection systems. The power for the HVAC system would be provided through a connection to the on-site station service transformer with connection lines installed above and/or below ground.

2.5.2.3 Fire Safety

Each battery enclosure unit would have a fire rating in conformance with local fire authority and County standards, via compliance with the California Fire Code 2022. The Project's fire protection design would comply with Section 1207 Electrical Energy Storage Systems, which adopts the National Fire Protection Association's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). It is the Applicant's intent that Underwriters Laboratories (UL), an independent engineer's test method, would certify that the batteries used in this Project are manufactured in accordance with UL 9540A, an industry-standard Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. UL independently tests equipment for compliance with the latest fire safety code requirements. This test method was developed to minimize the risk of thermal runaway to address safety concerns about battery storage equipment raised by fire departments and building officials in the United States. Compliance with these standards and certification includes a Battery Management System (BMS) design that detects high temperatures at the battery cell or battery module level and automatically shuts down the battery rack. Furthermore, installation of battery units would follow manufacturer specifications for the spacing of batteries and clearance distances to further prevent a thermal runaway event. Each unit would also be equipped with thermal management systems for thermal management of the batteries. Power to the thermal management system and lighting would be provided through a connection to the on-site station service transformer with connection lines installed above and/or below ground. Cabinets housing batteries are designed with adequate ventilation and will also be equipped with carbon monoxide (CO) detection that would alert the remote monitoring facility that the sensor has been activated.

2.5.2.4 Power Conversion System

The PCS consists of an inverter, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, filter equipment, equipment terminals, and connection cabling system.

Electric energy is transferred from the existing power grid to the Project batteries during a battery charging cycle, and from the Project batteries to the power grid during a battery discharge cycle. The PCS converts electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. The energy conversion is enabled by a bidirectional inverter that connects the DC battery system to the AC electrical grid.

The PCS would also include a transformer that converts the AC side output of the inverter to medium AC voltage to increase the overall efficiency of the energy storage system and to protect the PCS in the event of system electrical faults.

2.5.2.5 Interconnection Generation Transmission Line

The proposed BESS would deliver power to the Tesla Substation located adjacent to the Project site in Alameda County through a new 230-kV gen-tie line. The gen-tie corridor width would be up to 100 feet wide on private property, with the exception of the portion that would encroach on Midway Road, requiring a Utility Roadway Permit approved by Alameda County. The gen-tie right-of-way (ROW) corridor is assumed to be up to 100 feet in width and include a maintenance road. Permanent impacts for the aboveground line would occur associated with the pole pads and access roads and temporary impacts associated with pull and splice sites and overland travel during construction. Associated with trenching to install the ducts, surface construction impacts from the below ground option would be temporary. Permanent impacts would result for the construction of an access road. The gen-tie line would not include lighting or stormwater features.

The Applicant would construct the gen-tie from the Project substation to the point south of the Tesla Substation shown on Figure 2-1. The gen-tie line would require new steel, tubular poles up to approximately 165 feet in height. The poles may be A-frame, H-frame, monopole, or a combination thereof. The number and height of the poles would be finalized during detailed design. PG&E would be responsible for siting, design and construction of the gen-tie line to their property boundary and within the Tesla Substation. As shown on Figure 2-1, PG&E may elect to install the interconnection via an overhead line or underground from the point of connection to the substation.

2.5.2.6 Site Access and Parking

Access, including emergency access, onto the Project site would be provided from Patterson Pass Road to Midway Road to a driveway that leads to the Project site. Internal access roads would be gravel or aggregate base depending on the final site geotechnical report. Site access would comply with the California Department of Forestry and Fire Protection and/or San Joaquin County Fire Protection District requirements. On-site parking spaces would be provided as needed, in accordance with San Joaquin County requirements.

2.5.2.7 Perimeter Fence

The perimeter of the Project site would be enclosed by a 6-foot-tall chain-link fence topped with 1 foot of three-strand barbed wire. The purpose of the fence would be to prevent unauthorized access to the site. In addition, an approximately 8-foot-high perimeter security fence topped with approximately 1 foot of barbed wire would be installed around the on-site substation.

2.5.2.8 Lighting

Low-elevation, controlled security lighting would be installed at the access gate and the entrance to the energy storage structures. The lighting would only switch on when personnel enter the area (through either motion-sensor or manual activation [switch]). All safety and emergency services signs would be lit when the lights are on. The lighting would be shielded so the light is directed downward. Lighting would be only in areas where it is required for safety, security, or operations. All lighting would be directed on-site and would include shielding as necessary to minimize illumination of the night sky or spillover onto adjacent properties.

2.5.2.9 Stormwater Facilities

The site drainage is designed to follow the natural drainage pattern of the site. The Project would include swales and armored outlets to direct stormwater, as shown in the preliminary grading and site plan provided as Figure 2-2, and in accordance with San Joaquin County and state of California standards. Site preparation and construction activities would be performed in accordance with a Stormwater Pollution Prevention Plan (SWPPP), or similar plan that incorporates stormwater best management practices (BMP) to reduce the adverse effects of erosion and sedimentation. Such practices would include, for example, the use of water trucks to manage dust; silt fencing, straw wattles, temporary catch basins, and inlet filters to control stormwater; and truck tire muck shakers, or similar devices, to prevent mud and debris from being carried onto roadways.

2.5.2.10 Landscaping

The Project would not include landscaping.

Applicant-proposed Measures and Design Features

The Applicant proposes to take certain actions for the purpose of reducing the potential significance of anticipated environmental impacts of the Project. These measures are elements of the Project, either as a specific design feature or as a plan developed by the Applicant. Where the analysis of individual resources relies on these plans or design features to reduce anticipated effects, the relevant section so notes. By contrast, mitigation measures are not elements of the Project and are structured in accordance with the criteria in CEQA Guidelines Section 15370.

Wildlife-friendly Design Features

Fence posts would be capped to prevent potential entrapment of birds or other small species. Further, the design of new overhead transmission and communications lines and structures would follow the most recent Avian Power Line Interaction Committee guidance to reduce the potential for avian injury and mortality from collisions and electrocution. The proposed use of motion-activated security lighting (rather than lighting that would remain on from dusk to dawn) would reduce adverse impacts to nocturnal species, potentially including foraging, sheltering, mating and reproducing, communicating, and migrating behaviors.

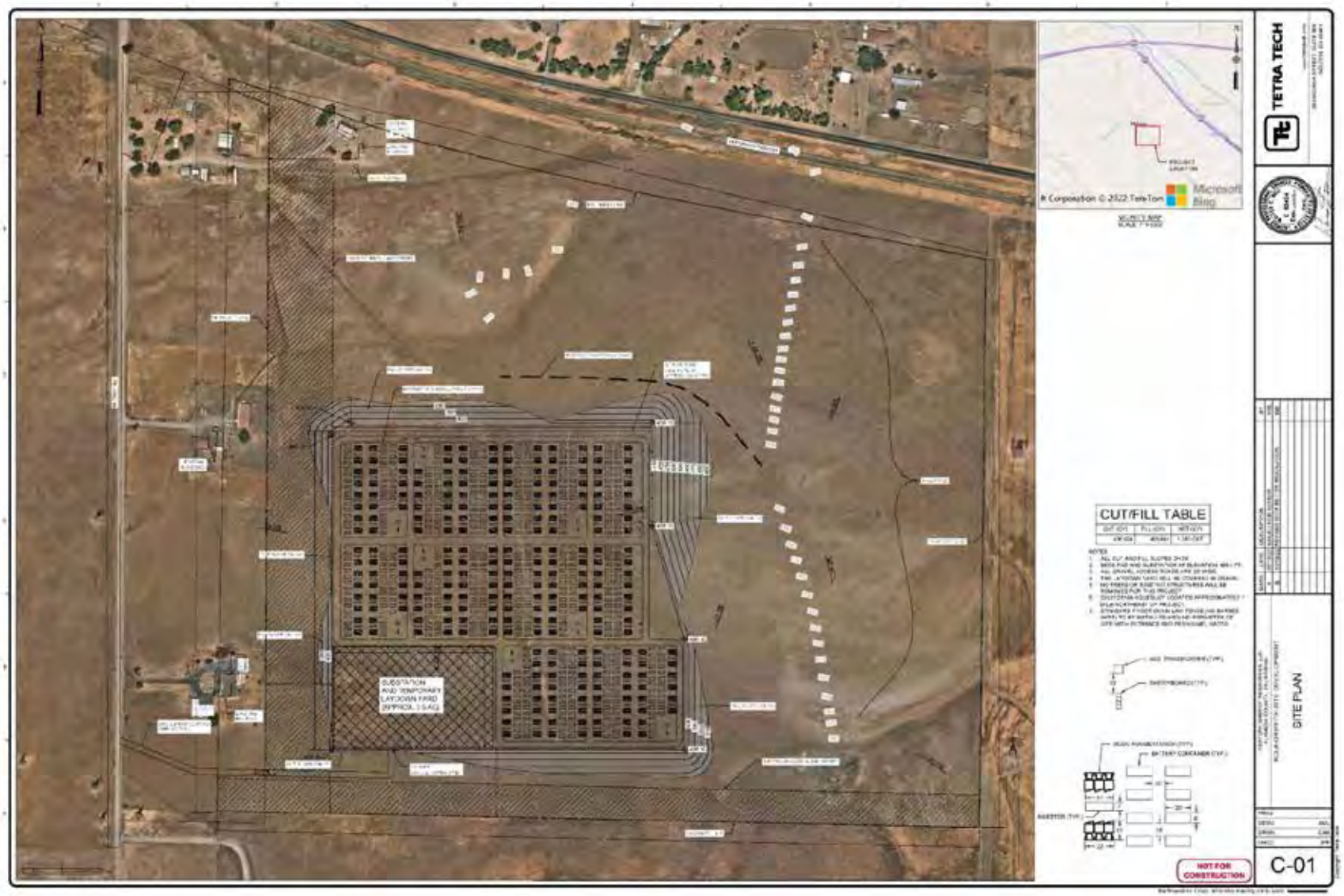


Figure 2-2. Site Plan

Emergency Response Plan

An Emergency Response Plan would be prepared in order to train local emergency response personnel during development and operation of the facility. The plan will be completed in accordance with existing state regulations (Health and Safety Code [HSC] § 25504(b); 19 California Code of Regulations [CCR] §2731; 22 CCR §66262.34(a)(4)). The contents of the Emergency Response Plan would comply with existing state regulations and include the following components and involve training for the local fire responders:

- Developed in consultation with Fire Department and BESS supplier;
- Defined roles and responsibilities;
- Potential emergency scenarios including fire;
- Onsite training of fire personnel and onsite Project staff; and
- Training for local first responders, including monitoring of fire from a safe distance using infrared cameras until temperature of the affected enclosure cools to ambient temperature

2.5.3 Construction

2.5.3.1 Construction Access and Deliveries

Delivery of material and supplies would reach the Project site through on-road truck delivery through Interstate 580 to Patterson Pass Road to Midway Road. Most of the materials truck deliveries would be for the energy storage enclosures and PCS installation, as well as any aggregate material that may be required for foundations. These loads would typically be limited to 40 tons, or 80,000 pounds, with a typical cargo load of approximately 25 tons, or 50,000 pounds. Typically, rock is delivered in “bottom dump trucks” or “transfer trucks” with six axles. Low-bed transport trucks would transport the construction equipment to the site as needed. The size of the low-bed trucks (axles for weight distribution) would depend on the equipment transported. The heaviest delivery loads to the site would be for the step-up transformer, which may weigh up to 160,000 pounds. Water for dust control would also be delivered via trucks via the same access route.

2.5.3.2 Construction Schedule and Workforce

Construction would generally consist of the following activities:

- Site Preparation
- Fencing
- Electrical Work

Construction is anticipated to begin in 2024 and last for a 15-month period, including 3 months of testing and commissioning, as shown in Table 2-1.

Table 2-1. Construction Schedule

Stage	Description	Duration (Days)	Week Nos.
1	Site and Substation Preparation and Grading	80	1-16
2	Energy Storage Enclosure and Substation Installation	180	17-52
3	Gen-Tie Line Foundation and Tower Erection	30	41-46
4	Gen-Tie Line Pulling and Stringing	30	47-52
5	Testing and Commissioning	60	53-64

Hours

Construction of the battery energy storage facility would occur primarily during daylight hours, and would not occur earlier than 6:00 a.m. or after 9:00 p.m. in compliance with the San Joaquin County Municipal Code (San Joaquin County 2021). Construction of the gen-tie line or any other Project facilities in Alameda County would not occur before 7 a.m. or after 7 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday, in accordance with Alameda County Municipal Code Chapter 6.60 (Alameda County 2020). Construction requirements may require some nighttime activity for material and equipment delivery and/or where the schedule has been delayed due to weather or other events; however, construction equipment usage hours would not exceed what is indicated in Table 2-2. Nighttime activities would be performed with temporary lighting, which would be directed downward to minimize impacts to neighboring properties and wildlife in the Project vicinity.

Workforce

The onsite construction workforce would consist of laborers, craftspeople, supervisory personnel, and support personnel. The onsite assembly and construction workforce is expected to reach a peak of approximately 60 workers; the average number of workers onsite is anticipated to be approximately 20 to 60, depending on the construction activity, as shown in Table 2-2.

Vehicles

Construction vehicles would access the Project site from Interstate 580 and Midway Road. Vehicle use of area roadways resulting from Project construction activities would be limited to the 15-month construction period, as workers and materials are transported to and from the Project site. Construction workers would be encouraged to carpool to minimize vehicle trips. Typical equipment during construction would include scrapers, dozers, tractors, backhoes, excavators, and other common types of construction equipment, as shown in Table 2-2.

Table 2-2. Construction Equipment and Vehicle Trips Per Phase

Construction Phase	Equipment			Daily Worker Vehicle Trips[1/]	Daily Vendor Trips[1/]	Total Haul Truck Trips[2/]
	Equipment Type	Quantity	Usage Hours			
Site Clearing and Preparation	Air Compressors	4	8	40	4	3680
	Tractors/Loaders/Backhoes	2	8			
	Graders	2	8			
	Off-Highway Trucks	8	8			
	Rollers	2	8			
	Rubber Tired Dozers	2	8			

Construction Phase	Equipment			Daily Worker Vehicle Trips[1/]	Daily Vendor Trips[1/]	Total Haul Truck Trips[2/]
	Equipment Type	Quantity	Usage Hours			
	Rubber Tired Loaders	2	8			
	Skid Steer Loaders	4	8			
	Trenchers	2	8			
	Dumpers/Tenders	8	8			
	Generators	2	24			
	Generators	2	8			
Energy Storage Enclosure and Substation Installation	Air Compressors	4	8	120	20	3600
	Cranes	2	8			
	Excavators	4	8			
	Generator Sets	4	8			
	Forklifts	2	8			
	Plate Compactors	2	8			
	Rollers	2	8			
	Tractors/Loaders/Backhoes	6	80			
Gen-Tie Line Foundation and Tower Erection	Air Compressors	2	8	40	4	600
	Cranes	2	8			
	Forklifts	2	8			
	Generator Sets	2	24			
	Pumps	2	8			
	Welders	2	8			
Gen-Tie Line Pulling and Stringing	Forklifts	2	8	49	4	600
	Generator Sets	2	8			
	Tractors/Loaders/Backhoes	2	8			
Testing and Commissioning	Off-Highway Trucks	3	8	100	0	0

1/ Number reflects daily one-way trips.
2/ Number reflects total trips per phase.

2.5.3.3 Grading and Site Preparation

The energy storage facility site located on 32 acres in San Joaquin County would be prepared for construction. Rough grading may be performed where required to accommodate the support structures and access roads. Grubbing and grading would occur on the site to achieve the required surface conditions. Site preparation may include application of pre-emergent herbicides formulated to minimize impacts on wildlife. Application would be in accordance with federal, state, and San Joaquin County regulations and would be applied by a California state-licensed pesticide applicator.

Retention basins may be required for hydrologic control. The specific locations for these retention basins would be determined during final engineering design and would be located within the 32-acre disturbance area. Access roads would be gravel or aggregate base depending on the final site geotechnical report. A temporary staging area, anticipated to be located on the southwest end of the site, would be constructed to hold materials and construction equipment.

Due to the sloped topography of the energy storage facility site, site preparation would require approximately 407,000 cubic yards of cut and 406,000 cubic yards of fill, to create a single terrace on which the batteries would be installed. The balance of fill would be transported off-site. A relatively balanced cut and fill volume of just over 400,000 cubic yards of material would be handled, and result in several large 2:1 (horizontal to vertical) cut and fill slopes. The maximum depth of cut will be approximately 70 feet and the maximum depth of fill will be about 40 feet. Slopes of all cuts and fills would be no steeper than is safe for the intended use and shall be no steeper than 1 unit vertical to 2 units horizontal (50 percent slope). The top of a cut slope would not be made nearer to a site boundary line than one-fifth of the vertical height of cut with a minimum of 2 feet and a maximum of 10 feet, and the toe of fill slope would be made not nearer to the site boundary line than one-half the height of the slope with a minimum of 2 feet and a maximum of 20 feet, consistent with the San Joaquin County Grading Ordinance (San Joaquin County 2021).

Additionally, no grading that may obstruct, impede, or interfere with the natural flow of storm waters would occur. The Project would include swales and armored outlets to direct stormwater, as shown in the preliminary grading and site plan provided as Figure 2-2. Construction of the Project would result in the addition of 18.8 acres of impervious surfaces, consisting of foundations, pads, gen-tie and fence poles, and other permanent facilities.

2.5.3.4 Fencing

A perimeter security fence would be installed around the energy storage system facility. No fencing would be included around the gen-tie line, and the tie-in to the PG&E Tesla substation would occur within the existing PG&E substation fenceline. Any acoustic fencing is required around the energy storage facility as a form of mitigation to reduce the sound levels at the nearby residential receivers, the fencing would consist of opaque material. Trash would be removed from the fencing as required. A security fence would also be installed around the Project substation.

2.5.3.5 Electrical Work

A substation pad for the step-up transformer would be poured, followed by the installation of the medium-voltage stations, wiring of the modules through combiner boxes, and construction of the Project substation and grid interconnection. The medium-voltage stations would sit on concrete foundations or driven piles, pending final design. The Project substation and medium-voltage stations would be within the 32-acre battery energy storage facility footprint.

2.5.3.6 Generation Tie-line and Tesla Substation Improvements

The Applicant would be responsible for siting, design, and construction of the gen-tie line from the Project substation to the point of change of ownership (POCO or tie-in). That portion of the gen-tie line will be an overhead line, as shown on Figure 2-1. The gen-tie line would require new steel, tubular poles up to approximately 165 feet in height. The poles may be A-frame, H-frame, monopole, or a combination thereof. The number and height of the poles would be finalized during detailed design.

PG&E would be responsible for siting, design, and construction of the gen-tie transmission line from the POCO to their existing Tesla Substation. Two options are available for the gen-tie line route from this point and, therefore, both options are evaluated in this document. The first option

will be to connect via an approximate 2,500 linear-foot above-ground line from the point of connection to a point on the west side of the southwestern boundary of the existing substation. The second option is to enter the substation on the southwestern edge by way of a below ground line as shown in Figure 2-1. The roughly 2,000 linear-feet of underground line would enter the substation somewhere between the western edge and the center of the south boundary of the substation. Either ROW corridor is assumed to be up to 100 feet in width and include a maintenance road. Permanent impacts for the aboveground line would occur associated with the pole pads and access roads and temporary impacts associated with pull and splice sites and overland travel during construction. Associated with trenching to install the ducts, surface construction impacts from the below ground option would be temporary. Permanent impacts would result for the construction of an access road.

The above-ground 230 kV gen-tie transmission line would include concrete or steel structures up to approximately 165 feet tall with typical span lengths of 700 feet. The foundation depths are expected to be approximately 30 feet deep and 8 feet in diameter depending on geotechnical conditions. Poles may also be required at the substation terminus for the below ground line if required for interconnection. The poles may be A-frame, H-frame, or monopole or a combination thereof. The poles would carry one conductor per phase and allow the line to maintain a minimum 30-foot vertical clearance to the ground. The number and height of the poles, as well as the type of conductor, will be finalized during detailed design. The Project is expected to have approximately 15 structures.

An underground line, if selected, would consist of conductor housed in nine conduits encased in concrete duct banks. The banks would be approximately 4 feet wide buried 7 to 10 feet below ground. The duct bank would have a minimum of 36 inches of cover. The alignment, which would include one vault, would be installed in an open trench. This would include roughly 24 inches of thermal concrete backfill and 12 inches of native fill.

Within the Tesla Substation, network upgrades for either option include a grounding system, steel support structures, outdoor lighting, and outlets, and a disconnect switch may be required. Improvements could also include installation of underground conduits, pull boxes, and junction boxes. Civil improvements may include site surfacing and grading would be within the substation.

Interconnection facilities to be constructed at the Tesla Substation could include a circuit breaker, disconnect switches, surge arresters, and a dead-end/pull off structure. A line current differential relay scheme and breaker failure and reclosing relays may be installed. Improvements could also include the installation of fiber termination for the gen-tie line.

2.5.3.7 Erosion and Sediment Control and Pollution Prevention

Since the construction of the Project would result in disturbance of an area greater than 1 acre, the Applicant would be required to obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-009-DWQ, NPDES No. CAS000002 (Construction General Permit). To enroll under this permit, the Applicant would prepare a SWPPP, which would be based on the final engineering design. The SWPPP would be prepared by a qualified engineer or erosion control specialist and would be implemented during construction. The SWPPP would include BMPs, including Erosion Control, Sediment Control, and Good Housekeeping BMPs. The BMPs would include dewatering procedures, stormwater runoff quality control measures, concrete waste management, watering

for dust control, and construction of perimeter silt fences, as needed. The SWPPP would be submitted to the SWRCB, San Joaquin County, and Alameda County prior to issuance of any building or grading permits.

2.5.3.8 Construction Water and Wastewater

During construction, an estimated 10,000,000 gallons of non-potable water (approximately 30.7 acre-feet [af])[2] are anticipated to be required for dust suppression and other purposes. Water would be trucked to the Project site from a nearby source.

Nominal liquid human waste would be generated during construction, up to 30 gallons per day. Portable restroom facilities would be provided for workers during construction.

2.5.3.9 Solid Waste

Most solid waste generated during construction would be non-hazardous and consist primarily of cardboard, wood pallets, copper wire, scrap metal, common trash, and wood wire spools. Construction waste materials, such as metal and wood, would be separated from the waste stream and recycled whenever feasible. Construction materials would be handled in accordance with the California Green Building Standards Code (24 CCR Part 11, § 5.408), which establishes standards for construction and demolition waste management, and recycling or salvage of a minimum of 65 percent of nonhazardous construction and demolition waste. Non-recyclable construction waste would be placed into commercial trash dumpsters located on-site. Dumpsters would be collected as needed by a commercial service and delivered to a landfill. Construction would generate an average of approximately 5 cubic yards of solid waste per week over the period of construction.

Typically, no solid waste would be generated on-site during operations. During infrequent operations and maintenance (O&M) activities, the Project would generate a small amount of waste, such as broken or rusted metal, defective or malfunctioning equipment, electrical materials, empty containers, other miscellaneous solid waste, and typical refuse from the O&M staff. Less than 1 cubic yard of waste per week during infrequent O&M activities would be accumulated in an on-site dumpster that would be collected by a commercial waste management service.

2.5.3.10 Hazardous Waste and Hazardous Materials

The proposed energy storage system will likely use lithium-ion batteries. If utilized, the batteries would be delivered to the Project site in U.S. Department of Transportation-certified vehicles and in compliance with all applicable requirements of the U.S Department of Transportation, California Highway Patrol, and the California Department of Motor Vehicles.

Further, batteries may be considered hazardous waste in California when they are discarded, whether or not they are rechargeable. Accordingly, the battery modules included in the BESS eventually would be disposed of in accordance with the applicable hazardous waste requirements. These materials would be stored and handled in a manner to prevent accidental

[2] One af of water equals 325,851 gallons – approximately the amount needed to cover 1 acre (roughly one football field) of ground 1 foot deep.

release. Standard construction practices would be observed such that any incidental releases would be appropriately contained and remediated as required by regulation.

Other hazardous materials used for construction would be typical for most construction projects of this type. Materials would include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliative, herbicides, and welding materials/supplies.

All hazardous materials would be used, stored, and disposed of in accordance with the manufacturers' specifications and consistent with applicable regulatory requirements. Workers would be trained to engage in safe work practices and to properly identify and handle any hazardous materials on-site.

Limited amounts of hazardous materials would be stored or used onsite during Project operations, including diesel fuel, gasoline, and motor oil for vehicles; mineral oil to be sealed within the transformers; and lead acid–based or lithium-ion–based batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during operation of the Project.

2.5.3.11 Vegetation Management

Combustible vegetation or agricultural products on and around the Project boundary would be actively managed by the Project owner or its affiliates during both the construction and operation phases of the Project to minimize fire risk. Combustible products would be either limited in height or removed. Additionally, the Project would include firebreaks around the site boundary in the form of access roads subject to County standards.

2.5.4 Operation and Maintenance

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be operated by the Applicant or an affiliated company remotely. Periodic augmentation of batteries within the Project site may occur. Only occasional, on-site maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

2.5.4.1 Operations Water and Wastewater

The average water use during the Project's operation and maintenance phase is estimated to be less than 1 af per year for general maintenance and would be trucked onsite. The expected maintenance would generate little traffic during operation. Heavy equipment would not be utilized during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement, or for vegetation control.

No permanent sanitary facilities would be required during operations.

2.5.4.2 Fire Safety

The Project site within San Joaquin County is served by the Tracy Rural Fire District and is approximately 3 miles west of Tracy Rural Fire District Fire Station 94 (Tracy Rural Fire District

2022). The Alameda County Fire Department would provide fire services to the portion of the gen-tie corridor in Alameda County and the PG&E Tesla Substation (Alameda County Fire Department 2022). The nearest station is located at 7000 East Avenue in the City of Livermore and is approximately 8 miles from the gen-tie corridor.

Prior to operations, the Applicant would meet with the appropriate local fire departments to provide a tour of the site, including review of access points and major Project components; review the site's emergency response plan, which would include Material Safety Data Sheets as appropriate; and educate and train first responders with regard to any specific safety concerns related to the use of battery storage components and the safety systems in place.

The BESS would be unmanned, and operational control, including 24/7 monitoring, would be performed off-site through the proposed SCADA system. Information that is monitored by the SCADA and associated systems include battery information such as the state of charge, battery health, current, voltage, temperature, and alarm indicators such as fire warning. If there is anomaly or issue with a battery unit, the SCADA and associated remote monitoring systems would immediately alert trained personnel. The facility has the capability to be shut down remotely, if necessary. In the rare case of a fire, operators would coordinate with first responders and fire officials to safely extinguish the fire and would follow local, state, and federal regulations to dispose of any damaged materials. The need for and manner of battery fire suppression systems will be determined by the Fire Marshall.

Operational staff would also perform periodic inspections and maintenance as necessary.

2.5.4.3 Traffic and Vehicles

During operation of the Project, O&M staff would visit the onsite substation periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including, but not limited to, equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance.

Routine operations would require one or two workers in a light utility truck to visit the facility on a weekly basis. Typically, one major maintenance inspection would take place annually. The expected maintenance would generate little traffic during operations. O&M vehicles would include light duty trucks (e.g., pickup, flatbed) and other light equipment for maintenance. Heavy equipment would not be utilized during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement or vegetation control.

2.5.5 Decommissioning

The Project has an expected useful life of 35 years. It is expected to be operational in 2025 and to remain in operation through 2060. It is possible that the useful life of the Project could be extended through maintenance of existing equipment or with equipment replacement and could remain in operation beyond 2060 with further County review and approval. If operations at the site are terminated, the facility would be decommissioned. The Project site would be returned to a stable condition comparable to pre-Project conditions in accordance with applicable land use regulations in effect at that time.

The waste generated during decommissioning would be similar to that generated during demolition and construction: primarily non-hazardous and recycled whenever feasible. At the time of decommissioning, batteries may be considered hazardous waste in California when they are discarded, whether or not they are rechargeable. Accordingly, the battery modules included in the BESS eventually would be disposed of in accordance with the applicable hazardous waste requirements. These materials would be stored and handled in a manner to prevent accidental release. Standard construction practices would be observed such that any incidental releases would be appropriately contained and remediated as required by regulation.

Many components of energy storage systems are recyclable. Numerous recyclers for the various materials to be used on the Project site operate in Colusa and other nearby counties. Metal, scrap equipment, and parts that do not have free-flowing oil can be sent for salvage. Equipment containing any free-flowing oil would be managed as waste and would require evaluation. Oil and lubricants removed from equipment would be managed as used oil, which is a hazardous waste in California.

2.5.5.1 Erosion and Sediment Control and Pollution Prevention

Decommissioning activities would involve exposure and disturbance of soils; therefore, measures for erosion and sediment control would be implemented in accordance with the applicable regulations in effect at that time, which are anticipated to require implementation of a SWPPP and BMPs, or similar measures.

2.5.5.2 Decommissioning Water and Wastewater

During decommissioning, an estimated 10,000,000 gallons of non-potable water (approximately 30.7 af) are anticipated to be required for dust suppression and other purposes, similar to construction. Water would be trucked to the Project site from a nearby source and/or pumped from an on-site well if available, in accordance with any local landowner provisions.

Nominal liquid human waste would be generated during decommissioning. Portable restroom facilities would be provided for workers during decommissioning.

2.5.6 Compliance with Applicable Laws and Standards

The Applicant would comply with all applicable laws and standards, including, but not limited to, those governing the use, storage, and disposal of hazardous materials; worker training and safe work practices; air quality, water quality, and energy storage systems more generally. Similarly, site preparation and construction activities would be performed in accordance with a SWPPP or similar plan that incorporates stormwater BMPs to reduce the adverse effects of erosion and sedimentation, and herbicide would be applied by qualified personnel following product label instructions and applicable regulations. The Project would comply with all state regulations related to protecting the quality of surface and ground waters of the state, as described in the Central Valley Regional Water Quality Control Board’s January 24, 2023 letter on the Notice of Preparation for the Project. Compliance with these requirements would avoid or reduce potential adverse environmental impacts to soil, air quality, surface water and groundwater quality, human health, fire-related risk, and other environmental considerations.

2.5.7 Permits and Approvals

Permits and approvals that could be required to construct, operate and maintain, and decommission the Project include the following:

- Site Approval to operate an electricity storage facility
- San Joaquin County Building Code, including:
  - 2019 California Building Code
  - 2019 California Mechanical Code
  - California Plumbing Code
  - 2019 California Electrical Code
- California Energy Code
- California Green Building Standards Code
- California Fire Code
- San Joaquin County Municipal Code and Zoning Ordinance
- Tracy Rural Fire District requirements
- California Department of Forestry and Fire Protection Title 14
- San Joaquin County Office of Emergency Services
- Alameda County Municipal Code and Zoning Ordinance
- Alameda County Utility Roadway Permit for development of the proposed gen-tie transmission line
- Alameda County Environmental Protection Department requirements
- Bay Area Air Quality Management District requirements
- San Joaquin Valley Air Pollution Control District requirements

2.6 CUMULATIVE PROJECTS

Cumulative impacts refer to the combined effect of proposed Project impacts with the impacts of other past, present, and reasonably foreseeable future projects. According to the CEQA Guidelines Section 15355, “cumulative impacts” refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the proposed Project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. In addition, as stated in the CEQA Guidelines Section 15064 (h)(4), “the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed Project’s incremental effects are cumulatively considerable.”

The CEQA Guidelines Section 15130 (b)(1) states that the information used in an analysis of cumulative impacts should come from one of two sources, either:

1) A list of past, present, and probable future projects producing related cumulative impacts, including, if necessary, those projects outside the control of the agency; or

2) A summary of projections contained in an adopted general plan or related planning document designed to evaluate regional or area-wide conditions.

The cumulative analysis provided in this Draft EIR uses the first method and is based on a list of future projects provided by the County. Cumulative project land uses and intensities are provided in Table 2-3.

Table 2-3. Cumulative Projects

County File Number	Location	Description
Alameda County Projects		
PA-0500776	24500 South MacArthur Drive Tracy, CA 95736	Site Approval Application to expand an existing public refrigeration warehouse facility to include two new buildings for general contractors and limited industrial uses in three phases. Phase One to include a 192 square foot restroom addition to an existing building to be completed within 18 months. Phase Two to include a 25,200 square foot building to be completed within 36 months. Phase Three to include a 25,200 square foot building to be completed within five years.
PA-0600207	12100 West Valpico Road Tracy, CA 95377	This approval is for the construction of a regional church and K-8 school to be built in multiple phases as shown on the Site Plan dated May 1, 2006. (Use Type: Religious Assembly - Regional, Educational Services - General) Phase I includes a 25,060 square foot multipurpose building with a seating capacity of 800 people. Phase II (building permits to be issued within seven years from the effective date of approval) includes a 48,376 square foot church with a seating capacity of 2,000 people. Phase III (building permits to be issued within fifteen years from the effective date of approval) includes two school buildings, each totaling 31,200 square feet, a 1,200 square foot multipurpose support building and two church support buildings, 17,588 square feet and 8,421 square feet.
PA-0600630	11770 West Clover Road Tracy, CA 95304	Site Approval application to construct a religious assembly in two phases (having a total maximum seating capacity of 249 people). Phase One to consist of the conversion of an existing 1,770 square foot single-family residence to a prayer hall (seating capacity 90), addition of four restrooms, and 30 parking spaces. Phase Two to be completed within two years and to consist of a proposed 19,600 square foot two-story assembly hall and 46 additional parking spaces.
PA-0800005	30703 South MacArthur Drive Tracy, CA 95736	(Revised) Use Permit Application for the expansion of an existing sold waste processing and recycling facility from 39.2 acres to 51.7 acres in two phases over twenty years with a maximum of 1,727 vehicles per day at final build-out. Phase One to increase the daily waste capacity from 1,000 tons per day (TPD) to 1,800 TPD within ten years and Phase Two to increase the daily waste capacity from 1800 TPD to 2,500 TPD within twenty years. The project will employ 160 persons and operation 24 hours per day 7 days a week. All outdoor processing activities will not begin before 6:00 A.M. and will not be in operation after 10:00 P.M. On site activities to include vehicle maintenance, equipment storage and truck parking, construction and demolition of inert debris (CDI), processing wood waste grindings, appliance recycling, and associated waste handling activities. Proposed site improvements will include (1) the addition of 19,200 square feet to the existing 57,200 square foot material (2) addition of 10,500 square feet to the existing maintenance and administration buildings, (3) construction of a 1 megawatt wood waste bio-mas gasification unit for on-site energy use only. The project site is not under Williamson Act contract.
PA-0800061	21400 South Corral Hollow Road Tracy, CA 95304	A Site Approval application for a religious assembly with a maximum capacity of 249 people to be built in two phases over ten years. (Use Type: Religious Assembly-Neighborhood) Phase One consists of the construction of a 6,058 square foot multipurpose building which contains a prayer hall and conference room. Phase Two, to be completed in ten years, consists of the addition of 7,784 square feet to the multipurpose building for classrooms (religous study), library, and a community room.
PA-1300003	26666 South Hansen Road, Tracy, CA 95377	A Use Permit application for a kennel operation for a maximum of 100 dogs to be built in three phases over ten years. The kennel operation will be contained in a 6,200 square foot area on the parcel and contain a 480 square foot feeding and crating area, play area, and 52 kennels. Phase 1 is the construction of the feeding and crating area, play area and 12 kennels. Phase 2 is the construction of 20 kennels and additional play area. Phase 3 is the construction of 20 kennels and additional play area. The project site is not under Williamson Act contract.

County File Number	Location	Description
PA-1400084	26955 South Hansen Road, Tracy, CA 95377	A Site Approval application for a facility with multiple uses in two phases over 5 years. Phase 1 includes trailer parking for up to 10 trailers, the construction of a 4,960 square foot concrete slab for outdoor truck repair, a tow yard with an area of approximately 16,000 square feet and the construction of a 960 square foot modular office, and the construction of a 360 square foot off-premises digital billboard sign with a maximum height of 50 feet. Phase 2 includes the storage of 83 additional trailers and the construction of a 4,960 square foot buildng over the concrete slab included in Phase I (Use Types: Truck Sales & Services-Parking & Repairs, Auto Sales & Services-Inoperable Vehicle Storage, & Off-premises Sign) The parcel will be served by on-site septic and well and on-site storm drainage . This parcel is not under a Williamson Act Contract. Access is provided from S Hansen Road. Note: This project was previously reviewed in 2014 and was withdrawn. The current project has been updated with a new project description.
PA-1600049	29700 South Ahern Road, Tracy, CA 95304	A Use Permit for a truck stop with truck wash, gas station, and convenience store. The project includes a 13,412 square foot convenience store and gas station with a 7,200 square foot automobile fueling canopy, a 5,940 square foot diesel fueling canopy, a 3,500 square foot truck wash, and a 2,032 square foot fuel storage building. The project proposes utilizing a new onsite well, septic system, and retention pond. Access is from Ahern Road. This parcel is not under Williamson Act contract.
PA-1700153	5225 West Eleventh Street, Tracy, CA 95304	Site Approval application for a truck parking facility to be completed in two phases over five years. Phase One to be completed with 18 months to include the grading and surfacing for truck parking for a maximum of five truck and five trailers. Phase Two to be completed with five years to include the conversion of an existing 5,000 square foot warehouse into a truck maintenance building. The existing single-family residence will not be used as a part of the project.
PA-1800159	18201 West Grant Line Road, Mountain House, CA 95391	Use Permit - Neighborhood D (east), Specific Plan III: 1) Provides for the development of a 4.14-acre I-P zoned commercial site, as follows: a) Building 1 (located adjacent to Mountain House Parkway) to contain 7,000 square feet for a proposed restaurant; b) Building 2 (located adjacent to Grant Line Road) to contain 2,400 square feet for a proposed restaurant; c) Building 3 (located at the northeast corner of Grant Line road and De Anza Boulevard) to contain 2,400 square feet for a proposed restaurant; d) Building 4 (located in the central portion of the parcel, north of the gas pumps) to contain 6,750 square feet for a proposed convenience store and restaurant; e) Canopy for 10 gas pumps (located in the central portion of the parcel, adjacent to Grant Line Road); and f) Car Wash (located adjacent to De Anza Boulevard, north of Building 3) to contain 3,133 square feet; 2) provides two points of access along Grant Line Road: one located 260 feet west of the intersection of Grant line Road and Mountain House Parkway; and one located 520 feet west of the intersection of Grant Line Road and Mountain House Parkway; 3) provides access from an interior road located immediately to the north of the parcel that has full access to De Anza Boulevard and right-in, right-out partial access to Mountain House Boulevard; 4) provides shared parking opportunities for 100 standard vehicles (9' X 20'), five accessible parking spaces (17' X 20'), and 22 vacuum parking spaces (for car wash), for a total of 127 spaces (thus exceeding the 86 parking spaces for Buildings 1-4 required by ordinance) . Located at the northwest intersection of Grant Line Road and Mountain House Parkway. [Note: See also related applications PA-1800157 (Master Plan Amendment), PA-1800158 (SPIII Amendment) and PA-1800160 (Minor Subdivision).]
PA-1800207	28850 South Tracy Blvd, Tracy, CA 95377	A site approval application for a truck parking facility for a maximum of six (6) trucks and forty (40) trailers to include the construction of a 4,800 square foot maintenance shop for maintenance of facility trucks and trailers only and a 1,000 square foot office. This parcel is not under a Williamson Act contract. Referral: a site approval application for the expansion of an existing truck parking and equipment storage facility for a maximum of five (5) trucks and thirteen (13) trailers to include the construction of a 5,800 square foot maintenance and office building. No change to the maximum number of permitted trucks and trailers is being proposed with this application. This parcel is not under a Williamson Act contract.
PA-1800244	3501 West Lehman Road, Tracy, CA 95304	A site approval application for a nut processing/preparation facility to be completed in three (3) phases over five (5) years. Phase 1, to be completed in 18 months, includes a 30,000 sq. Ft. Storage building, a 5,000 sq. Ft. Shop building, a 1,000 sq. Ft. Breakroom, and a truck

County File Number	Location	Description
		scale. Phase 2, to be completed in thirty (30) months, includes a 30,000 sq. Ft. Shelling building. Phase 3, to be completed in five (5) years, includes a 400 sq. Ft. Canopy. This parcel is not under a Williamson Act contract.
PA-1800305	26106 South Patterson Pass Road, Tracy, CA 95377	The project is a Site Approval application for a mulch contractor on a 37.9-acre parcel to include the construction of a 720 sq. ft. modular office, a 150 sq. ft. storage shed, and a 60,000 sq. ft. area with open material storage bins in the AG-160 (General Agriculture, 160-acre minimum) zone. The project will operate 7 a.m to 6 p.m five (5) days per week with ten (10) employees. Eleven (11) parking spaces are proposed for this project. The site will have an access easement across a property owned by the Union Pacific Railroad Company to access Via Nicolo Rd. The site will utilize a new on-site well, new septic system and on-site storm retention pond. This parcel is not under Williamson Act Contract.
PA-1800316	7300 West Delta Avenue, Tracy, CA 95304	An appeal of Planning Commission's approval of Use Permit application PA-1800316 for a slaughterhouse and chicken farm on one legal parcel totaling 40.39-acres in the AG-40 (General Agriculture, 40-acre minimum) zone. The project proposes the construction of a 4,000 square foot agricultural building, with 2,400 square feet utilized as ag storage and 1,600 square feet utilized as a slaughterhouse. The project also proposes the construction of two (2) 800 square foot metal ag barns within a 6,000 square foot chicken enclosure to be utilized as chicken shelters for a maximum of 3,000 chickens. Operations are planned for seven (7) days a week, and are expected to generate six (6) vehicle trips per day. The site will utilize a private well for water and septic system for sewage disposal. Access will be provided from West Delta Avenue. The project site is under a Williamson Act Contract. A Use Permit application for a slaughterhouse and chicken farm on one legal parcel totaling 40.39-acres in the AG-40 (General Agriculture, 40-acre minimum) zone. The project proposes the construction of a 4,000 square foot agricultural building, with 2,400 square feet utilized as ag storage and 1,600 square feet utilized as a slaughterhouse. The project also proposes the construction of two (2) 800 square foot metal ag barns within a 6,000 square foot chicken enclosure to be utilized as chicken shelters for a maximum of 3,000 chickens. Operations are planned for seven (7) days a week, and are expected to generate six (6) vehicle trips per day. The site will utilize a private well for water and septic system for sewage disposal. Access will be provided from West Delta Avenue. The project site is under a Williamson Act Contract.
PA-1900127	16151 West Grant Line Road, Tracy, CA 95304	A Use Permit Application for a 60,233 square foot expansion to an existing 13,495 square foot neighborhood religious assembly facility with a maximum of 170 members. This project will increase the number of members to a maximum of 700 members and will to be completed in two (2) phases over a four (4) year period. Phase 1 to include construction of a 28,965 square foot assembly hall for religious and educational activities, a 250 square foot wellhouse, a 700 square foot fire water pumphouse, a 6,453 square foot hallway structure (to connect the proposed assembly hall and social hall), and the conversion of an existing 6,150 square foot agricultural building into a storage building. Phase 2, with building permits to be issued within four (4) years, to include the construction of a 17,715 square foot social hall to include a kitchen, dining area, and retreat area. The religious assembly will operate for twelve (12) hours per day, seven (7) days per week from 6:00 a.m. to 10 p.m. with four (4) employees per shift. Services will be provided three (3) days per week from Friday though Sunday with six employees per shift. Friday's service will take place from 6:00 p.m. to 7:30 p.m. with a maximum of 100 members. Saturday's service will take place from 7:00 a.m. to 1:00 p.m with a maximum of 125 members. Sunday's service will take place from 7:00 a.m. to 1:00 p.m. with a maximum of 500 members. There are currently seventy-seven (77) parking spaces onsite with 404 additional parking spaces proposed The project will be served by a private well, a private septic system and a storm drainage will be retained on site. Access to the project site will be from two (2) existing driveways and one (1) proposed new driveway located on W. Grant Line Road. This parcel is not under a Williamson Act Contract.

County File Number	Location	Description
PA-1900208	14800 West Schulte Road, Tracy, CA 95377	A Site Approval application to develop a warehouse and distribution facility to include construction of a 231,340 sq. ft building, a 281,710 sq. ft. building, and a 166,320 sq. ft. building. (Total sq. ft. is 679,370.) The project proposes the utilization of a private well for water, an onsite septic system for sewage disposal, and three (3) on-site retention basins for storm drainage. All existing equipment/buildings will be demolished. The project site has direct access to West Shullte Road. USE TYPE: Wholesale and Distribution-Light A Site Approval application to develop a warehouse distribution facility (Use Type: Wholesale & Distribution, Light) with two buildings totaling 510,990 square feet (Building A 231,600 sq. ft. and Building B 279,390 sq. ft.). The project also proposes the establishment of a truck sales, rental and repair facility (Use Type: Trucks Sales & Services, Sales) which includes the construction of a 16,584 sq. ft. building and outdoor storage area of trucks and trailers. The project proposes the utilization of private wells for water supply, a septic system for sewage disposal, and three (3) on-site retention basins for storm drainage. All existing equipment/buildings will be demolished. The project site has direct access to West Shullte Road.
PA-1900234	12 West Lorenzen Road, Tracy, CA 95304	A Site Approval application to convert an existing private water ski club and nature preserve (previously approved with Site Approval PA-1000010) to a resort. The resort will include recreational activities (waterskiing, kayaking, sailing, swimming, fishing, paddle boarding, and dry camping [tent and RV]), rental facilities for (corporate, private, and public) events, hiking and running trails for private use, and cross country events (Use Type: Recreation: Resort) PA-1000010 is currently approved for a private water ski club for a maximum of 30 members and nature preserve and will be built out in three (3) phases. Phase 1 included the construction of new restrooms and a storage building. Phase 2 included the construction of a 5,000 sq. ft. hospitality room for members and guests. Phase 3 included the construction of a 7,200 sq. ft. building to contain an office, storage area, restrooms and concession area. The project currently has a 13-acre lake, riparian area, trails, picnic area and a 13.6-acre ski lake. Permits have been issued for Phase I. Phase 2 and 3 have not been built yet. Phase 2 expires in 2021 and Phase 3 expires in 2024. (Use Type: Recreation-Outdoor Sports Club). Access to the project site is from the east terminus of W. Lorenzen Road and is provided by two existing private easements. The proposed project will utilize the existing onsite well and septic systems. No new water features or buildings are proposed. The parcels are not under Williamson Act contract.
PA-2000003	54 West Conejo Court, Mountain House, CA 95391	This project consists of two (2) applications including a Use Permit and Minor Subdivision on a 3-acre parcel in the Neighborhood E Community of Mountain House. The Use Permit PA-2000003 (UP) consists of the development of a pre-school building and a multi-use building. The Minor Subdivision application PA-2000090 (MS) includes a proposal to subdivide the 3-acre parcel into two (2) parcels resulting in Parcels 1 and 2 with lot areas of 1.61 acres and 1.36 acres, respectively. The Parcel is zoned P-F (Public Facilities) and the General Plan designation is P (Public). The Use permit application PA-2000003 (UP) includes a proposal to construct an 18,126 square foot multi-use building on Parcel 1 and a 12,560 square foot pre-school building on Parcel 2. On Parcel 1, the multi-use building will include an 8,500 square foot indoor sports facility, a 4,626 square foot medical office, and a 5,000 square foot commercial education facility. The indoor sports facility will be opened seven (7) days a week from 8:00 a.m. to 8:00 p.m. and will include a swim academy with an indoor swimming pool for children and adults, and a "Karate Center and Kids Recreation Play Area". The medical office will include a 24-hour urgent care facility, and an autism clinic, a therapist office, a dentist or optometrist office that will be opened seven (7) days a week from 8:00 a.m. to 6:00 p.m. The commercial educational facility will be opened seven (7) days a week from 8:00 a.m. to 8:00 p.m.to provide educational services pertaining to math and language arts enrichment and other related services including SAT/ACT preparation. Seventy-two (72) parking stalls (68 standard, 4 accessible stalls) is proposed for the multi-use building.

County File Number	Location	Description
		On Parcel 2, the pre-school is anticipated to be a 12,560 square foot square foot Montessori pre-school and will include a 9,979 square foot fenced kids play area, 59 parking stalls (56 standard, 3 accessible stalls), and an unloading area for 200 students and 15 teachers, and will be opened Monday through Friday, from 6:30 a.m. to 6:30 p.m.
PA-2000045	5225 West Eleventh Street, Tracy, CA 95304	A Site Approval application for a 290 Square Foot patio addition to an existing non-conforming single family residence, conversion of a 5,000 square foot private truck and trailer repair shop to a public truck and trailer repair shop, a truck driving school with a maximum of 3 box trucks, the construction of a 1,500 gallon fuel tank, and a truck and trailer parking and storage facility for a maximum of 30 trucks and 71 trailers. The project proposes utilizing an existing on-site septic, existing on-site well, and existing on-site retention pond. This parcel is not under a Williamson Act contract.
PA-2000065	17400 West Bethany Road, Tracy, CA 95391	This project consists of three (3) applications including a Master Plan Amendment, a Specific Plan I Amendment, and a Site Approval in the Specific Plan I planning area of Mountain House (Old River Park South Expansion Area). The Master Plan Amendment PA-2000063 (MP) consists of a revision to Section 3.7 (o) - Industrial and Office Use Polices of the Master Plan. The Specific Plan Amendment PA-2000064 (SP) would revise Figure 4.1 (Specific Plan I Expansion and Focus Areas) and Figure 4.13 (Old River Industrial Park Illustrative Concept Plan). The underlying project is for a Site Approval Application PA-2000065 (SA) to convert an existing Farm Service Headquarters facility to a Construction Services- Heavy Operation. The project proposes the utilization of an existing 5,800 square foot building. The project also includes the construction of a 12,000 square foot office and warehouse building and will include fifty (50) parking stalls for an average of thirty-five (35) employees and five (5) customers per shift 7:00 a.m. to 5:00 p.m. Monday through Friday. The project is located in the Specific Plan I planning area of Mountain House (Old River Park South Expansion Area).
PA-2000083	26603 South Hansen Road, Tracy, CA 95377	A Site Approval application for two uses. The first use is legalize the construction of a 507 square foot addition to an existing non-conforming residence in the I-G (General Industrial) zone, legalize the construction of a 378 square foot guest cottage, and legalize a 324 square foot covered cabana. The second use is to establish a tow yard and legalize the construction of a 7,728 square foot shop building. The project will be served by an on-site well, on-site sewage disposal system, and on-site storm drainage. The project site has direct access from South Hansen Road. The project site is not under a Williamson Act contract. (Use Types: Single- Family Residence, Automotive Sales and Service-Inoperable Vehicle Storage)
PA-2000185	13347 West Middle Road, Tracy, CA 95304	A Use Permit Pre-Application for a religious assembly with a maximum occupancy of 490 attendees, to be completed in 2 phases over 4 years. Phase 1 includes renovating an existing 1,104 sq. ft. residence for use as a priest's residence and construction of a 3,000 square foot assembly hall with a maximum capacity of 90 attendees. Phase 2 includes construction of a 12,000 square foot assembly hall with a maximum capacity of 490 attendees and a 3,000 square foot residence for use as a priest's residence and a swimming pool. The project includes an onsite well, septic system, and retention pond. The parcel is adjacent to W. Middle Road and S. Lammers Road. The project proposes access from both W. Middle Road and S. Lammers Road. This parcel is not under a Williamson Act contract.
PA-2000221	505 East Arnaudo Boulevard, Mountain House, CA 95391	Referral: site approval application to construct a 304 unit multi-family residential apartment complex with a 5,600 square foot Multi-recreational building.
PA-2100077	30022 South State Route 33, Tracy, CA 95304	A Use Permit application to develop an existing 3-acre lot to include a 3,500 square foot convenience store, a 2,000 square foot restaurant with a drive- thru, a 5,775 square foot canopy with four (4) diesel gas dispensers for tractor trailers, and a 3,300 square foot canopy with five (5) gas dispensers for automobiles. (Use Type: Eating Establishment-Convenience, and Truck Sales and Service - Truck Stop). The project site has access from the Interstate 5 and State Route 33 off ramps. The proposed project will utilize an onsite water well, septic system, and storm water drainage. The project site is not under a Williamson Act contract.
PA-2100114	3334 West Eleventh Street, Tracy, CA 95304	A Site Approval application to establish a boat and RV storage facility to include a 720-square-foot office, 125 storage spaces, and a dump station. Access to the parcel is from a future private road off of W. Eleventh Street. The project will require on site well, septic system, and

County File Number	Location	Description
		storm retention pond. This project includes a Road Name application to name the proposed private road, which will be utilized to access the site from W. Eleventh St. This parcel is not under Williamson Act contract.
PA-2100126	24707 South Bird Road, Tracy, CA 95304	A Use Permit Application for Cannabis Cultivation. The project is proposed to be constructed in two (2) phases over three (3) years. Phase 1, with permits to be obtained within eighteen (18) months, includes the construction of a 10,368 square foot greenhouse for cannabis cultivation, and conversion of an existing 2,280 square foot home to a security office. Phase 2, with permits to be obtained within three (3) years includes the construction of a 13,824 square foot greenhouse for cannabis cultivation, the construction of a 5,760 square foot greenhouse for cannabis cultivation, the conversion of an existing 5,000 square foot warehouse for cannabis storage, and the conversion of an existing 1,440 square foot building for cannabis storage. This parcel is not under a Williamson Act Contract.
PA-2100154		A Site Approval Application for the construction of 176 apartment units to include a total of seven (7) three-story buildings, one (1) two-story building, and one (1) recreation/leasing office facility with recreation amenities.
PA-2100207	26901 South Hansen Road, Tracy, CA 95391	This Project is a Site Approval to expand an existing unmanned trailer parking and storage facility from 200 trailers to a total of 439 trailers. The project proposes utilizing an existing onsite well, a new onsite septic system, and a new onsite stormwater retention pond and bioswale. Access to the facility will be permitted seven (7) days a week, twenty-four (24) hours a day through a single, secured, gated driveway that fronts Hansen Road. This parcel is not under Williamson Act contract.
PA-2100209	28524 South Kasson Road, Tracy, CA 95304	A Site Approval application to install a manure digester facility at an existing dairy on an 8.5-acre portion of a 444.68-acre parcel with an existing dairy, the Fred Douma Dairy. The manure digester facility will process manure waste through a gas collection and water filtration system to convert greenhouse gases (GHG) to Renewable Natural Gas (RNG) and convert filtration by-products to fertilizer. The proposal includes the construction of a 11,825 square foot hydrolyzer structure, a 57,600 square foot digester double-lined covered lagoon, a 1,500 square foot shop, and associated equipment. The digester facility will operate 24 hours a day, 7 days a week. The equipment will be automated to minimize on-site employees. There is to be one (1) employee arriving on site in a personal vehicle from 8 a.m. to 5 p.m., 5-days a week. A routine maintenance service truck could arrive weekly. It is anticipated that there will be twenty-eight (28) trucks per day that will be arriving 24 hours a day, 7-days a week. The drivers will perform the loading or unloading of the manure. The donor dairy for this project is Rocking S Dairy at 3125 Ladd Road, Modesto CA 95356. The project site has an existing driveway on S Kasson Road. The project will be served by a private well, septic system, and on-site storm drainage. (Use Type: Agricultural Wastes; Utility Services - Major)
PA-2100238	12925 West Bethany Road, Tracy, CA 95304	A Use Permit application for a Religious Assembly to be developed in 2 phases over 5 years. Phase 1 includes the construction of a 5,000 square foot temple/assembly hall for up to 250 people, and a 3,000 square foot priest quarters dwelling unit. Phase 2 includes the construction of a 12,000 square foot temple building, and a 7,000 square foot addition to the Phase I assembly hall building. Phase II attendance is proposed to increase to 750 people. The project proposes new on-site well and septic, and an on-site retention pond. This parcel is not under a Williamson Act contract.
PA-2100275	7500 West Eleventh Street, Tracy, CA 95304	A Site Approval application to construct a 3,400 square foot convenience store with a 6,273 square foot vehicle fueling canopy (8 gasoline pumps), a 4,905 square foot 4-pump dispenser truck fueling canopy, and a 2,430 square foot carwash. Proposed project includes a new septic system, underground fuel storage tank, underground water reclamation system for the carwash, vacuums, grease interceptor, and trash enclosure. Applicant is proposing to remove an existing commercial building, septic tank, well, underground scales, and free-standing restaurant sign to accommodate new development. This parcel is not under a Williamson Act contract.
PA-2100286	5225 West Eleventh Street, Tracy, CA 95304	A Use Permit application to establish the use of a tow yard at an existing truck parking facility (PA-1700153). Applicant proposes to park a maximum of 11 automobiles at any given time. The proposed tow yard serves as an intermediary parking facility for vehicles that have a final destination of a repair shop. Tow yard parking area to contain a total of 5,226 square feet, paved and fenced. Applicant proposes to

County File Number	Location	Description
		business operations to take place 8am-5pm Monday through Sunday with a total of 2 employees. Applicant will utilize existing well, septic system, and onsite storm drainage. This parcel is not under Williamson Act contract.
PA-2100287		A Site Approval Application for the construction of 176 apartment units to include a total of twenty eight (28) three-story buildings 60 feet in height, and one (1) recreation/leasing office facility with recreation amenities. Application includes a total of 176 two-car garages and 44 uncovered parking spaces, including 3 ADA spaces.
PA-2200027	3372 West Eleventh Street, Tracy, CA 95304	This project is a Site Approval for a truck parking for a maximum of 40 trucks and trailers to be constructed in 2 phases over 5 years. Phase One includes the grading and paving of the truck parking lot. Phase Two includes the construction of a 4,614-square-foot office and truck maintenance building; and an 1,872-square- foot fuel canopy with fuel pumps. The project is proposed to be served by a private well for water, septic system for sewage disposal, and an on-site storm pond for storm drainage. The project site accesses E. Eleventh St. from a private driveway. The project site is not under a Williamson Act Contract.
PA-2200047	270 East Central Parkway, Mountain House, CA 95391	Site Approval application for the construction of a 3-story walk-up luxury apartment project comprised of 336 apartment units. The project will include 18 buildings in a total unit mix of 122 one-bedroom, 156 two-bedroom and 60 three-bedroom units complete with a 7,500-square-foot single-story clubhouse with pool, spa and fitness center. The project will incorporate various amenities including walking trail, a dual-use pickleball/basketball court, a bocce ball court, two detached structures and two dog parks at opposite ends of the site. The entire site will be gated and ample parking is provided through 661 total parking spaces, including 55 single-car garages located along the project southern edge, at a ratio of 1.96 parking spaces per apartment unit. The subject 16.92 acres (APN 209-060-62) is part of a larger application to amend the General Plan/Mountain House Master Plan and Mountain House Specific Plan III to accommodate Residential High Density Uses (R-H) through planning application PA-2100117 and PA-2100118. The proposed Site Approval application will not be concluded until the County Board of Supervisors approves the proposed plan amendments referenced above. The proposed apartment project is located in the boundaries of the Mountain House CSD and public service availability has been confirmed with the MHCSD.
PA-2200049	21199 South San Jose Road, Tracy, CA 95304	This project is a Use Permit application for a religious assembly for a maximum of 49 people. The project proposes converting an 840 square foot garage, and a 408 square foot room within an existing an existing single-family residence to worship space. The project will be served by an on-site well for water, on-site septic system for sewage disposal, and natural storm drainage. The project site has direct access from South San Jose Road. The project site is not under a Williamson Act contract.
PA-2200143	31013 South Tracy Boulevard, Tracy, CA 95377	A Site Approval application for the filling-in and grading of a reclaimed and closed rock quarry in two phases over five years for future agriculture use. Total fill quantity at the conclusion of the project will be approximately 5,538,000 cubic yards of fill dirt. Estimated daily truck trips for the project is 50 to 100 depending on availability of fill material. Fill material will consist of clean, imported material meeting the requirements of the State of California Department of Toxic Substances Control and complying with the California Environmental Screening Levels for excavated materials. Access to the site is from 2 existing driveways at South Tracy Boulevard The project site is not under a Williamson Act contract.
PA-2200149	23751 South Bird Road, Tracy, CA 95304	A Site Approval for a heavy equipment rental and storage yard constructed in 2 phases over 5 years. Phase One to include a 1,440-square-foot office building and storage of equipment outdoors. Phase Two, with permits issued within 5 years, to include a 20,000-square-foot shop which will be used for the maintenance of equipment and additional parking. There is an existing approved operable vehicle storage facility that will continue to operate on site. The project site will utilize well for water, septic for sewer, and natural drainage for storm water. This project site is not under a Williamson Act Contract.

County File Number	Location	Description
PA-2200172	3566 West Eleventh Street, Tracy, CA 95304	A Site Approval to expand an existing truck parking site to include construction of a 4,920 square foot truck repair building, a 240 square foot guard shack, and parking for an additional 548 trailers. The site will utilize an existing well for water, and will construct a new on site septic system and retention pond. Access to the site is from Kasson Road. This parcel is not under Williamson Act contract.
PA-2200201	3334 West Eleventh Street, Tracy, CA 95304	Site Approval application for an off-premises pole sign. The sign is proposed at 50 feet in height with a sign area of 300 square-feet (25x12). This parcel is not under a Williamson Act Contract.
PA-2200255	11703 West Larch Road, Tracy, CA 95304	A Site Approval for a Religious Assembly facility for a maximum occupancy of 50 attendees. The project is proposed to be constructed in 2 phases within 5 years. Phase 1 proposes to construct a 3,000-square-foot prayer hall; 3,000-square-foot storage and office space and 89 parking spaces. Phase 2 proposes to construct a 1,544 -square-foot single-family residence for the priest. The project will be served by on-site well, septic, and storm drainage. The proposed project site has direct access from the northside of W. Larch Rd. The project site is not under a Williamson Act Contract.
PA-2200263	18100 West Byron Road, Tracy, CA 95391	Project Description: The project is a Use Permit application for the construction of the newest Fire Station to serve the northern neighborhoods of the Mountain House Community. The Fire Station is the second and last Fire Station in Mountain House Community and is proposed to be a 1-story, 6,122 square feet building on 1.13 acres. The building site is part of a larger 6-acre parcel zoned PF (Public Facility) located at the north-east corner of Central Parkway and Stockyard Drive. The balance of the site will be developed with parking and landscape as part of a staging area for the adjacent community park and trail system. Once complete, the entire property will be dedicated to the Mountain House Community Service District. The Fire Station and site will be dedicated to the MHCSD upon completion of its construction by Mountain House Developers, LLC. The Fire House building is proposed as a Type V-B construction and will include 2 apparatus bays, 5 bunk rooms, kitchen, dining, day exercise room office and other ancillary support spaces. The building architectural style is Civic Italianate, consistent with the MHCSD Design Guidelines. Building materials will consist of stucco, mission tile roofing, and dark bronze anodized windows and door fixtures. Access to the site will be from future Stockyard Drive, which intersects with Central Parkway (currently under construction). Central Parkway and Stockyard Drive will be signalized to facilitate vehicular turn movements and pedestrian crossings. Utilities (water, sewer, storm drainage, gas, and fiberoptics communication) will be provided to the site from Stockyard Drive. Site development includes parking and drive areas for typical vehicular access and fire truck flow around the building and through the apparatus bay. The site will be fenced with a 7'-high metal picket fence and a sliding horizontal security gate at the entry using fencing style and design as recommended by the MH Design Manuals. The site plan provides 3 public parking spaces outside the secured fence and 10 spaces inside the secured fencing for fire personnel. Other site improvements include a monument sign at the project frontage, site lighting, trash enclosure with roof, mechanical equipment enclosure for a generator and above-ground fuel tank and trellis and patio area for firefighters use. The standby generator is a 125-kilowatt, No. 2 diesel facility (Kohler Model 125REOZ54), constructed of durable steel, sound attenuating housing with quiet operation of 70 dB average at 23 feet. Additionally, the generator will be surrounded on three sides by an 8-feet high masonry wall. The fuel tank is a CONVAULT, 1,000-gallon above-ground steel tank, to be contained in a concrete vault. The Station will be manned by a crew of up to 3 firefighters per shift operating 24 hours a day.
PA-2300005	1140 South Vecindad Street, Mountain House, CA 95391	Site Approval Application for the construction of a a shopping complete to include seven (7) buildings. A 2,500 square feet grocery store, 2500 square feet day care, five (5) 1,500 square feet retail spaces, and a 2,400 square feet retail space.

County File Number	Location	Description
San Joaquin County Projects		
PLN2018-00227	9480 Blessing Drive, Pleasanton CA 94588; Alameda County APN 941-2500-001-00	The project involves the development of a 193.13-acre parcel located at 9480 Blessing Drive. The Project will consist of the construction of a new wood frame single-family home development, partial basement, detached accessory dwelling unit, sports court, and spa with an access driveway.
PLN2021-00231	4001 North Vasco Road, Livermore, California 94551; Alameda County 99B-4901-2-13, 99B-4901-6-5, 99B-4926-1-1, 99B-4926-2-4, 99B-4926-3-3, 99B-4926-1-2, 99B-4926-2-5, 99B-4926-2-6, 902-6-2-2, 99B-4901-2-14, and 99B-4926-2-10.	The project would increase the permitted height and refuse volumes of the landfill, over existing composite-lined cells, in order to extend the estimated closure year to 2051. The expansion would occur entirely within the footprint of the currently permitted fill area.
PLN2020-00093	17015 Cull Canyon Road, Castro Valley, CA 94552, Alameda County APN 085-1200-01-16	The project would consist of demolishing an existing 7,500-square-foot garage, improving an existing bridge to meet fire code access requirements, improving trails and miscellaneous dirt or gravel roads, and constructing twelve 400-square-foot camping cabins; a two-story, 40-foot-high, 8,500-square-foot central meeting and dining hall; a 1,025-square-foot restroom/shower building; a two-story 2,600-square-foot staff housing building; a 1,200-square-foot caretaker's unit; and sewer infrastructure that includes an on-site septic tank with a leach field dispersal system. The proposed project, including all recreational facilities and caretaker residences, would encompass an area totaling 2 acres.
PLN2020-00288	8588 Tesla Road, Livermore, California, 94550; Alameda County APN 099A-1625-002-07	The proposed project consists of the construction and operation of a cannabis facility consisting of 20 hoop house structures with a total of 20,000 square feet (SF) of mature plant canopy and one hoop house with a total of 3,000 SF of immature plant canopy. The proposed project would also include the construction of four water tanks and other ancillary improvements, including security fencing and lighting, access, and parking.
PLN2021-00124	West Grant Line Road and Great Valley Parkway, 95391; Alameda County APN 99B-7650-7-1	The project will construct, install, operate, and maintain an approximately 2 MW alternating current (AC) solar photovoltaic (PV) facility. The power generated by the proposed project will be transmitted by Pacific Gas and Electric's (PG&E) distribution system at 12 kilovolts (kV) via the Herdlyn 1102 substation, located approximately 4.5 miles north of the project site, on Byron Highway near Clifton Court Forebay. The project would involve the construction of three new on-site utility poles along West Grant Line Road.
PLN2017-00194	3656 Las Colinas Road, Livermore, CA 94551; Alameda County APN 099-0015-016-03	The Project would include a funeral home with crematorium, burial lots, an entry plaza, internal roadways, parking, landscaping, new wetlands, lakes, and other associated infrastructure and improvements.
PLN2018-00258	7033 Morgan Territory Road, Livermore, CA 94551; Alameda County APN 903-0007-001-01	The project would consist of growth and cultivation of cannabis on a 92.52-acre property. The proposed project would include development of a 34,213 square foot (sf) greenhouse building, a 6,480-sf processing building, and a 28-stall parking lot. The processing building would house product processing such as dry rooms, a trim room, storage room, office, maintenance and the employee areas.
PLN2017-00174	1815 Manning Road, Livermore, CA 94551; Alameda County APNs 903-0006-001-02, 903-0006-003-07, 903-0007-002-01, 902-0001-005-00	The project includes construction and operation of a solar energy production (up to 100 megawatts) facility with associated battery storage using photovoltaic panels over a mostly contiguous 533-acre site. A parcel map subdivision to separate a roughly 150-acre portion of one Project parcel from the Project development site is also proposed.

County File Number	Location	Description
PLN2019-00024	Ruby Street and A Street, Castro Valley, CA 94546; Alameda County APNs 415-230-2, -3, -5, -11, -12, -13, -14, -15, -16, -17, -18, -19, -21, -22, -23, -24, -69, -70, -72, and -73.	The project includes a single four-story apartment building to contain 72 dwelling units affordable to low- and very-low income households and 109 surface parking spaces on a 2.95-acre site, together with a creek-side bicycle/pedestrian trail.
PLN2016-00210	Fairview Avenue and Walter Dinos Court, Fairview, CA 94542 APNs 417-0260-004-00, 417-0270-003-00, 4170270-006-00 and 417-0270-009-00.	The project will subdivide four existing lots totaling 14.3 acres by Vesting Tentative Tract Map 8057 into 27 single family lots and five common lots for open space and stormwater treatment, with access from a new private roadway from Fairview Avenue, unincorporated Fairview area of Alameda County.
PLN2017-00161	Byron-Bethany Highway and Mountain House Road 94514; Alameda County APN 99B-7100-3-1	The project includes a solar photovoltaic energy generation and storage project, consisting of single-axis tracking solar photovoltaic panel arrays capable of producing approximately 20 MW of electricity, and a battery system able to store approximately 20 MW of energy.
PLN2018-00217	20095 and 20097 Mission Boulevard, Cherryland, CA 94541; Alameda County APNs 414-0021-060-00, 414-0021-061-00, 414-0021-078-00, 414-0021-079-00, and 414-0021-080-00.	The project includes an agreement for the sale of the project site from the County of Alameda to a private developer, which would allow for the applicant to submit an application for construction of a mixed-use infill development with approximately 67 residential units, 13,900 square feet of commercial space, 14,500 square feet of outdoor leasable customer-serving space, and 90 shared on-site parking spaces. The project would adjust the lot lines of the five separate parcels to facilitate the proposed development.
PLN2015-00087	15850 Jess Ranch Road, Livermore, CA 94550; Alameda County APN 99B-7800-00708	The project will receive and process organic materials, primarily greenwaste, foodwaste, and biosolids, but would also receive untreated scrap wood, natural fiber products, non, recyclable paper waste, and inert material, such as sediment, gypsum, wood ash, and clean construction debris. Initially, the Project will realize a daily throughput of up to 500 tons per day, increasing up to a maximum of 1,000 tons per day, producing compost erosion control and land-based soil amendments for agricultural, horticultural, reclamation uses. Use of office space for administrative tasks is also included.
PLN2021-00096	17338 Langton Way, Hayward, CA 94541; Alameda County APN 414-6-45-2	The project includes construction of a double-sided electronic billboard at 17338 Langton Way and removal of five existing sign structures with 10 traditional, static billboard signs: one structure at 17081 East 14th Street, one structure at 910 East Lewelling Boulevard, one structure at 2860 Castro Valley Boulevard, and two structures at 970 East Lewelling Boulevard. The new billboard will be V-shaped with west- and east-facing light-emitting diode displays visible to vehicles traveling eastbound or westbound on I-238.
PA-2100207	26901 S Hansen Road, Tracy, CA 95377; San Joaquin County APN 209-110-10	The project will expand an existing unmanned trailer parking and storage facility from 200 trailers to a total of 439 trailers. The project proposes utilizing an existing onsite well and a new onsite stormwater retention pond and bioswale. Access to the facility will be permitted 7 days a week, 24 hours a day through a single, secured, gated driveway that fronts Hansen Road.
PA-2000083	West side of South Hansen Road, 3,850 feet south of West Schulte Road, Tracy, CA 95377; San Joaquin County APN	The project will legalize a previously constructed 507 square foot addition to an existing non-conforming residence in the General Industrial zone, legalize a previously constructed 378-square-foot guest cottage, and legalize a previously constructed 324-square-foot covered cabana. The second use is to establish a tow yard-and legalize the construction of a 7,728-square-foot shop building for the towing business.

County File Number	Location	Description
PA-2100119	22261 S Mountain House Parkway, Tracy, CA 95377	The project includes a Master Plan Amendment and Specific Plan III Amendment primarily focus on changes to the map figures and text of these documents to conform to the proposed final maps for Neighborhoods A and B (Areas A7, B6, B7, and B8). The B8 area of development (Machado Properties) also includes the repurposing of the school site into residential development. Readjusting 8.5 acres of Industrial Park and Office Commercial of the properties located at the southwest corner intersection of Mountain House Parkway and Grant Line Road. Also, a minor repurposing of 32.92 acres of Industrial Park to 16.0 acres of Mixed Use and 16.92 acres High Density Residential along property adjacent to I-205, east of Delta College. The two Major Subdivision applications will include the development of one 143.34 acre parcel and one 35.8 acre parcel.
PA-0500838 and PA-0600161	22261 S. Mountain House Parkway, Tracy, CA 95377 APNs 209-060-65, -66, & -67	Revisions of Approved Actions application for 2 previously approved Major Subdivisions to amend Condition of Approval number I.4. Agricultural Mitigation Fee. The applicant is proposing that the Condition of Approval be replaced with the current Development Title Chapter 9-1080 requirement of fulfilling the agricultural mitigation requirement prior to the issuance of a Grading or Building Permit.
	17950 Midway Road, Tracy, California (APN 099B-7950-001-03)	The project would include 700 MW of battery energy storage on approximately 50 acres of a 108.48-acre site in Alameda County, constructed in 2 phases. The project would interconnect at the PG&E Tesla Substation adjacent to the site via a 230 kV interconnection gen-tie line. Construction of the Kola Interconnect Battery Energy Storage Project would overlap with construction of the proposed Project.

2.7 REFERENCES

Alameda County. 2020. Chapter 6.60 Noise. In: *Alameda County Code.*

Alameda County Fire Department. 2022. Available online at: https://fire.acgov.org/service-area-map/ (accessed May 2023).

San Joaquin County. 2021. Municipal Code. Title 9—Development Title. Available online at: https://library.municode.com/ca/san_joaquin_county/codes/development_title?nodeId=TIT9DETI (accessed December 9, 2021).

Tracy Rural Fire District. 2022. Response Area. Available online at: https://www.tracyruralfire.org/response-area (accessed April 13, 2022).

3 ALTERNATIVES

3.1 PURPOSE OF THE PROJECT ALTERNATIVES

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) describe a range of reasonable alternatives to the Project, or to the location of the Griffith Energy Storage Project (Project), which could feasibly avoid or lessen any significant environmental impacts while substantially attaining the basic objectives of the Project. An EIR should also evaluate the comparative merits of the alternatives. This chapter describes potential alternatives to the proposed Project that were considered, identifies alternatives that were eliminated from further consideration and reasons for dismissal, and analyzes available alternatives in comparison to the potential environmental impacts associated with the proposed Project.

Key provisions of the CEQA Guidelines pertaining to the alternatives analysis are summarized below:

- The discussion of alternatives shall focus on alternatives to the proposed Project or its location that are capable of avoiding or substantially lessening any significant effects of the proposed Project, even if these alternatives would impede, to some degree, the attainment of the proposed Project Objectives or would be more costly.
- The No Project Alternative shall be evaluated along with its impact. The No Project analysis shall discuss the existing conditions at the time the Notice of Preparation (NOP) is published. Additionally, the analysis shall discuss what would be reasonably expected to occur in the foreseeable future if the proposed Project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a “rule of reason”; therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. Alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the proposed Project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the proposed Project need to be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and inform decision-making. Among the factors that may be taken into account when addressing the feasibility of alternatives are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose effects cannot be reasonably identified, whose implementation is remote or speculative, or that would not achieve the basic Project Objectives.

3.2 PROJECT OBJECTIVES

The Applicant has identified the following Project Objectives:

1. Construct and operate a 400-megawatt (MW) battery energy storage system (BESS) in San Joaquin County with an interconnection at the Tesla Substation (located in Alameda County) in a cost-competitive manner.
2. Assist California utilities in meeting their obligations under California's Renewable Portfolio System (RPS) Program and Senate Bill (SB) 100, which calls for 100 percent of all electricity sold in California to come from carbon-free resources by the year 2045, including 60 percent renewables by 2030, and SB 1020, which requires utility providers to supply 90 percent and 95 percent of supplied electricity from renewable sources by 2035 and 2040, respectively.
3. Assist California utilities in meeting their obligations under the California Public Utilities Commission (CPUC) Energy Storage Framework and Design Program.
4. Provide for the economically viable, commercially financeable, and environmentally beneficial use of the site's limited agricultural capacity due to the absence of available irrigation.
5. Develop a site in proximity to transmission infrastructure to minimize environmental impacts.
6. Develop a battery energy storage facility in San Joaquin County, which would support the economy by investing in the local community, creating local construction jobs, and increasing tax and fee revenue to the County.

3.3 ALTERNATIVES CONSIDERED AND ELIMINATED

Section 15126.6(c) of the CEQA Guidelines requires that an EIR identify alternatives that were considered for analysis but rejected as infeasible and briefly explain the reasons for their rejection.

According to the CEQA Guidelines, the following factors may be used to eliminate alternatives from detailed consideration: the alternative's failure to meet most of the basic Project Objectives, the alternative's infeasibility, or the alternative's inability to avoid significant environmental impacts.

Alternatives to the proposed Project should include those that would obtain most of the Project Objectives (listed above), while reducing one or more of the significant and unavoidable impacts of the proposed Project. In addition, CEQA requires that the No Project Alternative be evaluated and requires that an Alternative Site Location be considered when appropriate.

3.3.1 Conservation and Demand Side Management

The County considered whether a conservation and demand side management could provide a viable potential alternative to the Project. Conservation and demand side management consists of several strategies to reduce electricity use and shift electrical demand to times of the day when energy demand is lower. It includes increased energy efficiency and conservation, building and appliance standards, fuel substitution, and load management. Implementation of conservation and demand side management techniques could result in a reduction in demand during certain times of the day, thus reducing the need for additional energy storage facilities. While

conservation and demand side management approaches are part of a sustainable energy future, this potential alternative was not carried forward for more detailed consideration because it would not meet most of the basic objectives of the Project, it relies on speculation regarding future behavior, and it would be infeasible from a technical perspective.

Increased energy efficiencies and reductions in energy demand would not meet Project Objectives. For example, they would not result in a 400-MW BESS in San Joaquin County; would not assist California utilities in meeting their obligations under either California's RPS Program and SB 100, or the CPUC's Energy Storage Framework and Design Program; and would not provide for the economically viable and environmentally beneficial use of a site with physically impaired agricultural capacity.

This potential alternative also was not carried forward because reliance on conservation and demand side management alone would be a technically infeasible alternative to the Project and would be speculative. California's long-term Energy Efficiency Strategic Plan (adopted by the CPUC in September 2008 and updated in January 2011) provides an integrated framework of goals and strategies for saving energy through 2020 (CPUC 2011). The plan champions specific programmatic initiatives for key market sectors (i.e., commercial, residential, industrial, and agricultural) and a series of "big bold energy efficiency strategies," including all new residential construction being zero net energy by 2020 and all new commercial construction being zero net energy by 2030. Given the aggressiveness of these goals, it would be speculative to assume that incremental savings beyond them could be achieved. While energy efficiency efforts have been effective and will continue to be part of California's overall energy future, conservation and demand side management alone will not be sufficient to address California's rising energy demand.

3.3.2 Alternative Sites Feasibility Analysis

The Applicant used a number of criteria to screen alternative sites for feasibility to function as a 400-MW BESS site in San Joaquin County. These criteria included the following:

- Proximity to the Tesla Substation (i.e., within 1 mile to minimize the length of the generation tie (gen-tie) line and associated energy loss);
- Zoning compatible with renewable energy (i.e., AG, I-W, I-L, I-G, P-F, or R zones);
- Enough acreage for desired Project size (i.e., at least 40 acres in size);
- Minimize the number of parcels crossed by the gen-tie line to reduce the number of landowner negotiations required (i.e., three or fewer parcels crossed);
- North of the rail line to avoid crossing a rail corridor with the gen-tie line; and
- South and west of Interstate 580 to avoid crossing the interstate with the gen-tie line.

Identification of sites that met these criteria resulted in the selection of the Northern Site Alternative, which was carried forward for analysis and is described below.

3.4 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

In addition to the mandatory No Project Alternative, a Project on the same parcel, but in the southeastern portion of the property, and an offsite Project north of West Patterson Pass Road

were considered to potentially lessen or avoid significant environmental effects resulting from implementation of the proposed Project. Alternatives considered in this Draft EIR include:

3.4.1 No Project Alternative

According to the CEQA Guidelines (Section 15126.6(e)(3)(b)), the No Project Alternative is defined as the "circumstance under which the project does not proceed." This analysis will discuss the existing conditions at the time the NOP is published (the environmental baseline) and what could be expected to occur if the proposed Project is not built.

Under the No Project Alternative, the Project site would continue to be used for agricultural grazing. If the Project is not approved, the land could be used for another approved use under the San Joaquin County Zoning Ordinance. Currently, there are no competing proposals for the Project site that would be one of the other approved uses. The analysis of the No Project Alternative assumes a No Project situation where the existing agricultural use would be continued as it exists under its current conditions.

In the No Project Alternative, the existing environmental setting would be maintained. Changes to the setting, including changes to the landscape (e.g., visual resources, habitat, and land use/agriculture); Project-related impacts, such as construction noise, traffic, and air emissions, would not occur; and potential ground disturbance impacts to cultural and tribal resources and wildlife habitat would not occur. Additionally, the environmental benefits of energy storage would not be realized from development of the site.

Under the No Project Alternative, all Project-related impacts would be avoided due to the lack of development of the Project site. There would be no new impacts to the environment. No feasibility issues have been identified which would eliminate the No Project Alternative from consideration; however, the No Project Alternative would not meet any of the Project Objectives. Additional analysis of the alternatives is included in Chapter 5.

3.4.2 Three-Terrace Southeast Corner Alternative

Under the Three-Terrace Southeast Corner Alternative, the site would be set back from residences along West Patterson Pass to the north and Midway Road to the west. The facilities would be sited on three terraces with approximately the same final footprint as the Project. Site preparation would require 472,822 cubic yards of cut (65,898 cubic yards more than the Project) and 476,911 cubic yards of fill (71,270 cubic yards more than the Project), as shown in Figure 3-1.

Compared to the Project, the Three-Terrace Southeast Corner Alternative would potentially reduce the Project's impacts to aesthetics and noise, due to the increased setback from existing residences. Though none of these Project impacts are significant after mitigation, the Three-Terrace Southeast Corner Alternative, by reducing the proximity of noise-emitting visible facilities to residences, would reduce the potential for aesthetic and noise impacts compared to the Project. The Three-Terrace Southeast Corner Alternative would entail greater amounts of earthwork, generating more construction dust, increased construction and decommissioning emissions associated with earthwork equipment, and increased demand for water for dust suppression. Additionally, this alternative would have a greater potential to disturb cultural resources. The Three-Terrace Southeast Corner Alternative would have greater impacts on air quality, cultural resources, hydrology and water quality, and tribal cultural resources. Compared to the Project,

the Three-Terrace Southeast Corner Alternative is anticipated to have similar impacts to agriculture due to the cancellation of the property's Williamson Act contract.

The Three-Terrace Southeast Corner Alternative would meet the Project Objectives to provide 400 MW of energy storage in San Joaquin County in a cost-effective manner (Project Objective 1). It would be feasible and may reduce impacts to aesthetics and noise; however, it would result in greater impacts to air quality, cultural resources, hydrology and water quality, and tribal cultural resources, such that it would not be the most efficient and environmentally beneficial use of the site's limited agricultural capacity (Project Objective 4). The gen-tie line to the Tesla Substation would also be approximately 800 feet longer, such that the alternative would not achieve Project Objective 5 to minimize gen-tie length. Additional analysis of the alternatives is included in Chapter 5.

3.4.3 Northern Site Alternative

The Northern Site Alternative would relocate the Project to the parcel north of the Project site and north of West Patterson Pass Road, which consists of a parcel approximately 142 acres in size, shown in Figure 3-2. The Northern Site Alternative is mapped as Grazing Land and Farmland of Local Importance by the California Department of Conservation (DOC; DOC 2023). It is designated as Agriculture (A/G) in the San Joaquin County General Plan and the parcel is zoned AG-160. The Northern Site Alternative parcel is an agricultural preserve with a Williamson Act contract.

The Northeast Site Alternative site size is approximately 36 acres larger than the Project site; however, it is anticipated that the same amount of acreage would be used for battery storage facilities as the Project to achieve 400 MW of energy storage. An ephemeral drainage bisects the site (USGS 2023), on which facilities would not be built to avoid impacts to biological resources. Compared to the Project, the Northern Site Alternative is anticipated to have similar impacts to agriculture due to the cancellation of the Williamson Act contract. It would have increased impacts to aesthetics, biological, cultural, hydrology and water quality, and tribal cultural resources due to the site's greater distance from the point of change of ownership identified by Pacific Gas and Electric at the southwest corner of the Tesla Substation and the associated additional ground disturbance and Project footprint associated with a longer gen-tie line.

The Northern Site Alternative would meet the Project Objectives to provide 400 MW of energy storage in San Joaquin County in a cost-effective manner (Project Objective 1). It is unknown if the landowner would be amenable to the Project, such that it may not be commercially financeable and it would result in greater impacts to aesthetics, biological, cultural, hydrology and water quality, and tribal cultural resources, such that it would not be the most efficient and environmentally beneficial use of the site's limited agricultural capacity (Project Objective 4). The gen-tie line to the Tesla Substation would also be approximately 3,000 feet longer and would require crossing West Patterson Pass Road, such that the alternative would not achieve Project Objective 5 to minimize gen-tie line length. Additional analysis of the alternatives is included in Chapter 5.

3.4.4 References

CPUC (California Public Utilities Commission). 2011. Energy Efficiency Strategic Plan. Available online at: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/energy-efficiency/energy-efficiency-strategic-plan. (accessed February 16, 2023).

DOC (California Department of Conservation). 2023. California Important Farmland Finder. Available online at: https://www.conservation.ca.gov/dlrp/fmmp/Pages/county_info.aspx. (accessed February 2, 2023).

USGS (U.S. Geological Survey). 2023. National Hydrography Dataset. Available online at: https://www.usgs.gov/national-hydrography/national-hydrography-dataset (accessed February 2, 2023).

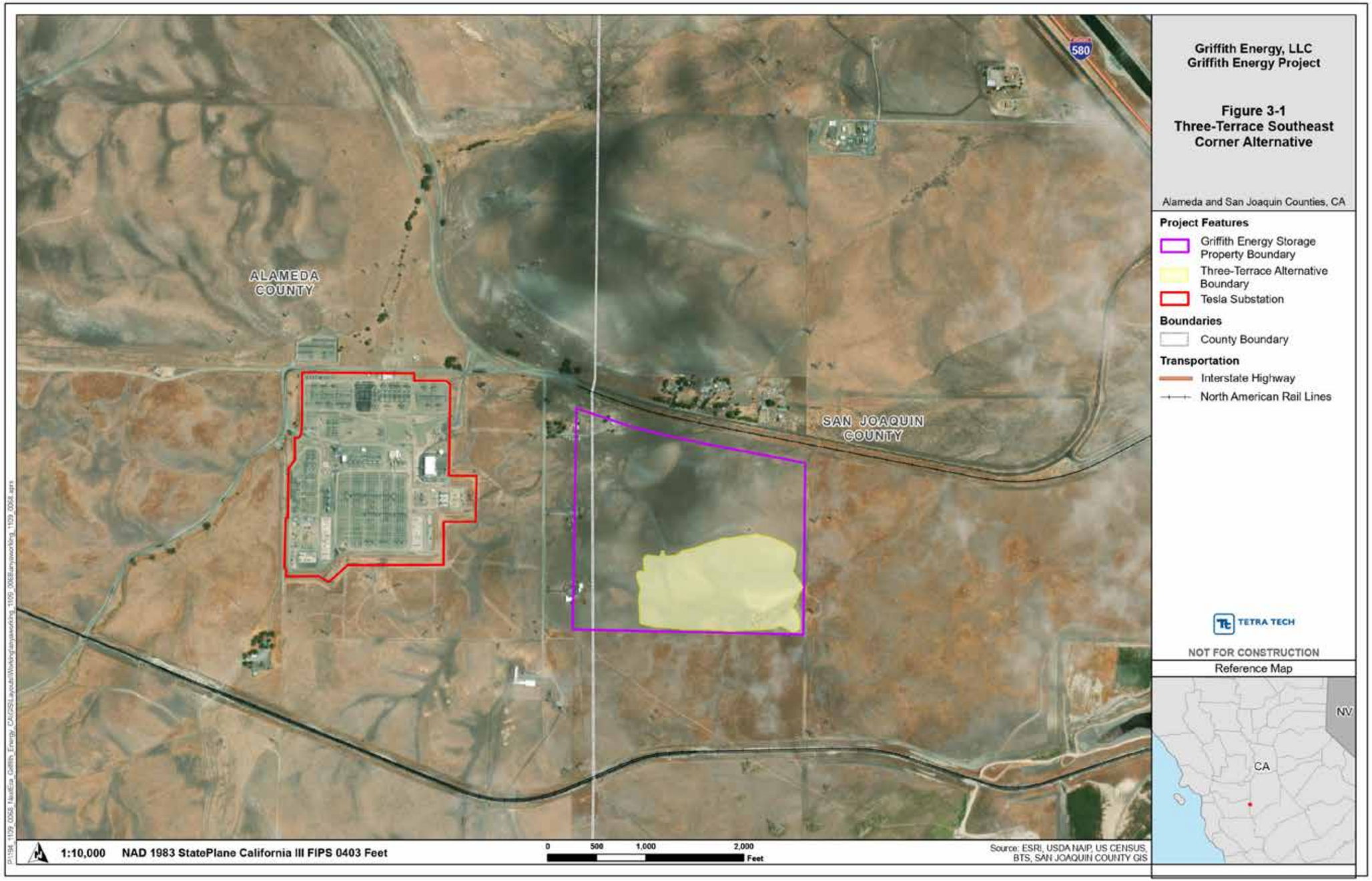


Figure 3-1. Three-Terrace Southeast Corner Alternative

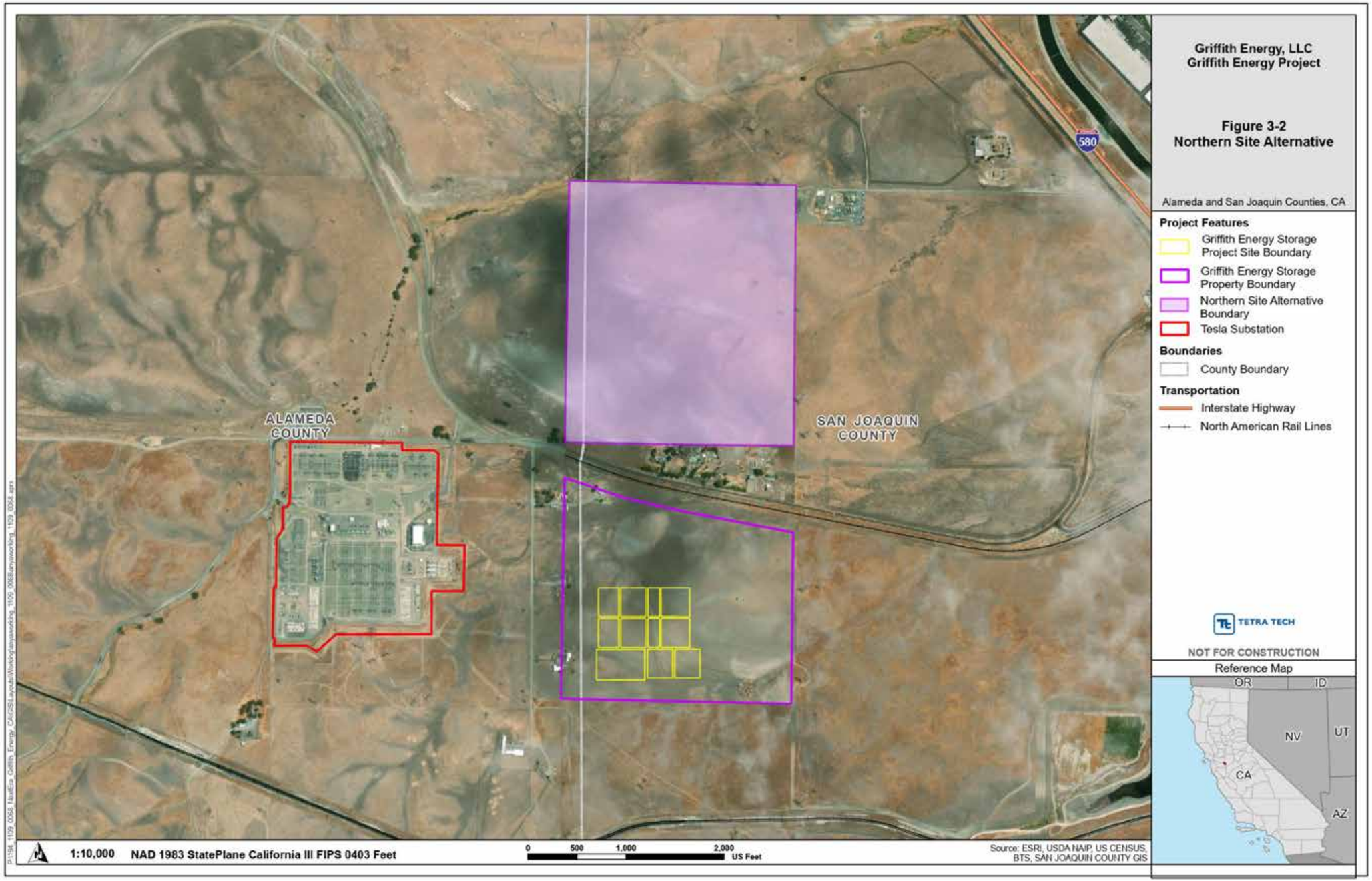


Figure 3-2. Northern Site Alternative

4 ENVIRONMENTAL ANALYSIS

4.1 AESTHETICS

This section identifies and evaluates issues related to aesthetic resources in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) did not receive scoping comments related to aesthetic resources.

A separate Visual Impact Assessment was prepared for the proposed Project and is provided as Appendix C of this Draft Environmental Impact Assessment (EIR). The following discussion includes summaries and provides specific discussions of results and conclusions.

4.1.1 Aesthetics Concepts and Methodology

Individuals' values, familiarity with a landscape, concern for a landscape, or interpretation of scenic quality can lead to varying individual determinations of scenic quality and varying individual responses to changes made to a landscape. Due to unique individual attachments to values for a particular landscape, visual changes will inherently affect viewers differently. However, general assumptions can be made about viewer sensitivity to scenic quality and visual changes. For the purpose of this analysis, visual or aesthetic resources are defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of a given environment.

4.1.1.1 Visual Change Criteria

Visual impacts are generally defined in terms of a project's physical characteristics and potential visibility, as well as the extent to which the project's presence would change the perceived visual character and quality of the environment in which it would be located. Tetra Tech followed the contrast rating system used by the U.S. Bureau of Land Management (BLM) to objectively measure potential changes to the visual environment (BLM 1986). The BLM's contrast rating system is commonly used by federal agencies to assess potential visual resource impacts from proposed projects and is also commonly used for non-federal projects due to its usefulness in providing a quantitative system of analysis.

Potential visual impacts were characterized by determining the level of visual contrast introduced by the Project based on comparing existing conditions and photo simulations. Visual contrast is a means to evaluate the level of modification to existing landscape features. Existing landscape is defined by the visual characteristics (form, line, color, and texture) associated with the landform (including water), vegetation, and existing development.

The BLM's Visual Resource Inventory (VRI) classification system is a baseline description of the existing scenic values in the environment. The VRI identifies the visual resources of a given area and based on specific standards, assigns an inventory class to each area. This process, further described in detail in BLM Manual H-8410-1 (BLM 2010), involves rating the resource's visual qualities, measuring public concern, and determining the extent to which an area is visible from travel routes and other observation points. Those three factors then determine which of the four

VRI classes are assigned to each area of BLM-administered lands based on visual sensitivity level (high, medium, and low), scenic quality, and distance. These four VRI classes represent the relative values of the existing visual resources. VRI Classes I and II represent the highest visual value, Class III represents moderate value, and Class IV represents relatively low visual value.

Specific terminology used in describing the existing visual environment is provided below.

- *Contrast.* Opposition or unlikeness of different forms, lines, colors, or textures in a landscape.
- *Contrast rating.* A method of analyzing the potential visual impacts of proposed management activities.
- *Form.* The mass or shape of an object or objects that appears unified, such as a vegetative opening in a forest, a cliff or mountain formation, a water tank, or a highway overpass.
- *Key Observation Point (KOP).* One or a series of points on a travel route or at a use area or potential use area, where the view of a management activity would be most revealing.
- *Landscape Visibility.* Perception of details (e.g., form, line, color, and texture) diminishes with increasing distance. The distance zone is dependent on the location of the observer relative to the Project. These distance zones are:
    - Foreground and middle ground: zero to 5 miles from point of interest
    - Background: remaining area up to 15 miles away from the point of interest
    - Seldom seen: over 15 miles from the point of interest
- *Scenic quality*. A measure of the visual appeal of a tract of land. In the visual resource inventory process, the apparent scenic quality is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.
- *Sensitivity level.* Sensitivity levels are a measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels by analyzing the various indicators of public concern.
- *Simulation.* A realistic visual portrayal that demonstrates the perceivable changes in landscape features caused by a proposed management activity. This is done using photography, artwork, computer graphics, and other such techniques.
- *Texture.* The visual manifestations of the interplay of light and shadow created by the variations in the surface of an object or landscape.
- *Viewshed.* A landscape unit seen from a KOP.
- *Visual quality.* The relative worth of a landscape from a visual perception point of view.
- *Visual resource.* The visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features).

Scenic quality is a measure of the visual appeal of a tract of land. The apparent scenic quality of the land is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. During the rating process, each of these factors is ranked on a comparative basis with similar features within the project area. The BLM Visual Resource Management approach allows the various landscape elements that comprise visual

quality to be quantified and rated with a minimum of ambiguity or subjectivity, which can be easily understood and compared by the reader.

According to this method, visual quality is rated according to the presence and characteristics of seven key components of the landscape. These components include landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications, defined as follows:

1. The ***landform*** component of the visual quality rating criteria takes into account the fact that topography becomes more interesting visually as it gets steeper or more massive, or more severely or universally sculptured. Outstanding landforms may be monumental (as found in Yosemite Valley), or they may be exceedingly artistic and subtle (such as certain ridgelines, pinnacles, peaks, and other extraordinary formations).
2. The ***vegetation*** component of the rating criteria gives primary consideration to the variety of patterns, forms, and textures created by plant life. Short-lived displays are given consideration when they are known to be recurring or spectacular. Consideration also is given to smaller scale vegetational features that add striking and intriguing detail elements to the landscape (e.g., hedgerows or trees, native grasses, etc.).
3. The ***water*** component of the rating criteria recognizes that visual quality is largely tied to the presence of water in scenery, as it is that feature which adds movement or serenity to a scene. The degree to which water dominates the scene is the primary consideration in selecting the rating score for the water component.
4. The ***color*** component of the visual quality rating criteria considers the overall color(s) of the basic components of the landscape (e.g., soil, rock, vegetation, etc.). Key factors that are used when rating the color of scenery are variety, contrast, and harmony.
5. The ***adjacent scenery*** component of the rating criteria takes into account the degree to which scenery outside the view being rated enhances the overall impression of the scenery under evaluation. The distance of influence for adjacent scenery normally ranges from zero to 5 miles, depending on the characteristics of the topography, the vegetation cover, and other such factors. This factor generally is applied to views that normally would rate very low in score, but the influence of the adjacent high visual quality would enhance the visual quality and raise the score.
6. The ***scarcity*** component of the visual quality rating criteria provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique or rare within a region. There may also be cases where a separate evaluation of each of the key factors does not give a true picture of the overall scenic quality of an area. Often, it is a number of not-so-spectacular elements in the proper combination that produces the most pleasing and memorable scenery. The scarcity factor can be used to recognize this type of area and give it the added emphasis it should have.
7. The ***cultural modifications*** component of the visual quality rating criteria takes into account any humanmade modifications to the landform, water, vegetation, and/or the addition of humanmade structures. Depending on their character, these cultural modifications may detract from the scenery in the form of a negative intrusion, or they may complement and improve the scenic quality of a view.

Based on the criteria above, views are rated numerically and a total score of visual quality can be tabulated. Table 4.1-1 summarizes the points associated with the various criteria. Based on this rating system, there are a total of 32 possible points. Views that score a total of 19 points or more are typically considered very high in visual quality (Class I). Views that score a total of 12 to 19 points typically are considered to have a high to above average level of visual quality (Classes II and III). Finally, views that score a total of 11 points or less typically are considered to have average or lower visual quality (Class IV). Table 4.1-2 summarizes the points associated with the various criteria.

Using the criteria below, the visual quality of the existing visual conditions and the post-Project ("simulated") visual conditions will be rated. The scores will determine the Project site's existing visual class and evaluate whether the Project will result in a lower visual class and the degree of change between the existing and post-project visual conditions.

Table 4.1-1. Visual Quality Inventory and Evaluation Chart

Key Factors	Rating Criteria and Score		
Landform	High vertical relief as expressed in prominent cliffs, spires, or massive rock outcrops; or severe surface variation or highly eroded formations, including major badlands or dune systems; or detail features dominant and exceptionally striking and intriguing such as glaciers. Score 5	Steep canyons, mesas, buttes, cinder cones, and drumlins; or interesting erosional patterns or variety in size and shape of landforms; or detail features that are interesting though not dominant or exceptional. Score 3	Low rolling hills, foothills, or flat valley bottoms; or few or no interesting landscape features. Score 1
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns. Score 5	Some variety of vegetation, but only one or two major types. Score 3	Little or no variety or contrast in vegetation. Score 1
Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape. Score 5	Flowing or still, but not dominant in the landscape. Score 3	Absent or present, but not noticeable. Score 0
Color	Rich color combinations, variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water, or snow fields. Score 5	Some intensity or variety in colors and contrast of the soil, rock, and vegetation, but not a dominant scenic element. Score 3	Subtle color variations, contrast, or interest; generally muted tones. Score 1
Influence of adjacent scenery	Adjacent scenery greatly enhances visual quality. Score 5	Adjacent scenery moderately enhances overall visual quality. Score 3	Adjacent scenery has little or no influence on overall visual quality. Score 0
Scarcity	One of a kind; or unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc. *Score 5+	Distinctive, though somewhat similar to others within the region. Score 3	Interesting within its setting, but fairly common within the region. Score 1
Cultural modifications	Modifications add favorably to visual variety while promoting visual harmony. Score 2	Modifications add little or no visual variety to the area and introduce no discordant elements Score 0	Modifications add variety, but are very discordant and promote strong disharmony. Score -4

* A rating of greater than 5 can be given, but must be supported by written justification.

Source: BLM 2010

The Project will also be evaluated as to the level of contrast Project elements exhibit to the existing visual character of the Project site and area, as shown in Table 4.1-2.

Table 4.1-1. Degree of Contrast Rating System

Degree of Contrast	Rating Criteria
None	The element contrast is not visible or perceived.
Weak	The element contrast can be seen but does not attract attention.
Moderate	The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Source: BLM 2010

Contrast ratings for the expected condition with the Project were prepared for each representative viewpoint using a form adapted from BLM's Visual Contrast Rating Worksheet (Form 8400-4); the results are included in Appendix C.

In general, visual impacts are determined based on the level of contrast the project introduces to the existing visual character of the project site and area, the sensitivity of the viewers, and the visibility of the project site. If these factors result in a change in visual class and/or a significant change in visual quality ratings, the impacts are likely to be adverse.

4.1.1.2 Viewshed

The viewshed is generally the area that is visible from an observer's viewpoint and includes the screening effects of intervening vegetation and/or physical structures. Although some portion of the Project site may be visible from a relatively large area, the degree of visibility would depend on distance and view angle. Generally, the Project site would be most visible from viewpoints within 1 mile, while site visibility would diminish as distance increases and view angle decreases. Air quality, including dust and other visible particulates, can affect visibility in the area. Distance is only one of the factors that determine visibility of a site from a viewpoint. Terrain, vegetation, and structural features can obscure views that might otherwise be available at a certain distance.

A viewshed analysis is a graphic representation of locations that may have views of all or portions of the Project based on topography within the Project Zone of Visual Influence (ZVI). A viewshed analysis is a graphic representation of the seen and unseen areas adjacent to the Project based on topography within the Project ZVI. The viewshed analysis was conducted using Esri ArcGIS geographic information system (GIS) software with the Spatial Analyst extension to process 10-meter digital elevation models, the height of the battery storage enclosures, and the gen-tie line above ground surface (Figure 4.1-1). The viewshed assumed "bare earth" conditions and was run from the Project area looking out to determine areas with potential visibility. The assumed "bare earth" conditions mean identification of areas with potential views of the Project were based on topography only. The analysis is also conservative because it does not account for screening by intervening structures, vegetation, curvature of the earth, small terrain changes, atmospheric conditions and attenuation, or other features. The ZVI was used to assist with the identification of potential KOPs.

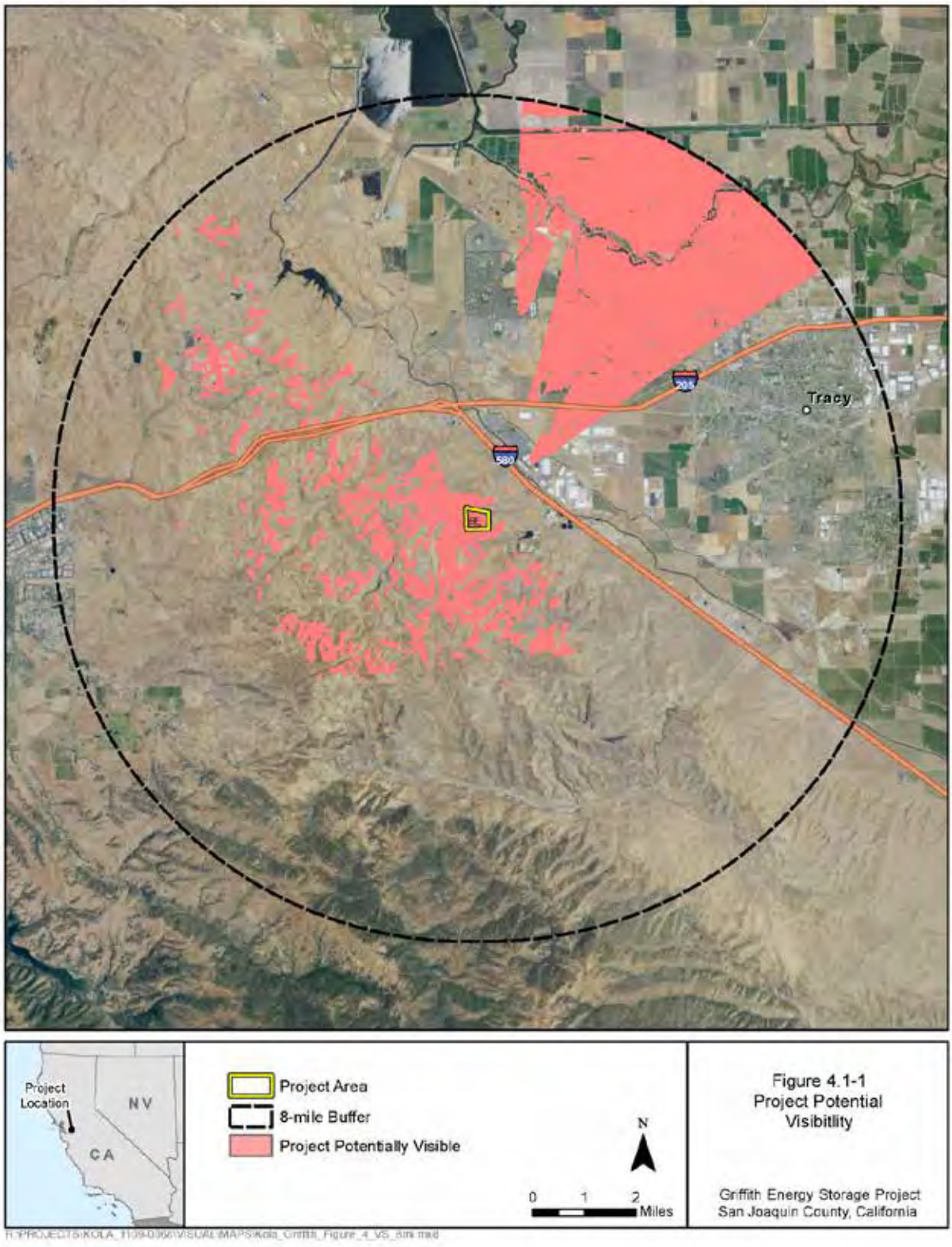


Figure 4.1-1. Project Potential Visibility

4.1.1.3 Key Observation Points

Based on the ZVI and the identification of publicly accessible routes and viewpoints, potential KOPs were identified and further assessed during the field assessment. KOPs were identified based on locations from which the Project infrastructure would potentially be visible and noticeable to the casual observer. The "casual observer" is considered an observer who is not actively looking or searching for the Project, but who is engaged in activities at locations with potential views of the Project, such as hiking or driving along a scenic road. If the Project infrastructure is not noticeable to the casual observer, visual impacts can be considered minor to negligible.

Six KOPs were selected as representative vantage points in the landscape that offer motorists traveling on area roadways and local residents views of the proposed Project site (Figure 4.1-2). These KOPs provide views from the closest roadways to the Project site from publicly accessible areas.

Factors considered in the selection of KOPs included locations with sensitive viewers (e.g., local residences and motorists on nearby roadways) and potential for the Project site to be visible (e.g., distance and view angle). The KOPs were selected to capture representative vantages from I-580, local roadways, and residences.

Digital photographs were taken from the selected KOP locations to support the discussion on existing visual setting and the analysis of potential visual impacts associated with the proposed Project site (Figures 4.1-3 through 4.1-8). Photographs of existing conditions were taken on May 24, 2022, using a digital single-lens reflex Canon 5D Mark III camera.

4.1.1.4 Visual Simulations

Three-dimensional (3D) visual simulations from representative KOP photographs were rendered to approximate the visual conditions caused by Project implementation. Using the photographs acquired at each KOP, a 3D physical massing model was created that incorporated the photovoltaic (PV) scale model, placed in array configurations as shown in Figure 2-2. The model was then georeferenced and placed on global positioning system (GPS)-controlled, site-specific photographs to create simulations that demonstrate visual changes from the Project. Figures 4.1-3 through 4.1-8 present simulated views of Project features.

4.1.1.5 Viewer Types and Characteristics

The term "sensitive viewers" refers to specific user groups associated with various land uses that have a sensitivity to landscape change and, therefore, could be adversely affected by the construction and operation of a project. In this regard, potentially sensitive viewing locations are typically associated with key travel routes, recreation areas, and residential areas. Viewpoints represent critical or typical viewpoints within or along an identified viewing location and are used to assess visual impacts of a proposed project. The sensitivity of viewers at each viewpoint is based on the type of use, expected concern for aesthetics, and special status or designation. Identifying groups of individuals who would likely be sensitive to visual changes is an important part of the visual assessment process and helps to define specific locations from which to assess changes to the visual character of the landscape. An inventory of sensitive viewers considers 1) the most critical viewpoints (i.e., views from communities, residential areas, or recreational areas); 2) views from scenic areas specifically identified in local planning documents; and 3) views that represent the general area or landscape setting.

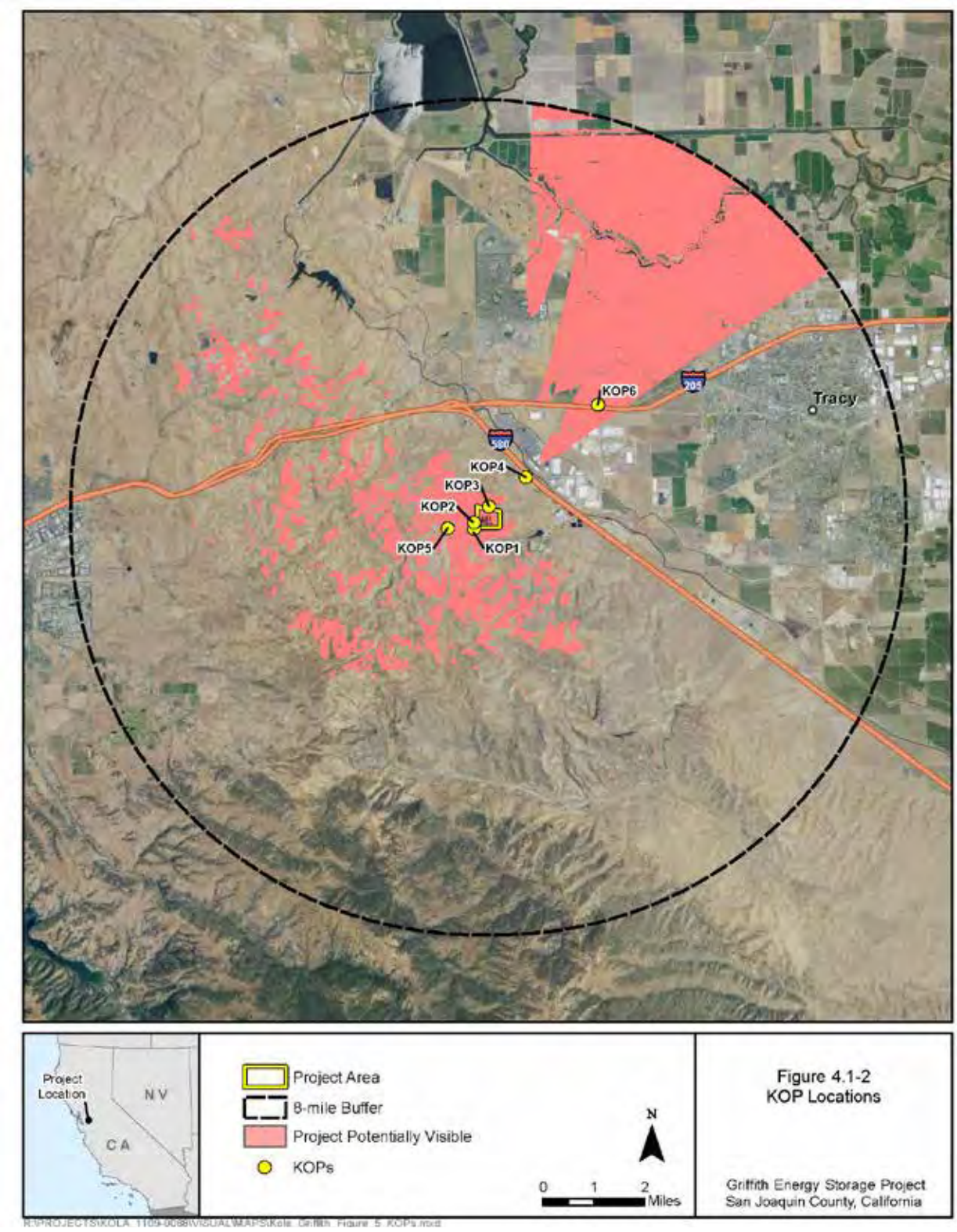


Figure 4.1-2. Key Observation Point Locations

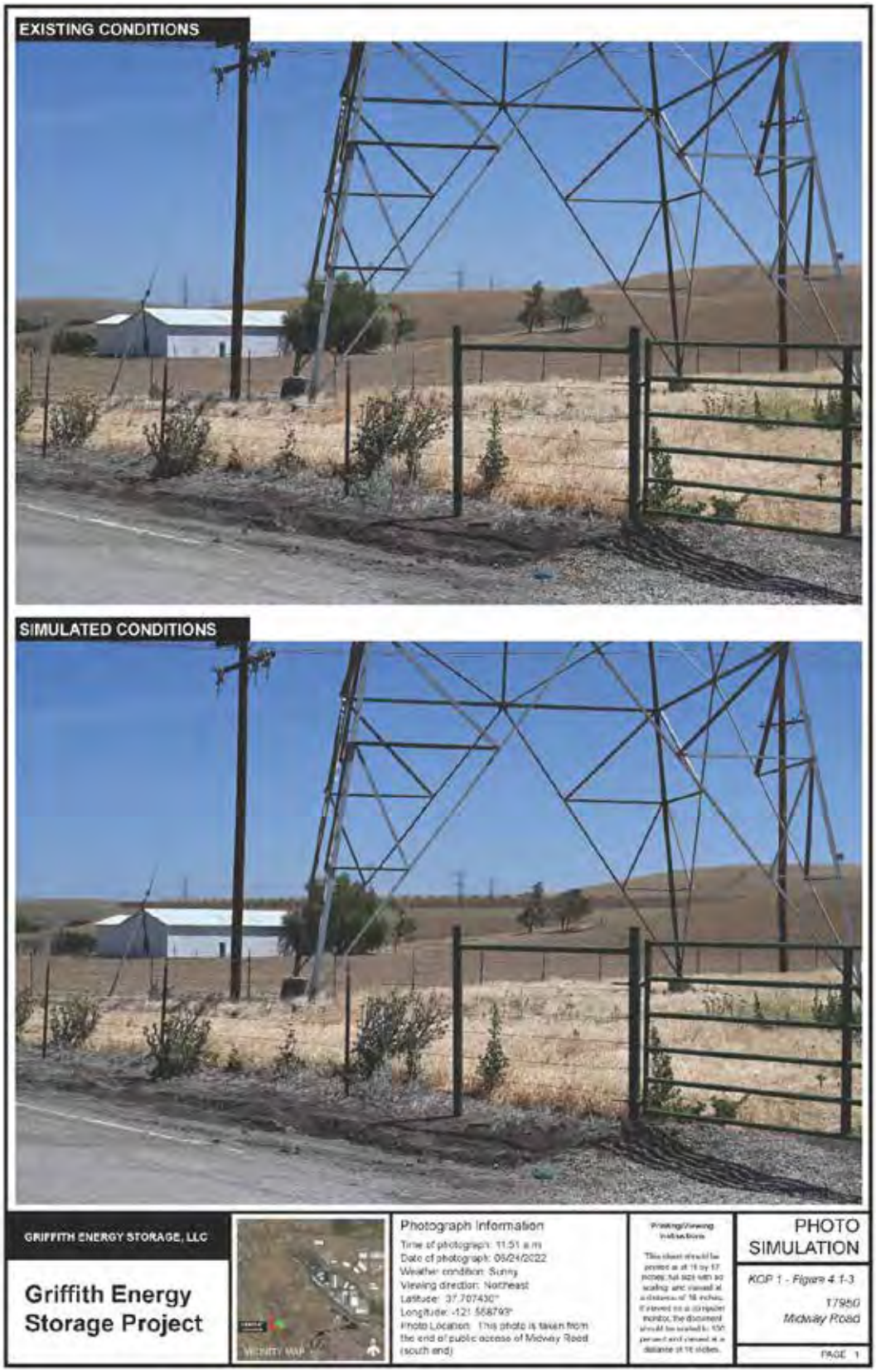


Figure 4.1-3. Photo Simulation for KOP 1



Figure 4.1-4. Photo Simulation for KOP 2



Figure 4.1-5. Photo Simulation for KOP 3

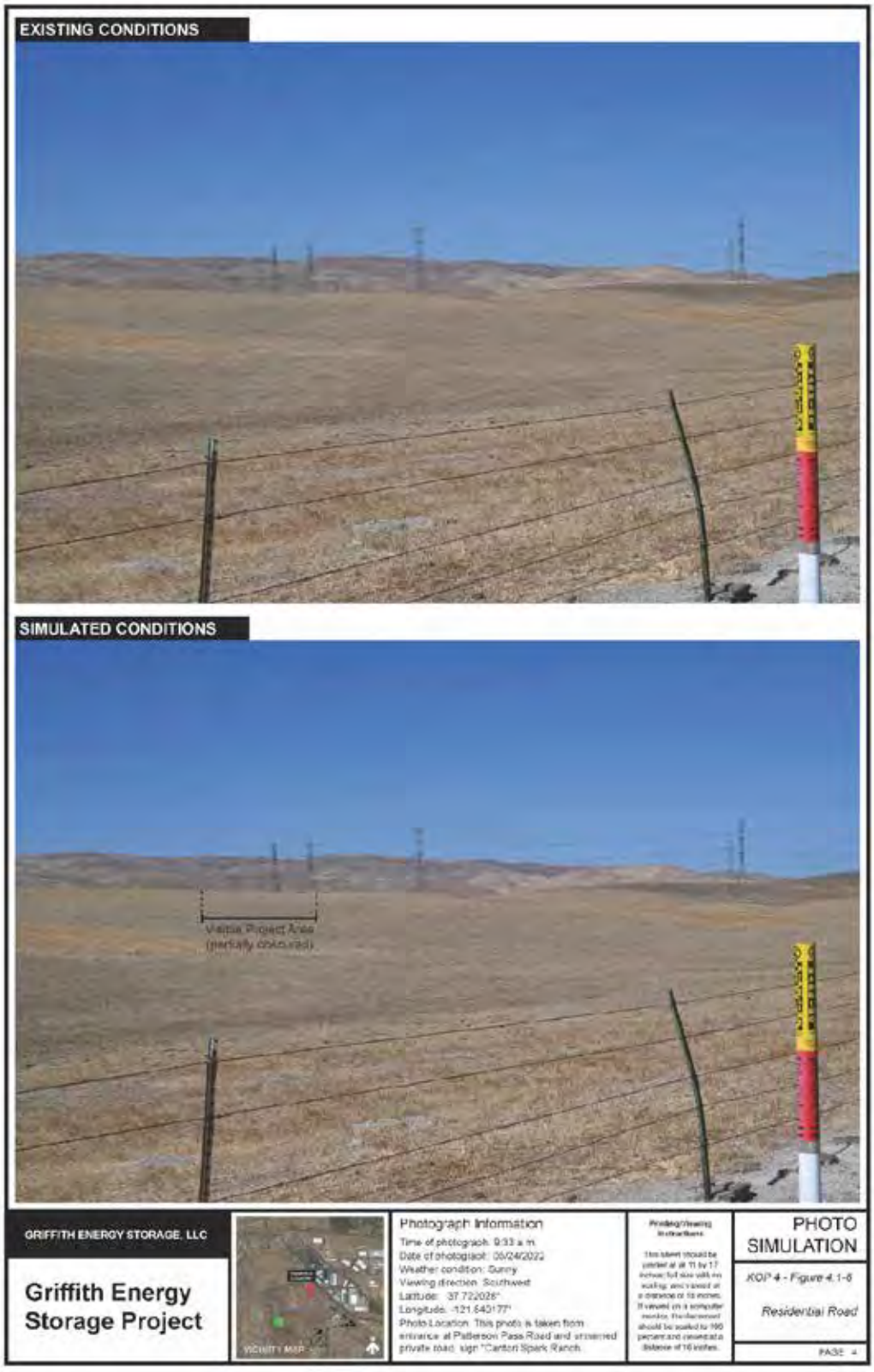


Figure 4.1-6. Photo Simulation for KOP 4



Figure 4.1-7. Photo Simulation for KOP 5



Figure 4.1-8. Photo Simulation for KOP 6

Distinctions among user groups and their expected sensitivity to landscape changes, based on activity types and viewing characteristics, are standard components of a visual assessment. For example, residential viewers are generally expected to have high concern for changes in views from their residences. Motorists' concerns generally depend on when and where travel occurs and the type of travel involved (e.g., commuting versus recreational travel). However, because their focus is on driving to their destination and because the time they view the landscape as they drive through is more limited, they may have lower visual sensitivity.

Scenic views designated in land use plans adopted by federal, state, or local government entities typically formalize a recognized visual value of a resource and the public's desire to protect that value (e.g., a designated wilderness or scenic area). Where such officially designated lands exist, the public expectation is that the view at the location of the identified resource would be preserved, and the viewer concern is considered high.

4.1.2 Existing Conditions

4.1.2.1 Regional Character

San Joaquin County is set within the greater San Joaquin Valley, with the Delta and large expanses of level agricultural lands and urban development framed by the foothills of the Diablo Range to the west and the foothills of the Sierra Nevada to the east (San Joaquin County 2014). The foothills of the Diablo Range define the southwest corner of the county, separating San Joaquin County from Alameda County to the west. Agricultural uses are the predominate land use in the unincorporated lands within the county. Urban development is concentrated in the seven incorporated cities of the county, especially Stockton and Tracy.

4.1.2.2 Local Setting

The Project site consists of grazed, non-native grassland, several hills, three residential uses, and agricultural buildings. In addition to the grasses, a few trees are found near the residential uses. Energy related uses are found adjacent to the Project site, including Pacific Gas and Electric's (PG&E) Tesla Substation to the west and transmission towers and lines to the southwest and northwest of the Project site. A cluster of residential uses is directly north of the Project site, on the other side of West Patterson Pass. Industrial uses located near the Project site are located on the western edge of Tracy, mostly on the eastern side of Interstate 580 (I-580). The terrain on the Project site and the immediate area ranges from relatively flat to hilly.

4.1.2.3 Scenic Routes

According to the California Department of Transportation (Caltrans) Scenic Highway System Lists, the segment of I-580, south of the Interstate 205 (I-205) interchange to State Route 152, is an officially designated state scenic highway. This segment is located 1 mile to the northeast of the Project site. The segment of I-580 west of the I-205 interchange to the city of San Leandro is an eligible state scenic highway (Caltrans 2022). This segment is located approximately 2.2 miles to the north of the Project site. Corral Hollow Road, located 5 miles to the south of the Project site, is identified as a local scenic road (San Joaquin County 2014).

4.1.2.4 Scenic Vistas

The foothills of the Diablo Range are identified as a key visual resource that adds contrast to the county's predominately flat terrain, and views of the Diablo Range from I-580 are identified as a major scenic vista. Other scenic vistas identified near the Project site include the viewing lands

under agricultural production while driving on two-lane roads through rural portions of the county (San Joaquin County 2014). The Top of the World Scenic Lookout is located along Patterson Pass Road, approximately 4.3 miles to the west of the Project site.

4.1.2.5 Viewer Groups

In general, the types of viewers present within the viewshed of the Project are classified as local residents and motorists. The following discussion summarizes the composition of the groups identified within the viewshed of the Project and their characteristics that are relevant to the visual assessment.

Local Residents

The local resident viewer group consists of people who live within the viewshed of the Project. Residences within the Project viewshed are found along West Patterson Pass to the north, Midway Road to the west, the frontage road south of the PG&E Tesla Substation, and near I-580 and I-205 northeast of the Project site. The closest residences on land not owned by the current property owner are approximately 0.2 mile (approximately 1,000 feet) north of the Project site on the other side of West Patterson Pass and 0.2 mile (approximately 1,000 feet) southwest of the Project site at the southern terminus of Midway Road.

Local residents may be more sensitive to changes in their specific views and may have adverse reactions to views of the Project facilities. The existing landscape already includes the PG&E Tesla Substation and numerous transmission towers and lines and, as a result, the addition of the Project would not be as significant a change as it would if the landscape had no development. For example, residents with a view across the open grasslands within the Project viewshed who have views of the PG&E Tesla Substation and multiple transmission towers and lines may be less sensitive to landscape changes than those with solely a view of open grasslands.

Travelers

Travelers passing through an area typically view the landscape from motor vehicles on their way to work or other destinations. Travelers include people engaged in various types of business or personal travel. Commuters do not tend to stop along their travel routes, have a relatively narrow field of view because they are focused on road and traffic conditions, and are destination-oriented. Passengers in commuter vehicles would have greater opportunities for prolonged offroad views toward landscape features and, accordingly, may have greater perception of changes in the visual environment. Travelers are typically moving, have a relatively narrow field of view, and are destination-oriented. Generally, drivers in this group are focused on driving and on the road and traffic conditions, but do have the opportunity to observe roadside scenery.

4.1.2.6 Existing Visual Character

Six KOPs were selected to assess the level of visual change resulting from the Project energy storage facility as described in Section 4.1.1.3, *Key Observation Points*, on the existing environment. The locations of the six KOPs are presented in Figure 4.1-2. The KOPs were selected to capture representative vantages from Midway Road, West Patterson Road, and I-580, and residences southwest and north of the Project site. Photographs from each KOP under existing conditions are presented in Figures 4.1-3 through 4.1-8.

Key Observation Point 1

KOP 1 is located on Midway Road, approximately 0.14 mile southwest of the Project site. This KOP depicts views oriented northeast toward the Project site. As shown in Figure 4.1-3, the existing landscape setting is characterized by agricultural land with relatively flat to hilly terrain. Existing structural features include an agricultural building, Midway Road, fencing, transmission towers and lines, and utility poles and lines. Vegetation includes grasses, ruderal vegetation, and a few stands of trees. Dominant colors for the landscape are tans, browns, and greens, while the structures are gray, white, green, and brown. The vegetation consists of irregular, organic forms: grasses are continuous with irregular-shaped ruderal vegetation and trees. The linear and horizontal lines associated with the structures are visible and prominent from this viewpoint. This KOP provides a typical view for drivers traveling along Midway Road. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residence south of this KOP at the end of Midway Road. Considering the frequent viewing by local residents and the proximity to the Project, viewers would have moderate to high sensitivity to the visual changes on the Project site.

Key Observation Point 2

KOP 2 is located on Midway Road, approximately 0.12 mile west of the Project site. This KOP depicts views oriented east toward the Project site. As shown in Figure 4.1-4, the existing landscape setting is characterized by agricultural land with relatively flat to hilly terrain. Existing structural features include a residential building and garage, fencing, transmission towers and lines, and utility poles and lines. Vegetation includes grasses, ruderal vegetation, and a few stands of trees. Dominant colors for the landscape are tans, browns, and greens, while the structures are gray, white, and brown. The vegetation consists of irregular, organic forms: grasses are continuous with irregular- shaped ruderal vegetation and trees. The linear and horizontal lines associated with the structures are visible and prominent from this viewpoint. This KOP provides a typical view for drivers traveling along Midway Road. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residence east of this KOP off Midway Road. Considering the frequent viewing by local residents and the proximity to the Project, viewers would have a moderate to high sensitivity to the visual changes on the Project site.

Key Observation Point 3

KOP 3 is located on West Patterson Pass Road, approximately 0.2 mile north of the Project site. This KOP depicts views oriented south toward the Project site. As shown in Figure 4.1-5, the existing landscape setting is characterized by agricultural land with hilly terrain. Existing structural features include West Patterson Pass Road. Vegetation includes grasses and ruderal vegetation. Dominant colors for the landscape are tan and green, while the structures are gray and yellow. The vegetation consists of irregular, organic forms: grasses are continuous with irregular-shaped ruderal vegetation. The linear and horizontal lines associated with West Patterson Pass Road are visible and prominent from this viewpoint. This KOP provides a typical view for drivers traveling along West Patterson Pass Road, likely at high speeds. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residences north of West Patterson Pass Road. Considering the frequent viewing by local residents, viewers would have a moderate sensitivity to the visual changes on the Project site.

Key Observation Point 4

KOP 4 is located near I-580, approximately 1 mile northeast of the Project site. This KOP depicts views oriented southwest toward the Project site. As shown in Figure 4.1-6, the existing landscape setting is characterized by agricultural land with gently rolling to hilly terrain. Existing structural features include fencing, transmission towers and lines, utility poles and lines, and wind turbines. Vegetation includes grasses. The dominant color for the landscape is tan, while the structures are gray, white, brown, and green. The vegetation consists of irregular-shaped, organic forms of grasses. The linear and horizontal lines associated with the structures are visible from this viewpoint. This KOP provides a typical view for drivers traveling along I-580, likely traveling at a high rate of speed. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residence near this KOP. Considering the frequent viewing by local residents, viewers would have a moderate sensitivity to the visual changes on the Project site.

Key Observation Point 5

KOP 5 is located on the Tesla Substation frontage road, approximately 0.65 mile west of the Project site. This KOP depicts views oriented east toward the Project site. As shown in Figure 4.1-7, the existing landscape setting is characterized by agricultural land with hilly terrain. Existing structural features include fencing, transmission towers and lines, and utility poles and lines. Vegetation includes grasses and ruderal vegetation. Dominant colors for the landscape are tans and greens, while the structures are gray and brown. The vegetation consists of irregular, organic forms: grasses are continuous with irregular-shaped ruderal vegetation. The linear and horizontal lines associated with the structures are visible and prominent from this viewpoint. This KOP provides a typical view for drivers traveling along this frontage road. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residence south of this KOP at the end of the frontage road. Considering the frequent viewing by local residents, viewers would have a moderate sensitivity to the visual changes on the Project site.

Key Observation Point 6

KOP 6 is located off of Hansen Road near I-205, approximately 3.1 miles northeast of the Project site. This KOP depicts views oriented southwest toward the Project site. This KOP is located on the western boundary of the city of Tracy. As shown in Figure 4.1-8, the existing landscape setting is characterized by agricultural land and industrial development with flat terrain and hilly terrain in the background. Existing structural features include I-205, highway signage, fencing, industrial buildings, utility poles and lines, transmission towers and lines, and wind turbines. Vegetation includes grasses, ruderal vegetation, and a few stands of trees. Dominant colors for the landscape are green and tan, while the structures are gray, white, and brown. The vegetation consists of irregular, organic forms: grasses are continuous with irregular-shaped ruderal vegetation and trees. The linear and horizontal lines associated with the structures are visible from this viewpoint. This KOP provides a typical view for drivers traveling along Hansen Road, likely traveling at a high rate of speed. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residences near this KOP. Considering distance and multiple intervening structures, local residential viewers would have a low sensitivity to the visual changes on the Project site.

4.1.3 Regulatory Setting

4.1.3.1 Federal

National Scenic Byways Program

The National Scenic Byways Program, a part of the Federal Highway Administration, recognizes, preserves, and enhances selected roads throughout the U.S. as All-American Roads or National Scenic Byways based on one or more archaeological, cultural, historic, natural, recreational, and scenic qualities. There are no officially designated National Scenic Byways in the vicinity of the Project site (Caltrans 2022; FHWA 2022).

4.1.3.2 State

Caltrans Scenic Highway Program

State scenic highways are those that are either officially designated as state scenic highways by Caltrans or are eligible for such designation. The scenic designation is based on the amount of natural landscape visible by motorists, the scenic quality of the landscape, and the extent to which development intrudes on the motorist's enjoyment of the view. I-580 is an officially designated state scenic highway from south of the I-205 interchange to State Route 152 and is eligible state scenic highway from west of the I-205 interchange to the city of San Leandro (Caltrans 2022). As discussed in Section 4.1.5, *Impact Analysis*, due to terrain and structures, the Project is either not visible or barely visible from I-580.

4.1.3.3 Local

San Joaquin County

Natural and Cultural Resources Element

Scenic Resources

Goal NCR-7: *To protect and enhance the unique scenic features of San Joaquin County.*

Policies:

NCR-7.1: Scenic Roadways. *The County shall protect the visual character of designated scenic roadways.*

NCR-7.2: Views from Public Lands and Roadways. *The County shall ensure that views of waterways, hilltops, and oak groves from public land and public roadways are protected and public access is provided to them whenever possible.*

NCR-7.3: Designate Scenic Routes. *The County shall preserve scenic views from roadways by designating scenic routes based on the following criteria:*

- *Leads to a recreational area;*
- *Provides a representative sampling of the scenic diversity within the County;*
- *Exhibits unusual natural or humanmade features of interest;*
- *Provides opportunities to view activities outside the normal routine of most people;*

- *Provides a route for people to view the Delta waterways; and*
- *Links two scenic routes or connects with scenic routes of cities or other counties.*

NCR-7.4: Visually Complementary Development. *The County shall require new development adjacent to scenic resources to be sited and designed to visually complement those resources, except in MR-Z designated areas.*

NCR-7.5: Require Landscape Plans. *The County shall require landscape plans for new development along State- or County-designated scenic routes.*

NCR-7.6: Preservation of Ridgelines and Hill Tops. *The County shall ensure that ridgelines and major hill tops remain undeveloped.*

NCR-7.7: Reducing Light Pollution. *The County shall encourage project designs, lighting configurations, and operational practices that reduce light pollution and preserve views of the night sky.*

NCR-7.8: Underground Utility Lines. *The County shall require all new electric and communication distribution facilities adjacent to scenic routes to be placed underground, whenever feasible. Where overhead utility lines are unavoidable, every effort should be made to reduce the visual impact through elements of design.*

Goal LU-3: *Preserve and enhance the character and scale of San Joaquin County's communities and rural areas, including their architectural heritage and historic character.*

Policies:

LU-3.1: Contextual and Compatible Design. *The County shall ensure that new development respects San Joaquin County's heritage by requiring that new development respond to its context, be compatible with the traditions and character of each community, and develop in an orderly fashion which is compatible with the scale of surrounding structures.*

LU-3.3: Transitions in Scale. *The County shall encourage a balance of the scale and massing of new development to the physical and visual character of adjoining uses to provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods.*

LU-3.10: Visual Access. *The County shall encourage new development to maintain views of hillsides, creeks, and other distinctive natural areas by regulating building orientation, height, and bulk.*

Alameda County

Alameda County General Plan

Scenic Route Element

The Scenic Route Element of the Alameda County General Plan (1966, amended 1994) provides a continuous, County-wide scenic route system and is intended to serve as a guide for local jurisdictions for development of city-scale scenic route systems and as a guide for development to protect and enhance the scenic values along designated scenic routes (Alameda County 1966).

The Scenic Route Element identifies scenic freeways and expressways as traversing or connecting areas of major scenic, recreational, or cultural attractions, and as distinct from two other major types of scenic routes (scenic thoroughfares and rural-recreation routes). I-580 is categorized as one of the County's Scenic Freeways and Expressways. The Project site is not visible from I-580.

Open Space Element

The following principles from the Open Space Element of the General Plan are applicable to the proposed Project (Alameda County 1973, amended 1994):

- *Include Natural Ridgelines and Slope Areas: Natural ridgelines, and slopes in excess of twenty-five percent in grade, should be left as open space to eliminate mass grading.*

- *Consolidate and Locate Utility Lines to Avoid Scenic Areas: Wherever feasible, power and pipe utility lines should be consolidated to prevent further severance of open space lands. Utility lines and aqueducts in open space areas should be located so as to avoid areas of outstanding beauty.*

- *Natural Resources within Open Space Areas Should be Permanently Protected: Within open space areas, either publicly or privately owned, removal of mature trees should not be permitted without the permission of the local authority. Alteration of streambeds or bodies of water and adjacent vegetation should be permitted only as a means of erosion-control or flood control, as permitted by the adopted plans of regional or local jurisdictions, and in such a manner as to enhance water courses, scenic shorelines, and wetlands within the county*.

East County Area Plan

Alameda County's East County Area Plan (ECAP) includes a goal to "preserve unique visual resources and protect sensitive viewsheds." Sensitive viewsheds are defined as "natural areas that provide orientation and a sense of place within a community or region. These areas typically include ridgelines, hilltops, large contiguous open space areas, and woodlands" (Alameda County 2000). The plan further identifies policies related to sensitive viewsheds. Many of these policies apply to specific ridgelines, peaks, open spaces, and large stands of mature trees. This Project would not be located on or within view of such features. The remaining policies that are potentially applicable to this Project are summarized as follows (Alameda County 2000):

- *Policy 108: Structures shall be located…where the development is least visible to persons on public roads, trails, parks, and other public viewpoints.*

- *Policy 114: The County shall require the use of landscaping to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, suitability to site conditions; and habitat value and fire retardance.*

- *Policy 115: Appropriate building materials, landscaping, and screening shall be required to minimize the visual impact of development. Development shall blend with, and be subordinate to, the environment and character of the area so as to be as unobtrusive as*

possible and not detract from the natural, open space, or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed, and shielded so as to confine direct rays to the parcel where the lighting is located.

- *Policy 116: Development shall be located and designed to conform with, rather than change, natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling, or other development activity shall be minimized. Access roads shall be consolidated and located where they are least visible from public viewpoints.*

- *Policy 117: Where grading is necessary, the off-site visibility of cut and fill slopes and drainage improvements shall be minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.*

- *Policy 119: The County shall require that access roads be sited and designed to minimize grading.*

- *Policy 120: The County shall require that utility lines be placed underground whenever feasible. When located above ground, utility lines and supporting structures shall be sited to minimize their visual impact.*

The ECAP also identifies implementation programs. Those that potentially apply include (Alameda County 2000):

- *Program 53: The County shall establish landscape guidelines for both urban and rural development, including a list of extremely invasive non-native plants not suitable for use in landscaping.*

- *Program 54: The County shall establish grading guidelines for the development of structures and access roads.*

4.1.4 Thresholds of Significance

This analysis evaluates the proposed project's impacts on visual resources based on the criteria identified in the CEQA Guidelines, Appendix G. A project would cause significant impacts to aesthetic resources if it would:

a) *Have substantial adverse effect on a scenic vista;*

b) *Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;*

c) *In non-urbanized area, would substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations of governing scenic quality; or*

d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.*

4.1.5 Impact Analysis

IMPACT 4.1-1: *Would the project have substantial adverse effect on a scenic vista?* **(Less than Significant Impact)**

Views of the Diablo Range from I-580 and views of lands under agricultural production while driving on two-lane roads through rural portions of the county are identified as scenic vistas (San Joaquin County 2014). The Project would be barely visible, if at all, from I-580, and would not block views for the Diablo Range from I-580. No impacts to views of the Diablo Range from I-580 are expected.

The Project site is rural in character with a wide variety of visual encroachments, including scattered ranch structures, agricultural buildings and infrastructure, fencing, local electrical distribution lines and high-voltage transmission lines, and roadways. The Project would add energy storage facilities and infrastructure and reduce the amount of land under agricultural production. The Project facilities would have a consistent visual character with the existing local electrical distribution lines, high-voltage transmission lines, and the nearby Tesla Substation. Due to the surrounding terrain, views of the Project from Patterson Pass Road and Midway Road would be limited to a short distance. Due to the terrain and distance, there are no views of the Project from the Top of World Scenic Lookout. In addition, the Project will be separated from the roadways by lands under agricultural production. Therefore, the impacts are expected to be less than significant.

Mitigation: None required.

IMPACT 4.1-2: *Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?* **(No Impact)**

Corral Hollow Road, located 5 miles to the south of the Project site, is identified as a local scenic road (San Joaquin County 2014). Due to terrain and distance, the Project site is not visible from this roadway; therefore, no impact to this scenic roadway will occur.

The officially designated state scenic highway segment of I-580 is located 1 mile to the northeast of the Project site. The eligible state scenic highway segment of I-580 is located approximately 2.2 miles to the north of the Project site (Caltrans 2022). Due to terrain and structures, the Project is either not visible or barely visible (see Figures 4.1-1 and 4.1-8). The Project will not involve substantial damage to scenic resources, such as trees, rock outcroppings, and historic buildings. The Project facilities would appear as a continuation of the existing electrical distribution infrastructure. Based on general lack of visibility of the Project site, no significant impacts to a scenic highway are expected.

Mitigation: None required.

IMPACT 4.1-3: *In non-urbanized area, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations of governing scenic quality?*

(Construction / Decommissioning – Less than Significant Impact; Operation – Less Than Significant with Mitigation)

Construction

The proposed Project would involve both temporary and permanent changes to the visual character of the site. Temporary changes are associated with construction activities, including construction equipment, staging, and site construction. These visual impacts would be short term in nature and are not considered to be significant.

Operation

KOP 1

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The sound wall is a neutral, earth-tone color. The Project would be visible from this location by a casual observer; see Figure 4.1-3. The regular geometric forms and horizontal and vertical lines associated with the battery storage enclosures, gen-tie line, and associated infrastructure would result in a visual contrast with the irregular, organic forms of the existing landform and vegetation. The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. As shown in the simulation, the surrounding fields are tan in color and the Project blends into the landscape setting. The existing structures in the vicinity possess horizontal and vertical lines (agricultural building, Midway Road, fencing, transmission towers and lines, and utility poles and lines). Particularly, the transmission towers and the fencing in the foreground and the agricultural building demand attention and are dominant in the landscape. An analysis of potential visual impacts is summarized in Table 4.1-3.

Table 4.1-3. Visual Quality Rating Analysis – KOP 1

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Project site and surrounding land are flat to hilly.	Post-development the Project site would remain flat to hilly.	
Detail	No substantial change to the landforms on the Project site would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses with few scattered trees.	Low-lying grasses on the Project site would be reduced. No trees removed.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Color	1	1	0
Explanation	Muted color with little variation: tan and green associated with vegetation; gray, brown and white associated with structures.	Muted color with little variation: tan and green associated with vegetation; gray, brown and white associated with structures. Project would add neutral colored structures.	
Detail	The dominant colors from this viewpoint are tan (low-lying grasses), gray (energy facilities), and white (residential structure). The Project would increase the amount of neutral, muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Adjacent scenery consists of hilly grasslands. The Project would replace views of grasslands on the Project site with energy storage facilities, however, adjacent scenery will still be visible.		
Scarcity	1	1	1
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	The Project would replace views of grasslands on the Project site with energy storage facilities; however, site terrain would not change significantly.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	-1	-3	2
Explanation	Manmade modifications in this view include utility and transmission lines and structures, fencing, residential structure. These features are somewhat discordant with the surrounding landscape but common.	The Project would increase manmade modifications in this view with the introduction of energy storage facilities that would replace the grasslands.	
Detail	The existing view exhibits manmade modifications to the landscape of hilly grasslands. The Project would introduce views of energy storage facilities. The Project would be discordant with the grasslands but due to the utility and transmission lines and structures in the immediate area would not be an unexpected modification.		
Totals	4	2	2

This viewpoint reflects the views of drivers traveling along Midway Road. These impacts would be short term for travelers because they would only be paralleling the Project site for a limited time and their focus would be on the road ahead. For views from the residence, while appearing as new and visible features, the Project would be consistent with the horizontal and vertical lines and geometric shapes of the other structures visibly prominent throughout the landscape. The muted colors of the Project would be consistent with and contribute to blending into the landscape. Project elements begin to demand attention of the casual viewer and would begin to dominate the currently undeveloped portion of the landscape setting, introducing a moderate contrast. However, the existing transmission line and residential structures dominate the view and demand attention over the Project. The scenic quality of KOP 1, both under existing conditions and post development of the Project is identified as low (Class IV). The only key visual quality factor that would change is Cultural Modifications, as the Project elements would add variety consistent with the surrounding built environment but would be discordant and introduce a moderate degree of disharmony with the undeveloped portion of the setting. As shown in Table 4.1-3, visual quality would be reduced from a rating of 4 to 2, remain low, and not result in a change in visual class. In addition, the Project will implement **Mitigation Measure AES-1**. Therefore, with mitigation, the Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings and would result in a less than significant visual impact.

KOP 2

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The sound wall is a neutral, earth-tone color. The Project would be visible from this location by a casual observer; see Figure 4.1-4. The regular geometric forms and horizontal and vertical lines associated with the Project features would result in a visual contrast with the irregular, organic forms of the existing landform and vegetation. The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. The structures in the vicinity also possess horizontal and vertical lines (residential building and garage, fencing, transmission towers and lines, and utility poles and lines). The residential building and garage in the foreground demand attention and are dominant in the landscape. An analysis of potential visual impacts is summarized in Table 4.1-4.

Table 4.1-4. Visual Quality Rating Analysis – KOP 2

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Project site and surrounding land are flat to hilly.	Post-development the Project site would remain flat to hilly.	
Detail	No substantial change to the landforms on the Project site would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses with few scattered trees.	Low-lying grasses on the Project site would be reduced. No trees removed.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		
Color	1	1	0
Explanation	Muted color with little variation: tan and green associated with vegetation; gray, brown and white associated with structures.	Muted color with little variation: tan and green associated with vegetation; gray, brown and white associated with structures. Project would add neutral colored structures.	
Detail	The dominant colors from this viewpoint are tan (low-lying grasses), gray (energy facilities), and white (residential structure). The Project would increase the amount of neutral, muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Adjacent scenery consists of hilly grasslands. The Project would replace views of grasslands on the Project site with energy storage facilities, however, adjacent scenery will still be visible.		
Scarcity	1	1	1
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	The Project would replace views of grasslands on the Project site with energy storage facilities; however, site terrain would not change significantly.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Cultural Modifications	-1	-3	2
Explanation	Manmade modifications in this view include residential structure, utility and transmission lines and structures, fencing. These features are somewhat discordant with the surrounding landscape but common.	The Project would increase manmade modifications in this view with the introduction of energy storage facilities that would replace the grasslands.	
Detail	The existing view exhibits manmade modifications to the landscape of hilly grasslands. The Project would introduce views of energy storage facilities. The Project would be discordant with the grasslands but due to the utility and transmission lines and structures in the immediate area would not be an unexpected modification.		
Totals	4	2	2

This viewpoint reflects the views of drivers traveling along Midway Road. These impacts would be short term for travelers because they would only be paralleling the Project site for a limited time and their focus would be on the road ahead. For views from residences, while appearing as new and visible features, the Project would be consistent with other horizontal and vertical lines and geometric shapes visibly prominent throughout the landscape. The muted colors of the Project would be consistent with and contribute to blending into the landscape. Project elements would demand attention of the casual viewer and would co-dominate landscape setting, introducing a moderate to strong contrast. However, the existing residential structures dominate the view and demand attention over the Project. The scenic quality of KOP 2, both under existing conditions and post development of the Project is identified as low (Class IV). The only key visual quality factor that would change is Cultural Modifications, as the Project elements would add variety consistent with the surrounding built environment but would be discordant and introduce a moderate to strong degree of disharmony with the undeveloped portion of the setting. As shown in Table 4.1-3, visual quality would be reduced from a rating of 4 to 2, remain low, and not result in a change in visual class. In addition, the Project will implement **Mitigation Measure AES-1**. Therefore, with mitigation, the Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings and would result in a less than significant visual impact.

KOP 3

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The Project would be barely visible from this location because of the screening of the Project site by rolling terrain and would not attract the attention of a casual observer, see Figure 4.1-5. The agricultural land with hilly terrain dominates the view. The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. As shown in the simulation, the surrounding fields are tan in color and what little can be seen of the Project blends into the landscape setting. An analysis of potential visual impacts is summarized in Table 4.1-5.

Table 4.1-5. Visual Quality Rating Analysis – KOP 3

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Visible land is hilly.	Post-development visible land is hilly.	

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Detail	No change to the visible landforms would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses and ruderal vegetation.	Little variation in low-lying grasses and ruderal vegetation.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		
Color	1	1	0
Explanation	Muted color with little variation: tan and green associated with vegetation. Gray and yellow color associated with roadway.	Muted color with little variation: tan and green associated with vegetation would remain; where visible, Project would add neutral colored structures.	
Detail	The dominant colors from this viewpoint are tan and green of vegetation and gray and yellow of the roadway. Where visible, the Project would increase the amount of neutral, muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Views of adjacent scenery would remain with Project.		
Scarcity	1	1	0
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects; however, hilly terrain less common than county's predominately flat terrain.	Similar viewsheds throughout the region. No unique or unusual aspects; however, hilly terrain less common than county's predominately flat terrain.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	0	0	0
Explanation	Manmade modifications in this view include West Patterson Pass Road. These features are somewhat discordant with the surrounding landscape but common.	The Project would barely increase manmade modifications in this view.	
Detail	As the Project is barely visible, the Project's contribution to discordancy is very limited.		
Totals	5	5	0

This viewpoint reflects the views of drivers traveling along West Patterson Pass Road, likely at high speeds. These impacts would be short term for travelers because they would only be paralleling the Project site for a limited time and their focus would be on the road ahead. For views from residences, while appearing as new and visible features, the Project would be barely visible and would not attract attention of the casual viewer, resulting in a weak contrast and no change in visual quality ratings. Therefore, the impacts would be less than significant.

KOP 4

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The Project would be barely visible from this location because of the screening of the Project site by rolling terrain and would not attract the attention of a casual

observer, see Figure 4.1-6. The agricultural land with hilly terrain dominates the view The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan and what little can be seen of the Project blends into the landscape setting. An analysis of potential visual impacts is summarized in Table 4.1-6.

Table 4.1-6. Visual Quality Rating Analysis – KOP 4

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Visible land is flat to hilly.	Post-development visible land is flat to hilly.	
Detail	No change to the visible landforms would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses.	Little variation in low-lying grasses.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		
Color	1	1	0
Explanation	Muted color with little variation: tan associated with vegetation. Gray and brown colors associated with fencing, transmission towers and lines, utility poles and lines, roadway.	Muted color with little variation: tan and green associated with vegetation would remain; Gray and brown colors associated with fencing, transmission towers and lines, utility poles and lines, roadway. Where visible, Project would add neutral colored structures.	
Detail	The dominant colors from this viewpoint are tan and green of vegetation and gray and brown of structures. Where visible, the Project would increase the amount of neutral, muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Views of adjacent scenery would remain with Project.		
Scarcity	1	1	0
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects; however, hilly terrain less common than county's predominately flat terrain.	Similar viewsheds throughout the region. No unique or unusual aspects; however, hilly terrain less common than county's predominately flat terrain.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	-1	-1	0
Explanation	Manmade modifications in this view include West Patterson Pass Road. These features are somewhat discordant with the surrounding landscape but common.	The Project would barely increase manmade modifications in this view.	
Detail	As the Project is barely visible, the Project's contribution to discordancy is very limited.		
Totals	4	4	0

This viewpoint reflects the views of drivers traveling along I-580, likely traveling at a high rate of speed. These impacts would be short term for travelers because they would only be paralleling the Project site for a limited time and their focus would be on the road ahead. For views from residence, while appearing as new and visible features, the Project would be barely visible and would not attract attention of the casual viewer, resulting in a weak contrast and no change in visual quality ratings. Therefore, the impacts would be less than significant.

KOP 5

The Project would not be visible from this location because of the screening of the Project site by rolling terrain; see Figure 4.1-7. This viewpoint reflects the views of drivers traveling along the frontage road and for the occupants of the residence south of this KOP. As the Project would not be visible from this location, there would be no visual impacts from Viewpoint 5.

KOP 6

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The Project would be barely visible from this location because of the screening of the Project site by rolling terrain and distance and would not attract the attention of a casual observer, see Figure 4.1-8. The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. What little can be seen of the Project blends into the landscape setting. An analysis of potential visual impacts is summarized in Table 4.1-7.

Table 4.1-7. Visual Quality Rating Analysis – KOP 6

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Visible land is flat to hilly.	Post-development visible land is flat to hilly.	
Detail	No change to the visible landforms would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses and ruderal vegetation.	Little variation in low-lying grasses and ruderal vegetation.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		
Color	1	1	0
Explanation	Muted color with little variation: tan associated with vegetation. Gray, white and brown colors associated with fencing, transmission towers and lines, utility poles and lines, roadway, buildings.	Muted color with little variation: tan and green associated with vegetation would remain; Gray and brown colors associated with fencing, transmission towers and lines, utility poles and lines, roadway, buildings. Where visible Project would add neutral colored structures.	
Detail	The dominant colors from this viewpoint are tan and green of vegetation and gray, white, and brown of structures. Where visible, the Project would increase the amount of neutral, muted colors.		

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Views of adjacent scenery would remain with Project.		
Scarcity	1	1	0
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	-1	-1	0
Explanation	Manmade modifications in this view include fencing, transmission towers and lines, utility poles and lines, roadway, buildings. These features are somewhat discordant with the surrounding landscape but common.	The Project would barely increase manmade modifications in this view.	
Detail	As the Project is barely visible, the Project's contribution to discordancy is very limited.		
Totals	4	4	0

This viewpoint reflects the views of drivers traveling along Hansen Road, likely traveling at a high rate of speed. These impacts would be short term for travelers because they would only be approaching the Project site for a limited time and their focus would be on the road ahead. For views from residences, while appearing as new and visible features, the Project would be barely visible and would not attract attention of the casual viewer, resulting in a weak contrast and no change in visual quality ratings. Therefore, the impacts would be less than significant.

Mitigation: With implementation of **Mitigation Measure AES-1**, the Project would have a less than significant impact on aesthetics.

Decommissioning

Decommissioning will be conducted in accordance with the County-approved decommissioning plan for this Project. Temporary changes are associated with the removal of all equipment associated with the Project. These visual impacts would be short-term in nature and are not considered to be significant. After the equipment removal activities, the Project site will be returned to substantially the same condition as that which existed prior to Project development.

IMPACT 4.3-4: *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?* **(Less Than Significant Impact)**

The Project is not expected to create a substantial new source of nighttime lighting or daytime glare. The proposed Project will provide external safety lighting for both normal and emergency conditions at the primary access points. Lighting will be designed to provide the minimum illumination needed to achieve safety and security and will be downward facing and shielded to focus illumination in the immediate area. All lighting associated with the proposed Project will be subject to county approval and compliance with San Joaquin County requirements. With the

application of anti-reflective coatings, the Project would display overall low reflectivity. Therefore, the Project will have a less than significant impact associated with lighting and glare.

Mitigation: None required.

4.1.6 Mitigation Measures

The following mitigation measures are recommended to reduce significant impacts to aesthetics.

AES-1. The following measure will be implemented as feasible to reduce visual impacts for Project components and activities:

- Use and maintain, as feasible, non-reflective materials, finishes, and surface treatments.
- Maintain painted, treated, stained, or coated surfaces properly.
- Direct lights properly to eliminate light spill and trespass.
- Use timers or motion sensors, as feasible, on all project lighting to minimize unnecessary lighting.
- Minimize lighting usage, as feasible, during construction and operations.

4.1.7 Pacific Gas and Electric Tesla Substation Improvement

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

The PG&E improvements would increase infrastructure within the existing Tesla Substation, these elements would appear similar and consistent with the existing infrastructure and would result in little noticeable change from existing conditions. Therefore, visual character and visual quality would be similar compared to existing conditions. Construction, operation, maintenance and decommissioning of the PG&E interconnection infrastructure would result in a less than significant impact relating to the potential for a substantial adverse effect on a scenic vista, a substantial degradation of the character or visual quality of views from publicly accessible vantage points (i.e., any of the KOPs), or to substantially damage scenic resources within a state scenic highway. Similarly, because the new infrastructure would not include substantial new sources of light or glare, the Project-proposed construction and modifications of PG&E infrastructure would have a less than significant impact. No mitigation is required.

4.1.8 Cumulative Impacts

There would be no impact with respect to scenic resources within a state scenic highway or scenic vistas because the Project is not visible from such scenic resources. Additionally, due to the Project location and surrounding terrain and site-specific nature in which light and glare is experienced, the Project's less-than-significant impact related to light and glare could not combine with impacts from other facilities. Therefore, the Project's impact to visual resources resulting from light and glare would not cause or contribute to a significant adverse cumulative impact.

The cumulative projects described in Section 2.6 of Chapter 2, *Project Description*, have created or have the potential to create an industrial appearance within the Project viewshed primarily due to the PG&E Tesla substation, from which multiple lattice transmission towers of varying heights and shapes extend. These towers and their connecting lines are often visible against the sky, increasing their prominence. Wind turbines associated with the Altamont Pass Wind Resources Area are also visible on western hillsides, increasing the number of vertical intrusions above the horizon. The result has been a degradation of the largely agricultural, undeveloped landscape. When the neutral to adverse impacts expected from the Griffith Energy Storage Project are added to the impacts of these other projects, adverse cumulative impacts would increase. Mitigation measure **AES-1** would be implemented to reduce Project contributions to cumulative impacts, reducing the impact to less than significant.

4.1.9 References

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Alameda County (Alameda County Community Development Agency Planning Department). 2000. East County Area Plan: A Portion of the Alameda County General Plan. Volume 1: Goals, Policies and Programs. Adopted May 5, 1994, amended November 2000. Available online at: https://www.acgov.org/cda/planning/generalplans/documents/EastCountyAreaPlancombined.pdf.

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San Joaquin County. 2014. San Joaquin County 2035 General Plan Environmental Impact Report. October 2014. Available online at: https://www.sjgov.org/commdev/cgi-bin/cdyn.exe/file/Planning/Environmental%20Impact%20Reports/GENERAL%20PLAN%202035%20-%20DRAFT%20EIR.pdf (accessed July 28, 2022).

4.2 AGRICULTURE AND FORESTRY RESOURCES

This section identifies and evaluates issues related to agriculture and forestry resources in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) received scoping comments relating to agriculture and forestry resources from the California Department of Conservation (DOC), and those comments have been incorporated into the Draft EIR.

4.2.1 Existing Conditions

4.2.1.1 Agricultural Resources

The Project site includes the 106-acre parcel proposed for the battery energy storage system (BESS), located within San Joaquin County, and the gen-tie corridor and Pacific Gas and Electric (PG&E) Tesla Substation tie-in, located within Alameda County. The portion of the Project site in San Joaquin County is zoned as Agricultural General-160 by the San Joaquin County Zoning Code and designated as General Agriculture in the San Joaquin County General Plan (San Joaquin County 2016, 2022a). The portion of the Project site where the proposed gen-tie line and PG&E Tesla Substation tie-in would be located is within the jurisdiction of Alameda County and is zoned as Agriculture (A). The San Joaquin County portion of the Project site is also classified as Grazing Land and Farmland of Local Importance, while the Alameda County portion of the Project site is classified as Grazing Land and Other Land, under the DOC's Farmland Mapping and Monitoring Program (FMMP; DOC 2022a). The existing PG&E Tesla Substation, where the Project's gen-tie line tie-in would be located, is classified as Urban and Built-up Land by the DOC's FMMP. The entire Project site is surrounded by land that is also classified as Grazing Land and Farmland of Local Importance, with the exception of a portion of land classified as Rural Residential Land (Other Land) located north of the Project site (DOC 2022a). Definitions of the DOC's farmland designations are provided in Section 4.2.2, *Regulatory Setting*. The Project site is currently used, and has been used for the last 10 years or more, as grazing land.

The Project would also include development of a gen-tie line from the southwest corner of the battery energy storage facility to the PG&E Tesla Substation, which crosses into Alameda County. The area where the gen-tie line would be located is in the Alameda County Agricultural (A) zoning district and, under Alameda County's East County Area (as amended by "Measure D"), is in the Large Parcel Agriculture (LPA) general plan land use designation (Alameda County 2000, 2022).

The San Joaquin County portion of the Project site is also included in a Williamson Act contract and classified as Non-prime Agricultural Land (DOC 2017). The Alameda County portion of the Project site is not included in a Williamson Act contract. The Williamson Act program, as related only to the San Joaquin County portion of the Project site, is discussed in Section 4.2.2 below.

4.2.1.2 Forestry Resources

The Project site does not contain any land defined as forest land (as defined by Public Resources Code § 12220(g)), timberland (as defined by Public Resources Code § 4526), or land zoned Timberland Production (as defined by Government Code § 51104(g)).

4.2.2 Regulatory Setting

4.2.2.1 Federal

No federal regulations pertain to the Project.

4.2.2.2 State

California Land Conservation Act of 1965

The California Land Conservation Act of 1965 (Williamson Act; Government Code § 51200 et seq.) prevents farmland from conversion to other uses by offering owners of agricultural land a property tax incentive to maintain their land in agricultural use. The Williamson Act is a state program implemented at the county level that allows agricultural landowners to voluntarily and contractually agree to retain land included in an agricultural preserve[1] in agricultural or open space uses for a period of at least 10 years and, in return, to pay reduced property taxes. The term of the contract automatically renews each year, such that unless it is specifically nonrenewed or canceled, the contract always has a 10-year-period horizon.

The most common method for withdrawing from a Williamson Act contract is filing a notice of nonrenewal, which can be initiated by either the land use agency or the landowner. Under this process, the contract is ended after a 9-year nonrenewal period, during which taxes gradually increase every year. A Williamson Act contract cancellation is an option under the circumstances and conditions set forth in Government Code § 51280 et seq. In such cases, landowners may petition the board or council of their county or city for cancellation of the Williamson Act contract. The board or council may grant tentative cancellation only if it makes required statutory findings (Government Code § 51282(a)), which are (1) that the cancellation is consistent with the purposes of the chapter, and (2) that the cancellation is in the public interest.

California Government Code § 51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses within any agricultural preserve. Government Code § 51238 states that the board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses in conformity with Government Code § 51238.1.

The board or council must consider comments from the director of the DOC before acting on a proposed cancellation if comments are provided. A cancellation becomes final and a Certificate of Cancellation is issued by the board or council upon the completion of all Conditions of Approval. The San Joaquin County portion of the Project site is included in Williamson Act Contract No. 770255. A Williamson Act Cancellation Petition has been prepared and has been filed for approval by the San Joaquin County Board of Supervisors. The petition contains the basis for making the findings required for cancellation pursuant to Government Code § 51280 et seq.

[1] An agricultural preserve defines the boundary of an area within which a city or county would be willing to enter into Williamson Act contracts with landowners: The boundary is designated by resolution of the city council or board of supervisors with jurisdiction over the property. Agricultural preserves generally must be at least 100 acres in size.

4.2.2.3 Farmland Mapping and Monitoring Program

The DOC's FMMP, administered by the Division of Land Resource Conservation, is responsible for mapping and monitoring important farmlands for most of the state's agricultural areas. The FMMP updates its farmland maps every 2 years based on information from local agencies. FMMP maps show five categories of agricultural lands and three categories of non-agricultural lands, which are described in the following subsections. The San Joaquin County portion of the Project site is classified as Grazing Land and Farmland of Local Importance. The gen-tie line corridor, located in Alameda County, is classified as Grazing Land and Other Land. The existing PG&E Tesla Substation, where Project's gen-tie line tie-in would be located, is classified as Urban and Built-up Land.

Agricultural Lands

Following are descriptions of the farmland mapping categories used by the FMMP. The minimum mapping unit for all agricultural land categories is 10 acres, except for Grazing Land, where the minimum mapping unit is 40 acres.

Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are the most suitable for agriculture and are considered especially important agricultural resources. They are often referred to collectively as "important farmland." Grazing Land may also qualify as important farmland where grazing is a key component of the local economy.

Prime Farmland

Prime Farmland is defined by the State as farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime Farmland must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date (DOC 2022b).

Farmland of Statewide Importance

Farmland of Statewide Importance is defined as "irrigated land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops." However, this land has minor shortcomings, such as steeper slopes or less ability to store soil moisture than Prime Farmland. For land to be designated as Farmland of Statewide Importance, it must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date (DOC 2022b).

Unique Farmland

Unique Farmland is considered to consist of lower-quality soils, but, nonetheless, is used for production of the state's leading agricultural crops. Unique Farmland is usually irrigated, but may include non-irrigated orchards or vineyards in some climatic zones. To qualify for this designation, land must have been used for crops at some time during the 4 years prior to the mapping date (DOC 2022b).

Farmland of Local Importance

Farmland of Local Importance is land identified as important to the local agricultural economy by each county's board of supervisors and a local advisory committee (DOC 2022b).

Grazing Land

Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative Extension, and other groups interested in the extent of grazing activities (DOC 2022b).

Non-agricultural Lands

Following are descriptions of the non-agricultural land mapping categories used by the FMMP. Mapping units for non-agricultural lands vary, as described below.

Urban and Built-up Lands

Urban and Built-up Lands consist of land occupied by structures with a building density of at least one structure to 1.5 acres, or approximately six structures to a 10-acre parcel. This type of land is used for residential, industrial, commercial, construction, institutional, and public administration purposes; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed purposes (DOC 2022b).

Other Land

Other Land is land not included in any other mapping category. Examples also include low-density rural developments and brush, timber, wetland, and riparian areas not suitable for livestock grazing. This category also includes vacant and non-agricultural land surrounded on all sides by urban development; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres. Rural Residential Land is included in the Other Land category (DOC 2022b).

4.2.2.4 Local

San Joaquin County General Plan

The San Joaquin County portion of the Project site is designated as General Agriculture in the San Joaquin County General Plan (General Plan). The Land Use Element of the County's General Plan contains goals and policies related to agriculture resources (San Joaquin County 2016). The following are General Plan goals and policies that are applicable to the proposed Project:

> ***Policy LU-1.5: Clear Boundaries.*** *The County shall strive to preserve agricultural and open space areas that contribute to maintaining clear boundaries among cities and unincorporated communities.*
>
> ***Policy LU-1.7: Farmland Preservation.*** *The County shall consider information from the State Farmland Mapping and Monitoring Program when designating future growth areas in order to preserve prime farmland and limit the premature conversion of agricultural lands.*

Policy LU-2.1: Compatible and Complimentary Development. *The County shall ensure that new development is compatible with adjacent uses and complements the surrounding natural or agricultural setting.*

Goal LU-7: *Provide for the long-term preservation of productive farmland and to accommodate agricultural services and related activities that support the continued viability of the County's agricultural industry.*

Policy LU-7.1: Protect Agricultural Land. *The County shall protect agricultural lands needed for the continuation of viable commercial agricultural production and other agricultural enterprises.*

Policy LU-7.2: Agricultural Support Uses*: The County shall require new agricultural support development and non-farm activities to be compatible with surrounding agricultural operations. New developments shall be required to demonstrate that they are locating in an agricultural area because of unique site area requirements, operational characteristics, resource orientation, or because it is providing a service to the surrounding agricultural area. The operational characteristics of the use may not have a detrimental impact on the operation or use of surrounding agricultural properties. Developments must be sited to avoid any disruption to the surrounding agricultural operations.*

Policy LU-7.5: Right to Farm. *The County shall strive to protect agricultural land against nuisance complaints from nonagricultural land uses though the implementation of the San Joaquin County Right to Farm ordinance and, if necessary, other appropriate regulatory and land use planning mechanisms.*

Policy LU-7.7: Agricultural Buffers. *The County shall ensure non-agricultural land uses at the edge of agricultural areas incorporate adequate buffers (e.g., fences and setbacks) to limit conflicts with adjoining agricultural operations.*

Policy LU-7.11: Agricultural Land Preservation Mechanisms. *The County shall support regulatory, incentive-based, and financial mechanisms for the preservation of agricultural land.*

Policy LU-7.12: Agricultural Land Conversion Mitigation. *The County shall maintain and implement the Agricultural Mitigation Ordinance to permanently protect agricultural land within the County.*

Policy LU-7.15: Williamson Act Contracts. *The County shall continue to administer the Williamson Act program and shall maintain procedures for Williamson Act contracts consistent with the policies in the General Plan.*

Policy NCR-5.6: Energy Facilities on Prime Farmland. *The County shall discourage the placement of energy facilities on Prime Farmland.*

San Joaquin County Municipal Ordinance Code

Zoning Ordinance

The San Joaquin County portion of the Project site is in the Agricultural General-160 zoning district. Division 6, Section 9-605.2,of the County's Municipal Ordinance Code allows any major utilities on Agricultural General zoned land through a Site Approval application.

Agriculture Mitigation Ordinance

The County's Agriculture Mitigation Ordinance is defined in Title 9, Division 10, Chapter 9-1080, of the Municipal Ordinance Code. The purpose of the County's Agriculture Mitigation Ordinance is to permanently protect agricultural land in the County by mitigating the loss of agricultural land resulting from:

1) A General Plan Amendment that changes the designation of any land from an agricultural to a non-agricultural use; and
2) A Zoning Reclassification that changes the permitted uses from agriculture to a non-agricultural use, regardless of the General Plan designation.

Mitigation is required in the form of an agricultural conservation easement that protects the same number of acres proposed to be changed to a non-agricultural use, or greater (i.e., 1:1 ratio). If easement acquisition is determined to be infeasible after a good faith effort, a payment in lieu may be allowed (FIC 2022).

Right-to-Farm Ordinance

The County's "Right-to-Farm" ordinance is defined in Title 6, Division 9, of the Municipal Ordinance Code. This ordinance is designed to preserve, protect, and encourage the development and improvement of agricultural land, and to reduce the loss to the County of agricultural resources by limiting the circumstances under which agricultural operations or activities may be deemed to constitute a nuisance. The Right-to-Farm ordinance protects farmland by requiring disclosure to purchasers and users of property next to or near agricultural operations of the inherent potential problems associated with living near actively farmed land.

Alameda County East County Area Plan

The East County Area Plan (ECAP) contains goals, policies, and programs related to agriculture resources (Alameda County 2000). In November 2000, the Alameda County electorate approved the Save Agriculture and Open Space Lands Initiative (Measure D; effective date, December 22, 2000). The initiative amended portions of the County General Plan, including the ECAP.

The Alameda County portion of the Project site is designated as LPA in the ECAP. The LPA land use designation contains language allowing uses, such as windfarms and related facilities, public, quasi-public uses, and utility corridors. The following are ECAP policies that are applicable to the gen-tie line portion of the Project located within Alameda County:

> ***Policy 1****: The County shall identify and maintain a County Urban Growth Boundary that divides areas inside the Boundary, next to existing cities, generally suitable for urban development from areas outside suitable for long-term protection of natural resources, agriculture, public health and safety, and buffers between communities.*

Policy 52*: The County shall preserve open space areas for the protection of natural resources (e.g., agriculture, wind power, and mineral extraction), protection of sensitive viewsheds (see definition in Table 1 of ECAP), preservation of biological resources, and the physical separation between neighboring communities (see Figure 4 of ECAP).*

Policy 54*: The County shall approve only open space, recreational, agricultural, limited infrastructure public facilities (e.g., limited infrastructure, hospitals, research facilities, landfill sites, jails, etc.) and other similar and compatible uses outside the Urban Growth Boundary.*

Policy 56*: The County shall require all new development to dedicate or acquire land for open space and/or pay equivalent in-lieu fees which shall be committed to open space land acquisition and management and shall encourage the cities to impose similar open space requirements on development in incorporated areas.*

Policy 73*: The County shall require buffers between those areas designated for agricultural use and new non-agricultural uses within agricultural areas or abutting parcels. The size, configuration and design of buffers shall be determined based on the characteristics of the project site and the intensity of the adjacent agricultural uses, and if applicable, the anticipated timing of future urbanization of adjacent agricultural land where such agricultural land is included in a phased growth plan. The buffer shall be located on the parcel for which a permit is sought and shall provide for the protection of the maximum amount of arable, pasture, and grazing land feasible.*

Policy 78*: In areas designated Large Parcel Agriculture, the County shall permit agricultural processing facilities (for example, wineries, olive presses) and limited agricultural support service uses that primarily support Alameda County agriculture, are not detrimental to existing or potential agricultural uses, demonstrate an adequate and reliable water supply, and comply with the other policies and programs of the Measure D Initiative (Initiative).*

Policy 79*: The County shall require any proposal for agricultural support service uses within areas designated "Large Parcel Agriculture" or "Resource Management" to meet, at a minimum, the following criteria:*

- *The project will not require the extension of public sewer or water.*
- *The project will not detract from agricultural production on-site or in the area.*
- *The project will not create a concentration of commercial uses in the area.*

Policy 82*: In areas designated Large Parcel Agricultural, the County shall permit limited agriculture enhancing commercial uses that primarily support the area's agricultural production, are not detrimental to existing or potential agricultural use, demonstrate an adequate and reliable water supply, and comply with other policies and programs of the Initiative.*

Policy 85*: The County shall utilize provisions of the Williamson Act and other appropriate economic incentives to support agricultural uses.*

Policy 86*: The County shall not approve cancellation of Williamson Act contracts within or outside the County Urban Growth Boundary except where findings can be made in accordance with state law, and the cancellation is consistent with the Initiative. In no case shall contracts outside the Urban Growth Boundary be canceled for purposes inconsistent with agricultural or public facility uses. Prior to canceling any contract inside the County Urban Growth Boundary, the Board of Supervisors shall specifically find that there is insufficient non-contract land available within the Boundary to satisfy state-mandated housing requirements. In making this finding, the County shall consider land that can be made available through reuse and rezoning of non-contract land.*

Policy 93*: The County shall seek to stimulate agricultural investment and enhance the economic viability of existing or potential rural agricultural uses.*

Policy 96*: In areas outside the County Urban Growth Boundary designated Large Parcel Agriculture, Resource Management, or Water Management Lands, the number of parcels that may be created, the residential units permitted on each parcel, the size of the development envelope, the maximum floor areas and floor area ratios, and the uses permitted by the plan on February 1, 2000, or by the Initiative, whichever is less, may be increased.*

Policy 98*: The County shall require Site Development Review for all proposed buildings, except accessory uses related to agricultural production (see definition in Table 1 of ECAP), in the "A-100" (Agriculture – 100-acre minimum parcel size), "A-160" (Agriculture – 160-acre minimum parcel size), or "A-320" (Agriculture – 320-acre minimum parcel size) Districts.*

Alameda County Municipal Code

Zoning Ordinance

The portion of the Project site located within Alameda County, is in the Agricultural (A) zoning district. Pursuant to Section 17.52.020 of the Alameda County Municipal Code, public utility uses, excepting buildings and service yards or storage yards, are permitted in any zoning district, provided that plans for any such use be submitted to the Alameda County Planning Commission for a report and recommendation prior to the acquisition of any site, easement, or right-of-way (ROW). Accordingly, the gen-tie line portion of the Project would be an allowable use within the A zoning district in Alameda County.

Right to Farm Ordinance

Alameda County's "Right to Farm" ordinance is defined in Chapter 6.28 of the Municipal Code. This ordinance is designed to promote public health, safety, and welfare, and to support and encourage continued agricultural operations in the county. The Right-to-farm ordinance protects farmland by requiring disclosure to purchasers and users of property next to or near agricultural operations of the inherent potential problems associated with living near actively farmed land.

4.2.3 Thresholds of Significance

A project would result in significant impacts to agriculture and forestry resources if it would:

a) *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;*

b) *Conflict with existing zoning for agricultural use, or a Williamson Act contract;*

c) *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resource Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));*

d) *Result in loss of forest land or conversion of forest land to non-forest use; or*

e) *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*

4.2.4 Impact Analysis

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment (LESA model (1997) prepared by the DOC as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information complied by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

To assess potential impacts on agriculture and farmland, the County has considered and relied on the results of Project-specific LESA modeling (Appendix B), site-specific zoning, and mapping available pursuant to the FMMP of the California Resources Agency. To assess potential impacts on forest resources, the County considered site zoning, site-specific environmental characteristics, and applicable definitions set forth in state law.

IMPACT 4.2-1: *Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?* **(No Impact)**

CEQA recognizes that the conversion of Prime or Unique Farmland or Farmland of Statewide Importance can result in a significant impact on agricultural resources. In this case, the San Joaquin County portion of the Project site is designated as Grazing Land and Farmland of Local Importance by the DOC, and the gen-tie line corridor located in Alameda County is designated as Grazing Land and Other Land by the DOC. The existing PG&E Tesla Substation, where the Project's gen-tie line tie-in would be located, is classified as Urban and Built-up Land. No portion of the Project site is considered Prime Farmland, Unique Farmland, or Farmland of Statewide

Importance. As such, conversion of the Project site for battery energy storage is not a significant adverse impact on agricultural resources. This conclusion is buttressed by a LESA model, a tool recommended to be used by lead agencies in Appendix G of the CEQA Guidelines to determine the significance of the conversion of agricultural land. In this case, the Project-specific LESA prepared for this Project concludes that "the Project will not have a significant impact on agricultural land use within the Project area or Zone of Influence" (Appendix B). Therefore, no impact would occur, and no mitigation would be required because there is no evidence that the Project would result in a significant impact due to conversion of unirrigated, Grazing Land, Farmland of Local Importance, Other Land, or Urban Built-up Land to a renewable energy use.

Mitigation: None required.

IMPACT 4.2-2: *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?* **(Less Than Significant Impact with Mitigation Incorporated)**

As discussed above in Section 4.2.1, *Existing Conditions*, the battery energy storage portion of the Project site located in San Joaquin County is zoned Agricultural General-160. According to Division 14, Section 9-605.2, of the San Joaquin County Municipal Ordinance Code, any Major Utility use, including such things as transmission lines, substations, wind farms and related facilities, such as a BESS, as described County Code Division 6, Section 9-605.2, is permitted on Agricultural General zoned land through a Site Approval application. Prior to approving an application for a Site Approval, the Review Authority shall make findings pursuant to Section 9-818.6 of the San Joaquin County Code. Accordingly, the Project would not conflict with the existing zoning for agricultural use in San Joaquin County.

Further, the gen-tie line portion of the Project site, located in Alameda County, is zoned Agricultural (A). Public utility uses, excepting buildings and service yards or storage yards, are permitted in any zoning district pursuant to Section 17.52.020 of the Alameda County Municipal Code. Therefore, the gen-tie line portion of the Project, and specifically the portion of the gen-tie line to be constructed by the Applicant from the battery energy storage facility to the point of change of ownership (POCO or tie-in), would not conflict with the existing zoning for agricultural use in Alameda County. The portion of the gen-tie line from the POCO to the PG&E Tesla Substation would be constructed by PG&E and is discussed in Section 4.2.6 below. However, this portion of the gen-tie line would similarly not conflict with the existing zoning.

The San Joaquin County portion of the Project site is included in a Williamson Act contract. The Applicant, in partnership with the property owners, has filed a Petition for Cancellation of Contract for the Williamson Act contract, seeking a finding from the San Joaquin County Board of Supervisors that cancellation is either consistent with the purposes of the act or is in the public interest (see Government Code § 51282(a) through (c). The Alameda County portion of the Project site is not included in a Williamson Act contract.

Petitions for cancellation of the contracts were submitted to the County pursuant to Government Code § 51282(a)(1), seeking cancellation under the "public interest" cancellation provisions (Government Code § 51282(a)). To determine that the cancellation is in the public interest, the County must find (1) that other public concerns substantially outweigh the objectives of the Williamson Act, and (2) that there is no proximate noncontracted land that is both available and suitable for the proposed use or that development of the contracted land would provide more contiguous patterns of urban development (Government Code § 51282(c)).

As stated in the Petition for Cancellation and described in more detail in the subsections below, development of the proposed battery energy storage facility is in the public interest because of the pressing need to address greenhouse gas (GHG) emissions and climate change by improving and transforming the energy system. While the Project would not directly generate renewable energy, the Project would provide increased grid reliability that is necessary to facilitate renewable energy use. This public benefit allows the County to consider canceling a site's Williamson Act tax status. Layering energy storage systems into the energy grid improves grid reliability and makes it more resilient to disturbances and peaks in energy demand. Additionally, the land in question is not Prime Farmland. The proposed Project would help the State of California achieve its goal of providing 100 percent GHG emissions–free electricity by 2045. Implementation of the Project would not attract additional non-agricultural development to adjacent land (i.e., the battery energy storage facility would not induce residential or commercial growth in the area). In addition, the Project will be located in proximity to the Tesla Substation and there is no proximate non-contracted land that is both available and as suitable for the development of a battery energy storage facility that would provide for a more contiguous pattern of urban development.

The Public Interest and Compatibility with Surrounding Agriculture

The Project would not significantly compromise the long-term agricultural capability of the Project site or other contracted lands in agricultural preserves. The Project involves leasing the land, not buying it. It is considered a possibility that the battery energy storage facility could eventually be removed, and the land returned to farming. Therefore, it is possible that the Project site owners could return the site to full agricultural use when the lease is ended.

Operation of the Project would not affect the uses of adjacent properties under Williamson Act land use contracts. The Project would not result in indirect impacts that could occur with the conversion of the site from agricultural uses to non-agricultural uses. This type of impact is mainly due to compatibility issues with the adjacent agricultural land still in production. These types of compatibility issues may include nuisance effects to a site from noise, dust, odors, and drift of agricultural chemicals. Incompatible uses could impact the adjacent agriculture uses due to restrictions on the use of agricultural chemicals, complaints regarding noise and dust, and vandalism and pilfering of crops. These conflicts could potentially result in increased costs to the agricultural operation and encourage conversion of additional agricultural lands to urban uses. The Project would not result in this type of indirect impact; O&M activities associated with battery energy storage facilities are minimal. Operation of the Project would not result in an increase in employment that would require the construction of new housing. The Project would be compatible with the surrounding agricultural uses and is not expected to affect the agricultural use of the adjacent parcels.

The percentage of land proposed for this cancellation represents a tiny percentage of the remaining acreage under Williamson Act contracts in California and does not present a threat to the short-term or long-term agricultural production in California. The total acreage of contracted Williamson Act land in California was approximately 10 million acres in 2021 (DOC 2022c). As of 2021, approximately 2,985,970 acres of agricultural land was under some form of Williamson Act contract with the San Joaquin Valley Region (DOC 2022c). The San Joaquin County portion of the Project site, the portion included in a Williamson Act contract, only represents approximately 0.000035 percent of the contracted area in the San Joaquin Valley Region.

The Public Interest and Use of Non-prime Farmland

The DOC more often found that cancellations are in the public interest when the parcel(s) are not located on lands classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as defined by the FMMP. The entirety of the Project site does not contain lands classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The Project site and surrounding lands are designated as Farmland of Local Importance and Grazing Land.

The Public Interest, Water Availability, and Site Constraints

Water supplied to the County comes from two sources: groundwater and surface water. The County lies entirely within the San Joaquin River Basin, which is bounded topographically and geologically by the bedrock of the Diablo Range to the west and the Sierra Nevada to the east. The San Joaquin River flows in a southeast to northwest direction from the Sierra Nevada through the County. Water supply in the County is provided through multiple agencies and water projects, including federal, regional, and local water districts, special districts, and private systems. While all cities and most unincorporated areas in the County receive water through delivery systems operated and maintained by irrigation districts, water districts, and water conservation districts, some communities rely on groundwater from private wells (San Joaquin County 2016).

The portion of the Project site that is subject to an existing Williamson Act contract (within San Joaquin County) is not located within an established water district or irrigation district in the County (San Joaquin County 2022b, 2022c). Accordingly, the San Joaquin County portion of the Project site does not contain irrigation infrastructure or an irrigation system connection to a water district or irrigation district. Thus, water supply would likely be secured via groundwater from a private well. Due to lack of irrigation water, the current use on the entire Project site is cattle ranching.

Cancellation is more appropriate and consistent with Williamson Act objectives where the land in question has significant site-based constraints to viable agricultural operations. The approximately 106 acres being petitioned for cancellation under Contract No. 770255 within San Joaquin County are not irrigated and do not have irrigation system connections to a water district's or irrigation district's infrastructure. Thus, there is a lack of necessary infrastructure to deliver surface water to the Williamson Act–contracted, San Joaquin County portion of the Project site efficiently.

Cancellation of the Existing Williamson Act Contract

The proposed Project would not affect agricultural uses on adjacent or nearby properties under Williamson Act contracts or within agricultural zoning designations for the following reasons:

- The Project would not introduce a non-agricultural use that is sensitive to or incompatible with agricultural operations that would occur nearby.
- At the end of its operating life, infrastructure associated with the Project would be removed, which would allow the Project site to return to agricultural use.
- The Project site and surrounding lands do not contain lands classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

- Cancellation is consistent with Williamson Act objectives because the land in question has significant site-based constraints to viable agricultural operations due to the lack of water accessibility. The Project site does not contain irrigation infrastructure or an irrigation system connection.
- No proximate lands unencumbered by Williamson Act contracts were identified as available and suitable for battery energy storage development. Therefore, if the County approves a Use Permit and cancels the Williamson Act contract, the Project would not result in any conflict with the agricultural zoning or any Williamson Act contracts. Further, the zoning of the land would remain agricultural. Even though agricultural uses would not occur with the proposed Project, when the battery energy storage facility ceases operations, agricultural zoning and the Project's Decommissioning Plan and financial assurances would promote the conversion of the Project site back to agricultural uses.

Mitigation: Implementation of **Mitigation Measure AGR-1** would require the Applicant to file a Petition for Cancellation of Contract for the Williamson Act contract on the San Joaquin County portion of the Project site.

Approval of the Petition for Cancellation would be required prior to development of the Project; if the San Joaquin County Board of Supervisors determines that cancellation of the contract is in the public benefit (per Government Code § 51282(a)), no conflict with Williamson Act contracted land or farmland conversion would occur, and impacts would be less than significant with approval.

IMPACT 4.2-3: *Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resource Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?* **(No Impact)**

The entirety of the Project site does not contain any land defined as forest land (as defined by Public Resources Code § 12220(g)), timberland (as defined by Public Resources Code § 4526), or land zoned Timberland Production (as defined by Government Code § 51104(g)), such that there would be no impact.

Mitigation: None required.

IMPACT 4.2-4: *Would the project result in loss of forest land or conversion of forest land to non-forest use?* **(No Impact)**

The entirety of the Project site is not forest land and has been historically used as grazing land. No loss of forest land or conversion of forest land to non-forest use would occur, such that there would be no impact.

Mitigation: None required.

IMPACT 4.2-5: *Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?* **(Less than Significant Impact)**

The LESA model is an approach for rating the relative quality of land resources based upon specific measurable features. The LESA model was first developed by the federal Natural

Resources Conservation Service (NRCS) in 1981. It was subsequently adopted in 1990 by the DOC to evaluate land use decisions that affect the conversion of agricultural lands in California (Public Resources Code § 21095). The formulation of the California Agricultural LESA Model is intended to provide lead agencies with a methodology to ensure that agricultural land conversions are quantitatively and consistently considered in the environmental review process. The LESA Technical Memorandum for the Project is included as Appendix B.

The LESA Model (Appendix B) rates the potential significance of the conversion of an agricultural parcel, or adjacent land in its Zone of Influence, that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production. The Zone of Influence is considered to be a 0.25-mile radius around the Project site.

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating and is scored in a similar manner. Protected resource lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses of land, including: publicly owned lands maintained as park, forest, or watershed resources; Williamson Act contracted lands; and lands with natural resource easements that restrict the conversion of such land to urban or industrial uses.

As discussed in the LESA Technical Memorandum included as Appendix B, 98 percent of the land within the Project's Zone of Influence is agricultural and approximately 10 percent is considered protected resource lands. However, due to the Project's other site assessment and land evaluation factors, including soil capabilities and water availability, the LESA analysis concludes that the Project would have a less than significant impact on agricultural land use on the Project site or Zone of Influence.

Mitigation: None required.

4.2.5 Mitigation Measures

The following mitigation measure is recommended to reduce significant impacts to agricultural resources.

AGR-1: Williamson Act Cancellation: The Applicant shall file a Petition for Cancellation of Contract for the Williamson Act contract on the San Joaquin County portion of the Project site, for consideration by the San Joaquin County Board of Supervisors, prior to construction.

4.2.6 PG&E Tesla Substation Improvements and Gen-tie

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the POCO to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either ROW corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

No additional farmland would be converted to make these improvements on PG&E's Tesla Substation property. The portion of the gen-tie line to be constructed by PG&E between the POCO and the Tesla Substation would be located outside of PG&E's property. However, the area where the gen-tie line would be located is not on land included in a Williamson Act contract, and the Williamson Act would not apply. Further, PG&E development of this portion of the gen-tie line would be consistent with the A zoning and LPA land use designation by Alameda County and the Alameda County ECAP, the same as previously discussed above for the portion of the gen-tie line to be constructed by the Applicant from the battery energy storage facility to the POCO, also within Alameda County. Finally, no forest land or timberland would be impacted by these improvements, as there are none present within the boundaries of the area that would be impacted.

Accordingly, the PG&E Tesla Substation improvements and construction of the gen-tie line from the POCO to its substation would have no impact on significance criteria 4.2-1 through 4.2-5. No mitigation measures would be required.

4.2.7 Cumulative Impacts

The Project would result in no impact with respect to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, and would not conflict with existing zoning for forest land or timberland. Therefore, the Project could not cause or contribute to any potential significant cumulative impact to these resource areas.

The geographic context for potential cumulative impacts related to other changes in the existing environment which, due to their location or nature, could result in agricultural impacts is San Joaquin County.

Ongoing impacts of past projects to Agriculture Resources are reflected in the existing conditions described in Section 4.2.1 and include the conversion of agricultural uses to other uses. The list of cumulative projects is included in Table 2-3 of Chapter 2, *Project Description*. There are no other projects that are under County consideration that, if approved and constructed, would have the potential to conflict with a Williamson Act contract or convert farmland to a non-agricultural use. With implementation of **Mitigation Measure AGR-1**, Project impacts related to the conflict with the existing Williamson Act contract on the San Joaquin County portion of the Project site are less than significant, site specific, and not expected to result in the conversion of other Williamson Act contracts. Additionally, the Project would not contribute to a cumulatively considerable impact, as there are no reasonably foreseeable conflicts on other properties, based on the list of known cumulative projects.

The Project would have a less than significant indirect impact related to potential conversion of adjacent offsite farmland to non-agricultural use. Because this incremental impact could contribute to a potential significant cumulative impact, the County has considered whether the contribution would be cumulatively considerable. The LESA found no significant impact on

agricultural land use within the Project's Zone of Influence, and there are no reasonably foreseeable cumulative projects that would convert farmland to non-agricultural uses within the County. For these reasons, the Project's less than significant indirect impact would not be cumulatively considerable.

4.2.8 References

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4.3 AIR QUALITY

This section identifies and evaluates issues related to air quality in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. This analysis is based in part on the Project-specific Air Quality and Greenhouse Gas Technical Report prepared on the Applicant's behalf (Appendix D).

4.3.1 Existing Conditions

4.3.1.1 Climate and Topography

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Project site is located in the San Joaquin Valley Air Basin (SJVAB), which occupies the southern half of the Central Valley and comprises eight counties: San Joaquin, Stanislaus, Fresno, Merced, Madera, Kings, Tulare, and portions of Kern County. Cumulatively, these counties represent approximately 16 percent of California's geographic area, making the SJVAB the second largest air quality basin (based on area) as delineated by the CARB (SJVAPCD 2015a).

The SJVAB is approximately 250 miles long and 35 miles in width (on average) and is bordered by the Coast Range Mountains on the west, the Sierra Nevada mountains on the east, and the Tehachapi Mountains to the south. On the valley floor, the SJVAB is open only to the north, which heavily influences prevailing winds. Although marine air generally flows into the SJVAB from the San Francisco Bay Area through the Carquinez Strait (a gap in the Coast Range Mountains) and low mountain passes, such as Altamont Pass and Pacheco Pass, the mountain ranges restrict air movement through the SJVAB. Marine air occasionally flows from the San Joaquin River Delta toward the south, over the Tehachapi Pass. The Coastal Range and the Sierra Nevada range restrict air movement to the west and east, respectively. During winter, weak winds can lead to limited transport of pollutants. Additionally, most of the surrounding mountains are above the normal height of summer inversion layers (1,500 to 3,000 feet). These topographic features result in weak airflow and poor dispersion of pollutants.

The SJVAB is in a Mediterranean Climate Zone, characterized by hot and dry summers with maximum temperatures that often exceed 100 degrees Fahrenheit, and winters with sparse rainfall. High pressure events can lead to temperature inversions, inhibiting vertical mixing and trapping air pollutants. As a result, the SJVAB is highly susceptible to pollutant accumulation (SJVAPCD 2015a).

4.3.1.2 Pollutants and Effects

The potential for high pollutant concentrations at a given location depends on the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind and the ability of the atmosphere to disperse the contaminated air. Topographic and climatological factors influence the atmospheric pollution potential of an area. The potential for air pollution is a function of emissions sources, wind flow patterns, inversions, solar radiation, and topography.

4.3 Air Quality

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants. The USEPA calls these "criteria" air pollutants because it regulates them by developing health-based (primary) or environmentally based (secondary) standards. Criteria pollutants that are a concern in the SJVAB are described below.

Ozone (O_3) is a respiratory irritant and oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving precursor organic compounds and nitrogen oxides (NO_x). Volatile organic compounds (also called reactive organic gases [ROG]) and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately 3 hours. Ozone exists naturally in the stratosphere, shielding earth from harmful ultraviolet radiation. However, at ground level, ozone causes adverse health effects and is a major component of smog. High concentrations have been tied to respiratory ailments and cardiovascular disease, as well as damage to natural ecosystems, agricultural crops, and materials such as rubber, paint, and plastics. The main sources of NO_X and ROGs, often referred to as ozone precursors, are combustion processes (including motor vehicle engines), the evaporation of solvents, paints, and fuels, and biogenic sources. Ozone levels usually build up during the day and peak in the afternoon hours. Ozone levels are usually highest on hot, windless summer afternoons, especially in inland valleys. Since weather conditions have a strong impact on ozone formation, ozone levels can vary significantly from day to day or from one summer to the next.

Nitrogen dioxide (NO_2) is an air quality pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_x. A precursor toO_3 formation, NO_x is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NO_x emitted from fuel combustion is in the form of nitric oxide (NO) and NO_2. NO is often converted to NO_2 when it reacts with O_3 or undergoes photochemical reactions in the atmosphere. Aside from its contribution to O_3 formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of the air on high pollution days, especially in conjunction with high O_3 levels. The main sources of NO_X emissions in the region are on-road and off-road motor vehicles and fuel combustion (SJVAPCD 2015a).

Particulate Matter (PM) comprises solid particles and liquid droplets, including smoke, dust, organic compounds, soil particles, and aerosols. Particles that are 10 micrometers in diameter or smaller (also called respirable particles) are a potential human health concern because they can enter the lungs, which can affect the heart and cause adverse health effects. They can be emitted directly to the atmosphere as well as be formed in the atmosphere by chemical reactions among precursors. Some sources of PM, such as demolition and construction activities, are local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility. Research has indicated that there are associations

between increased levels of ambient particulate matter and increased adverse respiratory health. Particulate matter can be categorized based on their size:

- Inhalable coarse particles (PM_{10}) are between 2.5 and 10 micrometers in diameter. Sources include roads, farming activities, windblown dust, and combustion sources.
- Fine particles ($PM_{2.5}$) are 2.5 micrometers in diameter or smaller, and generally emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning.

Carbon Monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen to the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease or anemia, as well as fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death. The main source of CO in the SJVAB is on-road motor vehicles. Therefore, CO problems tend to be localized with nonattainment areas designated in urban areas rather than the entire basin. With the introduction of new automotive emission controls and fleet turnover, emissions from motor vehicles have been declining.

Sulfur Dioxide (SO_2) is a combustion product of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM_{10} and $PM_{2.5}$) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. The use of low-sulfur fuel has minimized problems with this pollutant.

Lead (Pb) has a range of adverse neurotoxic health effects and was previously released into the atmosphere primarily via the combustion of leaded gasoline. The use of leaded gasoline ceased in the U.S. after 1995, resulting in decreasing levels of atmospheric lead.

4.3.1.3 Sensitive Receptors

Sensitive receptors are segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with preexisting serious health problems related to respiratory distress). Land uses often identified as sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities.

Land use in the area is agricultural interspersed with sparse rural residential development, the Musco Family Olive Company, and several warehouses/distribution centers. The closest residences are located between 300 and 650 feet west of the Project boundary. However, these residences are owned by landowners who are participating in the Project and, therefore, are not considered in the analysis of impacts. The closest residences on land not owned by the current property owner are approximately 0.2 mile (approximately 1,000 feet) north of the Project site on the other side of West Patterson Pass and 0.2 mile (approximately 1,000 feet) southwest of the Project site at the southern terminus of Midway Road. As previously noted, the community of

Tracy is approximately 5 miles northeast of the Project. Due to the remote nature of the area, impacts to sensitive receptors are expected to be limited.

4.3.1.4 Valley Fever

Valley Fever is an infection caused by inhalation of *Coccidioides immitus* (*C. immitus*) fungus spores. The fungus grows in the soil in areas of California and the southwestern U.S. It is prevalent in the San Joaquin Valley and particularly during conditions of high summer temperatures, mild winters, sparse rainfall, and alkaline sandy soils. Fungus spores lie dormant in the soil until they are disturbed by wind, vehicles, or other ground-disturbing activities and become airborne. Agricultural workers, construction workers, and other people who are exposed to wind and dust outdoors are most prone to contracting Valley Fever. Infections can result in mild influenza-like symptoms, such as fever, cough, chest pain, muscle or joint aches, night sweats, and rash. Rarely, in more serious cases, it can infect the brain, joints, bone, skin, or other organs, or cause death. Approximately 60 percent of people exposed to fungal spores are asymptomatic and show no signs of infection (CDC 2020).

4.3.2 Regulatory Setting

Ambient air quality standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and safety. They are designed to protect those people most susceptible to respiratory distress (i.e., sensitive receptors), such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research suggests, however, that long-term exposure to air pollution at levels that meet air quality standards may have adverse health effects. For example, ozone exposure even at levels close to the ambient air quality standard may lead to adverse respiratory health.

The following discussion describes the regulatory authority of the federal, state, and local jurisdictions. The federal CAA, the California Clean Air Act (CCAA), and the most recent Air Quality Management Plan (AQMP) prepared and adopted by the San Joaquin Valley Air Pollution Control District (SJVAPCD) regulate air quality in the air basin. Federal and state standards are shown in Table 1.

4.3.2.1 Federal Regulations

Criteria Air Pollutants

The federal CAA (42 United States Code [U.S.C.] Section 7401–7671q) is a comprehensive federal law that regulates air emissions from area, stationary, and mobile sources and requires the adoption of the NAAQS to protect public health and welfare from the effects of air pollution. The federal CAA Amendments of 1990 required that the USEPA review all NAAQS with respect to health impacts and propose modifications or new rules as appropriate. In addition, the amendments of the 1990 federal CAA are associated with the attainment and maintenance of air quality standards, permits and enforcement, toxic air pollutants, acid deposition, stratospheric ozone protection, and motor vehicles and fuels. Current NAAQS are assigned to SO_2, CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and Pb. These pollutants are designated criteria pollutants.

Hazardous Air Pollutants

The 1977 federal CAA amendments required the USEPA to identify national emission standards for hazardous air pollutants (HAP) to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. The 1990 federal CAA Amendments, which expanded the control program for HAPs, identified 189 substances and chemical families as HAPs. Over the years, the list has been modified. Currently, there are 187 federally regulated HAPs.

4.3.2.2 State Regulations

Criteria Air Pollutants

The CCAA, passed by the California Legislature and signed into law by the Governor in 1988, assigns state-specific ambient air quality standards. The California standards are, in most cases, more stringent than federal standards. The goal of the CCAA is to attain state air quality standards by the earliest practical date. Since California established ambient air quality standards several years before the federal action and due to unique air quality problems introduced by the restrictive dispersion meteorology in much of California, there can be a considerable difference between state and national clean air standards. The standards currently in effect in California are shown in Table 4.3-1.

The CCAA requires each air pollution control district of an air basin that is designated as nonattainment of state ambient air quality standards to prepare and submit a plan for attaining and maintaining state standards. After further review of the relationship between fine PM and human health effects, the CARB adopted new state standards on June 20, 2002, for $PM_{2.5}$ which are more stringent than the federal standards. No specific control programs are in place to achieve this much more stringent standard. However, it does represent an air quality goal to dramatically reduce the adverse health effects from small-particle air pollution.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California Toxic Air Contaminants (TAC) list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established as a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, facilities are required to communicate the results to the public in the form of notices and public meetings.

The mixture of solid particles from equipment with diesel engines are collectively known as diesel particulate matter (DPM)[1]. These include many known or suspected cancer-causing substances, such as benzene, arsenic, and formaldehyde. Long-term exposure to diesel exhaust particles poses the highest cancer risk of any toxic air contaminant evaluated by the Office of

[1] DPM has been estimated as PM_{10} emitted from the exhaust of onsite, diesel-fueled construction equipment and vehicles.

Environmental Health Hazard Assessment. The CARB estimates that about 70 percent of the cancer risk that the average Californian faces from breathing toxic air pollutants stems from diesel exhaust particles. It also contains other harmful pollutants, including NO_x. Diesel exhaust particles and gases are suspended in the air, so exposure to this pollutant occurs whenever a person breathes air that contains these substances. Exposure to this pollutant is highest near roads and freeways, truck loading and unloading operations, and diesel-powered machinery operations. Exposure to diesel exhaust can have immediate health effects such as irritation to the eyes, nose, throat, and lungs. It can also cause coughs, headaches, light-headedness, and nausea (OEHHA 2023).

In 2000, the CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. In 2020, the CARB adopted the Advanced Clean Truck Regulations, which requires truck manufacturers to transition from diesel trucks and vans to electric zero-emission vehicles beginning in 2024. By 2045, every new truck and van sold in California will be zero emission.

Additional regulations apply to new trucks and diesel fuel, including the On-road Heavy Duty Diesel Vehicle (In-use) Regulation, On-road Heavy Duty (New) Vehicle Program, In-use Off-road Diesel Vehicle Regulation, and New Off-road Compression-ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures reduce diesel emissions, including In-use Off-road Diesel-fueled Fleets (13 CCR 2449 et seq.) and In-use On-road Diesel-fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause or have a natural tendency to cause injury or damage to business or property. This section also applies to sources of objectionable odors.

Table 4.3-1. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1/]		Federal Standards[2/]		
		Concentration[3/]	Method[4/]	Primary[3/, 5/]	Secondary[3/, 6/]	Method[7/]
Ozone	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (147 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12 µg/m³	15 µg/m³	
Carbon Monoxide	1 Hour	20 ppm (23 mg/m³)	Non-dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	NDIR
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[8/]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[9/]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)[9]	—	
	Annual Arithmetic Mean	—		0.30 ppm (for certain areas)[9]	—	
Lead (Pb)[10/, 11/]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[9]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles[12/]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	24 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[10/]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Source: California Air Resources Board (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, updated 05/04/16), USEPA (http://www.epa.gov/air/criteria.html, accessed November 2022)

µg/m³ – microgram per cubic meter; ppb – part per billion; ppm – part per million

1/ California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter (PM_{10} and $PM_{2.5}$), and visibility reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2/ National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once per year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less

than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, is equal to or less than the standard. Contact the U.S. Environmental Protection Agency (USEPA) for further clarification and current national policies.

3/ Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. The torr (symbol: Torr) is a non-Standard International unit of pressure with the ratio of 760 to 1 standard atmosphere, chosen to be approximately equal to the fluid pressure exerted by 1 millimeter of mercury (Hg), i.e., a pressure of 1 Torr is approximately equal to 1 millimeter of Hg. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4/ Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board (CARB) to give equivalent results at or near the level of the air quality standard may be used.

5/ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect public health.

6/ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7/ Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

8/ To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

9/ On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard. However, in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

10/ The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects that are determined. These actions allow implementing control measures at levels below the ambient concentrations specified for these pollutants.

11/ The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard. However, in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

12/ In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Valley Fever

In 2019, AB 203 Safety Training on Valley Fever added Section 6709 to the Labor Code. This addition requires employers to provide effective Valley Fever awareness and prevention training for all construction employees at risk of prolonged exposure to dust in Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Santa Barbara, Tulare, and Ventura Counties. Said training must occur annually and again before an employee begins work that is reasonably anticipated to cause exposure to substantial dust disturbance.

4.3.2.3 Local Regulations

San Joaquin Valley Air Pollution Control District

The CARB coordinates and oversees both state and federal air pollution control programs in California and has divided the state into 15 air basins. Significant authority for air quality control within each basin has been given to local Air Pollution Control Districts or Air Quality Management Districts that regulate stationary source emissions and develop local nonattainment plans. The SJVAPCD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SJVAB. The SJVAPCD jurisdiction includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings, and Tulare Counties and the western portion of Kern County.

The SJVAPCD has developed plans to attain state and federal standards for ozone and particulate matter. The following attainment plans are currently in effect:

1-Hour Ozone. Although the USEPA revoked the 1-hour ozone standard in 2005, the SJVAB was required to demonstrate that this standard had been met. The SJVAPCD requested a USEPA finding of attainment based on 2012 to 2014 ozone data. On July 18, 2016 (81 *Federal Register* [FR] 46609), the USEPA determined that the SJVAB had achieved the 1-hour ozone NAAQS.

8-Hour Ozone. The SJVAPCD developed the 2016 Ozone Plan (SJVAPCD 2016) to address the USEPA's 2008 eight-hour ozone standard, which the SJVAB must attain by 2032. While substantial progress has been made to improve air quality in the SJVAB through the implementation of existing plans and clean air investments by businesses and residents, the SJVAB continues to experience unique and significant air quality challenges in attaining the increasingly stringent federal air quality standards. The SJVAB is classified as an "extreme" nonattainment area for the 2015 ozone standard. On June 18, 2020, the District published 2020 RACT Demonstration for the 2015 8-Hour Ozone Standard. The 2022 attainment plan for the 2015 eight-hour ozone standard was adopted in December 2022. The SJVAPCD's current regulations reflect technologies and methods that are beyond control levels established under the Clean Air Act. The control strategy included in the 2022 Ozone Plan will reduce NO_x emissions by 72 percent between 2018 and 2037, which will help the Valley's progress toward attaining the 2015 8-hour ozone standard. The district's and state's incentive programs will also reduce emissions from mobile sources in the coming years. The 2022 Plan for the 2015 8-Hour Ozone Standard demonstrates that reductions being achieved will ensure expeditious attainment of the 2015 eight-hour ozone standard by the 2037 attainment deadline (SJVACPD 2022).

PM_{10}. The SJVAPCD adopted the 2007 PM_{10} Maintenance Plan and Request for Redesignation (SJVAPCD 2007), which demonstrated that the SJVAB has reached and will continue to meet the PM_{10} standard. The USEPA approved the document in 2008 and the SJVAB was redesignated to attainment/maintenance.

$PM_{2.5}$. The SJVAPCD's 2008 $PM_{2.5}$ Plan demonstrated attainment of the 1997 $PM_{2.5}$ standard in 2014. The USEPA lowered the $PM_{2.5}$ standard in 2006 and again in 2012, and the SJVAPCD's 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards (SJVAPCD 2018) sets an attainment deadline of 2024. This plan was approved by the USEPA on June 30, 2020.

The SJVAPCD's primary means of implementing air quality plans is by adopting and enforcing rules and regulations. Stationary sources within the jurisdiction are regulated by the SJVAPCD's permit authority and through its review and planning activities. Unlike stationary source projects, which encompass very specific types of equipment, process parameters, throughputs, and controls, air emissions sources from land use development projects are mainly mobile sources (traffic) and area sources (small, dispersed stationary and other non-mobile sources), including exempt (i.e., no permit required) sources, such as consumer products, landscaping equipment, furnaces, and water heaters. Mixed-use land development projects may include nonexempt sources, including devices such as small to large boilers, stationary internal combustion engines, gas stations, or asphalt batch plants.

Notwithstanding nonexempt stationary sources, which would be permitted on a case-by-case basis, SJVAPCD regulations VIII and IX generally apply to land use development projects and are described as follows:

Regulation VIII–Fugitive PM_{10} Prohibition. Rule 8021 Construction, Demolition, Excavation, Extraction, and Other Earth-moving Activities. Pursuant to Rule 8021 Section 6.3, the Project would be required to develop, prepare, submit, obtain approval of, and implement a Dust Control Plan, which would reduce fugitive dust impacts to less than significant for all construction phases of the Project. Table 8021-1 within Rule 8021 provides control measure options for construction, excavation, extraction, and other earth-moving activities.

Regulation IX–Mobile and Indirect Sources. Rule 9510 Indirect Source Review (ISR). The ISR rule went into effect March 1, 2006, and requires developers of new residential, commercial, and some industrial projects to reduce NO_x and PM_{10} emissions generated by their projects. Pursuant to Rule 9510, the purpose of the ISR program is to reduce emissions of NO^x and PM_{10} from new land development projects. Section 6.0 of the ISR rule outlines general mitigation requirements for developments that include reduction in construction emissions of 20 percent of the total construction NO_x emissions and 45 percent of the total construction PM_{10} exhaust emissions. The rule also requires the Project to reduce operational NO_x emissions by 33.3 percent and operational PM_{10} emissions by 50 percent, as compared to the baseline. Section 7.0 of the ISR rule includes fee schedules for construction or operational excess emissions of NO_x or PM_{10} if those emissions are above the goals identified in Section 6.0 of the rule. Monies collected from this fee are used by the SJVAPCD to fund emission reduction projects in the SJVAB on behalf of the Project.

Rule 9610–State Implementation Plan Credit for Emission Reductions Generated through Incentive Programs. Rule 9610 provides an administrative mechanism for the SJVAPCD to receive credit towards California State Implementation Plan (SIP) requirements for emission reductions achieved in the SJVAB through incentive programs administered by the SJVAPCD, Natural Resources Conservation Service (NRCS), or CARB. On April 9, 2015, the USEPA finalized a limited approval and limited disapproval (for a minor administrative error) of Rule 9610 as a revision to the California SIP. Additional documentation regarding the effectiveness of the SJVAPCD's incentive programs can be found in 2015 Annual Demonstration Report SIP Credit for Emission Reductions Generated Through Incentive Programs (SJVAPCD 2015b).

San Joaquin County General Plan

In 2016, San Joaquin County published their 2035 County General Plan (San Joaquin County 2016). The 2035 General Plan presents a vision for the County's future and provides strategies to implement the plan. The General Plan addresses geographic areas in the County that are unincorporated. The Plan serves as the County's "blueprint" for future land use, development, preservation, and conservation in the County. Air quality is addressed in the Public Health and Safety Element (Chapter 3.3 of the General Plan) and specifies the following policies that are relevant to the Project:

Goal PHS-5: *To protect public health, agricultural crops, scenic resources, and the built and natural environments from air pollution.*

- ***PHS-5.2*** *San Joaquin Valley Air Pollution Control District Coordination. Requires the County to coordinate with the SJVAPCD during review of new development projects which have the potential to cause adverse air quality impacts.*

- ***PHS-5.4*** *Innovative Mitigation Measures. The County shall encourage innovative mitigation measures and project redesign to reduce air quality impacts by coordinating with SJVAPCD, project applicants, and other interested parties.*

- ***PHS-5.5*** *Air District Best Performance Standards. The County shall consider the Best Performance Standards adopted by SJVAPCD during the review of new development proposals.*

- ***PHS-5.6*** *Toxic Air Contaminants. The County shall require effective buffers between residential areas and other sensitive receptors and non-residential land uses, such as highways, trucking centers, gasoline dispensing facilities, and dry cleaners, which generate toxic air contaminants.*

- ***PHS-5.7*** *TAC Exposure Reduction Measures for New Development. The County shall require new development projects to implement all applicable best management practices that will reduce exposure of sensitive receptors (e.g., hospitals, schools, daycare facilities, elderly housing, and convalescent facilities) to toxic air contaminants.*

- ***PHS-5.9*** *Particulate Emissions from Construction. The County shall support SJVAPCD efforts to reduce PM10 and PM2.5 emissions from construction, grading, excavation, and demolition to the maximum extent feasible and consistent with State and Federal regulations.*

- ***PHS-5.11*** *Paving Materials. 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.*

- ***PHS-5.13*** *Industrial Best Management Practices. The County shall require industrial facilities to incorporate economically feasible Best Management Practices and control technology to reduce PM10 and PM2.5 emissions consistent with State and Federal regulations.*

- ***PHS-5.14*** *Energy Consumption Reduction. The County shall encourage new development to incorporate green building practices and reduce air quality impacts from energy consumption.*

San Joaquin Council of Governments

The San Joaquin Council of Governments (SJCOG) is a joint-powers authority comprised of the County of San Joaquin and the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop. The role of SJCOG is to foster intergovernmental coordination within San Joaquin County and with neighboring jurisdictions, other regional agencies in the San Joaquin Valley, the state of California, and various federal agencies. The SJCOG is overseen by a Board of Directors which allocates funding for transportation improvements. The board also establishes regional transportation policies and programs. The SJCOG includes committees, task forces, workshops, and public forums that allow citizens and community groups to participate in the planning and approval process.

The SJCOG has prepared and adopted the 2018 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) for the region (SJCOG 2018). The planning horizon is 2046 and the plan is updated every 4 years. The SJCOG is in the process of preparing for the 2022 RTP/SCS. A Notice of Availability of a Draft Programmatic Environmental Impact Report for the 2022 RTP/SCS was issued on June 24, 2022 (SJCOG 2022). The SJCOG Board voted to adopt the 2022 RTP/SCS on August 25, 2022.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) manages air quality within Alameda County. The BAAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs. The BAAQMD develops regulations to improve air quality and protect the health and welfare of Alameda County residents and their environment. The district also monitors air quality, prepares clean air plans, responds to citizen complaints concerning air quality, and regulates agricultural burning.

BAAQMD regulations include permit requirements, emissions limits for specific source categories, requirements for open burning, and air toxics control measures for several source categories, including stationary compression ignition engines. There are no stationary sources proposed for the Project.

The BAAQMD regulates nuisance conditions in Rule 200, which states that:

> *No person shall discharge from any non-vehicular source such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.*

No other BAAQMD rules are applicable to the Project.

2017 Clean Air Plan

The clean air strategy of the BAAQMD includes preparing regional air quality plans, writing and enforcing regulations concerning sources of air pollution, issuing permits and inspecting stationary sources, responding to citizen complaints, monitoring air quality and meteorological conditions, awarding grants, and assisting local governments in addressing climate change (BAAQMD 2017a). The most recent air quality plan adopted by the BAAQMD, titled *Bay Area 2017 Clean Air Plan: Spare the Air, Cool the Climate* (Clean Air Plan; BAAQMD 2017b), is the applicable air quality plan for projects in Alameda County. The 2017 Clean Air Plan provides an integrated, multipollutant control strategy to reduce emissions of O_3, particulates, air toxics, and greenhouse gases (GHG). In addition to the regional Clean Air Plan, Alameda County has adopted a local climate action plan to reduce GHG emissions (Alameda County 2014).

The BAAQMD is responsible for preparing plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans for the national ozone standard and clean air plans for the California standard, both in coordination with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

The 2017 Clean Air Plan addresses nonattainment of the federal and state ozone standards in the SFBAAB, nonattainment of federal and state PM_{10} standards, and nonattainment of the state $PM_{2.5}$ standard. The 2017 control strategy fulfills the state's ozone planning requirements, including all feasible measures to reduce emissions of ozone precursors (e.g., ROGs and NO_x) and reduce transport of ozone and its precursors to neighboring air basins. In addition, the Clean Air Plan builds on and enhances the air district's efforts to reduce emissions of fine particulate matter and toxic air contaminants.

The 2017 Clean Air Plan establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving California and national air quality standards. The plan's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, updated emission inventory methodologies for various source categories, and the latest population growth projections and vehicle miles traveled (VMT) projections for the region. The 2017 Clean Air Plan defines a control strategy that the BAAQMD and its partners will implement to:

1. Reduce emissions and decrease ambient concentrations of harmful pollutants;
2. Safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and
3. Reduce GHG emissions to protect the climate.

In addition to updating the previously prepared ozone plan, the 2017 Clean Air Plan also serves as a multipollutant plan to protect public health and the climate. In its dual role as an update to the state ozone plan and a multipollutant plan, the 2017 Clean Air Plan addresses four categories of pollutants (BAAQMD 2017b):

- Ground-level ozone and its key precursors, ROG and NO_X;
- Particulate matter: primary $PM_{2.5}$, as well as precursors to secondary $PM_{2.5}$;
- Air toxics (e.g., TACs); and
- GHGs.

The 2017 Clean Air Plan includes local guidance for the state implementation plan (SIP), which includes the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards.

One of the 2050 goals of the Clean Air Plan is to develop and deploy strategies for onsite battery storage. The Project will help the BAAQMD to meet this goal.

Regulations and Rules

The following BAAQMD regulation and rule would be applicable to the Project:

Regulation 6, Rule 6, *Prohibition of Trackout*: This regulation prohibits the trackout from any active exit of a large construction or disturbed surface site onto an adjacent paved public roadway or shoulder of a paved public roadway that exceeds cumulative 25 linear feet and creates fugitive dust/visible emissions without cleaning up the trackout within 4 hours of when the owner/operator identifies excessive trackout. The rule also prohibits more than 1 quart of trackout to remain on

an adjacent paved public roadway or the paved shoulder of a paved public roadway at the end of any workday. This rule applies to construction sites larger than 1 acre and applies to the Project during Project construction.

4.3.3 Regional and Local Air Quality Conditions

4.3.3.1 San Joaquin Valley Air Basin Attainment Status

In an effort to protect human health and welfare, the CARB and USEPA have established ambient air quality standards. Areas are considered in "attainment" if standards are met and "nonattainment" if they are not met. For ozone, nonattainment status is further classified as marginal, moderate, serious, severe, or extreme.

At the federal level, the SJVAB is designated as an "extreme" nonattainment area for the 8-hour ozone standard, nonattainment for $PM_{2.5}$, and a maintenance area for PM_{10}. At the state level, the SJVAB is designated as a "severe" nonattainment area for 1-hour ozone standard, nonattainment for the 8-hour ozone standard, and nonattainment for both the PM_{10} and $PM_{2.5}$ standards. The attainment classifications for the criteria pollutants are presented in Table 4.3-2.

Table 4.3-2. SJVAB Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone (1-Hour)	No federal standard	Nonattainment/Severe
Ozone (8-Hour)	Nonattainment/Extreme	Nonattainment
NO_2	Attainment/Unclassified	Attainment
CO	Attainment/Unclassified	Attainment/Unclassified
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
SO_2	Attainment/Unclassified	Attainment
Lead	Attainment/Unclassified	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Sources: CARB 2021

4.3.3.2 Local Ambient Air Quality

An extensive air monitoring network operated by the SJVAPCD, CARB, and National Park Service measures concentrations for major pollutants to determine attainment status and generate air quality forecasts.

The closest and most representative monitor measuring ozone, NO_2, and $PM_{2.5}$ concentrations is the is the Tracey Airport monitoring station, located approximately 7 miles east of the Project area. For SO_2, the closest monitor is the Fresno-Garland monitoring station, located approximately 117 miles southeast of the Project area. Finally, for CO, the Stockton Hazleton Street monitoring station is the closest, located approximately 23 miles northeast of the proposed Project. For the purposes of this analysis, these monitoring locations were considered representative of the air quality

experienced in the vicinity of the Project. Table 4.3-3 summarizes the most recent air quality data from 2019 through 2021 with the number of days exceeding the ambient air quality standards.

Table 4.3-3. Local Ambient Air Quality Monitoring Data for the Years 2019 to 2021

Averaging Period	2019	2020	2021
Ozone (O_3) – Tracy – Airport (A), California Monitoring Station (AQS Site ID: 06-077-3005)			
1-hour Maximum Concentration (ppm)	0.095	0.086	0.089
Number of days exceeding CAAQS = 0.09 ppm	2	0	0
8-hour Maximum Concentration	0.079	0.078	0.077
Number of days exceeding CAAQS = 0.070 ppm	3	3	3
Number of days exceeding NAAQS = 0.070 ppm	3	3	3
Nitrogen Dioxide (NO_2) – *Tracy-Airport (A), California Monitoring Station (AQS Site ID: 06-077-3005)*			
1-hour Maximum Concentration (ppb)	37	37	36
Number of days exceeding CAAQS = 180 ppb	0	0	0
Number of days exceeding NAAQS = 100 ppb	0	0	0
Annual Average Concentration (ppm) (53 ppb)	4	4	-
Carbon Monoxide (CO) – *Stockton-Hazelton Street, California Monitoring Station (AQS Site ID: 06-077-1002)*			
1-hour Maximum Concentration (ppm)	3.1	2.8	2.2
Number of days exceeding CAAQS = 20 ppm	0	0	--
Number of days exceeding NAAQS = 35 ppm	0	0	0
8-hour Maximum Concentration	--	--	--
Number of days exceeding CAAQS = 9.0 ppm	--	--	--
Number of days exceeding NAAQS = 9.0 ppm	--	--	--
Coarse Particulate Matter (PM_{10}) – *Tracy Airport (A), California Monitoring Station (AQS Site ID: 06-077-3005)*			
24-hour Maximum Concentration (µg/m^3)	247	229	--
Number of days exceeding CAAQS = 50 µg/m^3	10	40	--
Number of days exceeding NAAQS = 150 µg/m^3	1	2	--
Annual Average Concentration (state method) (µg/m^3) (20 µg/m^3)	--	--	--
Fine Particulate Matter ($PM_{2.5}$) – *Tracy Airport (A) and (-), California Monitoring Station (AQS Site ID: 06-077-3005)*[1]			
24-hour Maximum Concentration (µg/m^3)	30.7	117.5	59.6
Number of days exceeding NAAQS = 35 µg/m^3	0	19	2
Annual Average Concentration (µg/m^3) (12 µg/m^3)	6.2	--	--
Sulfur Dioxide (SO_2) – *Fresno-Garland, California Monitoring Station (AQS Site ID: 06-019-0011)*			
1-hour Maximum Concentration (ppm)	0.009	0.016	0.008
Number of days exceeding NAAQS = 0.075 ppm	0	0	0
24-hour Maximum Concentration (ppm)	0.002	0.002	0.003
Number of days exceeding NAAQS = 0.14 ppm	0	0	0
Annual Average Concentration (ppm) (0.03 ppm)	--	--	--

Notes:
1/ – Data for 2019 and 2020 are from Tracy Airport (A) Monitor Station (AQS Site ID: 06-077-3005). Data for 2021 were not available from this site. Data for 2021 are from Tracy Airport (-) Monitor Station, which is a preliminary site with no monitoring ID assigned.
µg/m^3 – microgram per cubic meter; CAAQS – California ambient air quality standards; NAAQS – National ambient air quality standards; ppb – parts per billion; ppm – parts per million
Sources: CARB 2022a, 2022b

4.3.4 Methodology

Construction and operation of the Project would generate air contaminant emissions, including ROGs, NO_X, PM_{10}, $PM_{2.5}$, CO, and SO_2. The Project would also result in TAC emissions, such as DPM and odors. The methods and tools used to estimate emissions from the Project are described in the following subsections.

Air pollutant emissions associated with the Project would occur over the short term (i.e., 15 months) from construction-related activities, including equipment exhaust, vehicle travel on paved and unpaved roads, and fugitive dust from soil disturbance activities. Construction activities would produce combustion emissions from construction equipment engines and motor vehicles transporting the construction crew, equipment, and materials. Exhaust emissions from construction activities would vary daily as activity levels change. Equipment operating assumptions were based on information provided by the Applicant. Emissions quantification related to construction activities is necessary for comparison to SJVAPCD significance thresholds.

Project emissions were estimated using the emission calculation tool California Emissions Estimator Model (CalEEMod) Version 2020.4.0 (CAPCOA 2021). The model contains region-specific data and quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. For calculation of on-road (offsite) mobile sources, CalEEMod uses the EMFAC2017 emissions model.

4.3.4.1 Construction

Construction is anticipated to occur during a period of approximately 15 months, including 3 months of testing and commissioning. Project construction would consist of five major stages, with the third and fourth stages overlapping with the second. The first stage would include mobilization, site preparation, fencing, laydown, and trenching. Grubbing and grading would occur onsite to achieve the required surface conditions and to accommodate the support structures and access roads. Due to the sloped topography of the Project site, site preparation would require approximately 407,000 cubic yards of cut and 406,000 cubic yards of fill to create a single terrace on which the batteries would be installed. Water for dust control and other construction needs would be trucked to the site. The Project would comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. During the site and substation preparation and grading subphase, four generators will be used: two will operate 8 hours per day and two will operate 24 hours per day.

The second stage would involve construction of the energy storage enclosures and substation installation. A substation pad for the step-up transformer would be poured, followed by the installation of the medium-voltage stations, wiring of the modules through combiner boxes, and construction of the Project substation and grid interconnection. The medium-voltage stations would sit on concrete foundations, pending final design. The third stage would be installation of the gen-tie line foundation and tower erection. The fourth stage would continue the gen-tie line installation, including the pulling and stinging of the wires. The third and fourth stages would overlap with the second stage construction activities. The fifth and final phase of construction will include commissioning and testing.

The onsite construction workforce would consist of laborers, craftspeople, supervisory personnel, and support personnel. The onsite assembly and construction workforce is expected to reach a peak of approximately 60 workers; the average number of workers onsite is anticipated to be between 10 and 60 workers, depending on the construction phase. On average, it is anticipated that each worker will generate one round trip to the Project per workday. Workers could reside in any number of local communities or hotels. Due to the proximity of the city of Tracy and good availability of hotels and lodging there, it is likely many workers will stay there. The other closest residential locations to the Project are the hotels in Ulmar, Livermore, and Pleasanton. Additional nearby communities include Verona, Asco, Dublin, Lathrop, and Manteca. The nearest large urban areas are Tracy (9 miles, 18 minutes) and Ulmar (12 miles, 18 minutes). Because both are close, both will be included in analysis as possible commuting locations. Because so many local communities exist, the analysis did not consider all possible locations. It has been simplified to be representative and conservative. The communities in addition to Tracy and Ulmar that are included are Dublin (25 miles, 28 minutes) and Manteca (27 miles, 40 minutes). An estimated 40 percent of workers are estimated to come from Tracy, 30 percent from Ulmar, 15 percent from Dublin, and 15 percent from Manteca). Workers would reach the site using existing roads, accessing the Project site from I-580 to Patterson Pass Road and Midway Road. Most truck deliveries would be for the energy storage enclosures and power conversion system installation, as well as any aggregate material that may be required for foundations. Construction would occur primarily during daylight hours.

Construction is anticipated to commence as early as 2024 and would last approximately 15 months. As a conservative analysis, construction was assumed to begin at the start of 2024, though it is likely to commence later in the year. By assuming all major construction activity occurs in 2024, higher emission factors are applied in comparison to activities in 2025. As shown in Table 4.3-4, the second, third, and fourth stages run concurrently, with energy storage enclosures and substation installation occurring during weeks 17 through 52, gen-tie line foundation and tower erection occurring during weeks 41 through 46, and gen-tie line installation, pulling, and stringing occurring during weeks 47 through 52; the CalEEMod model reflects this concurrent schedule.

It was also assumed that construction equipment would operate for 5 days per week during Project construction. Project construction would result in exhaust emissions (from fuel combustion in off-road construction equipment, generators, and vehicles) and fugitive dust emissions (from earth-moving activities and vehicle travel on paved and unpaved roads). Construction emissions were estimated using CalEEMod Version 2020.4.0 (CAPCOA 2021). Construction emissions modeled include those from the following sources:

- Exhaust emissions of ROG, NO_X, CO, SO_2, PM_{10}, $PM_{2.5}$, and GHGs from off-road construction equipment and stationary generators;
- Exhaust emissions of ROG, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ from on-road vehicle trips, including worker commutes, vendor trips, and haul truck trips; and
- Fugitive dust emissions of PM_{10} and $PM_{2.5}$ from onsite earth-moving activities and offsite vehicle travel.

Project-specific information on the construction schedule, equipment types, and daily usage rates for each activity during the Project construction was used in the CalEEMod modeling based on

the current Project design. Default settings in CalEEMod were used when Project-specific information was not available. Table 4.3-4 shows the construction schedule and Table 4.3-5 shows the construction equipment and vehicle trips.

Table 4.3-4. Construction Schedule

Phase	Duration (days)	Week Numbers.
Site and Substation Preparation and Grading	80	1-16
Energy Storage Enclosure and Substation Installation	180	17-52
Gen-tie Line Foundation and Tower Erection	30	41-46
Gen-tie Line Pulling and Stringing	30	47-52
Testing and Commissioning	60	53-64

Table 4.3-5. Construction Equipment and Vehicle Trips Per Phase

Construction Phase	Equipment			Daily Worker Vehicle Trips[1]	Daily Vendor Trips[1]	Total Haul Truck Trips[2]
	Equipment Type	Quantity	Usage Hours			
Site Clearing and Preparation	Air Compressors	4	8	40	4	3,680
	Tractors/Loaders/Backhoes	2	8			
	Graders	2	8			
	Off-highway Trucks	8	8			
	Rollers	2	8			
	Rubber Tired Dozers	2	8			
	Rubber Tired Loaders	2	8			
	Skid Steer Loaders	4	8			
	Trenchers	2	8			
	Dumpers/Tenders	8	8			
	Generators	2	24			
	Generators	2	8			
Energy Storage Enclosure and Substation Installation	Air Compressors	4	8	120	20	3,600
	Cranes	2	8			
	Excavators	4	8			
	Generator Sets	4	8			
	Forklifts	2	8			
	Plate Compactors	2	8			
	Rollers	2	8			
	Tractors/Loaders/Backhoes	6	8			
Gen-tie Line Foundation and Tower Erection	Air Compressors	2	8	40	4	600
	Cranes	2	8			
	Forklifts	2	8			
	Generator Sets	2	24			
	Pumps	2	8			
	Welders	2	8			

Construction Phase	Equipment			Daily Worker Vehicle Trips[1]	Daily Vendor Trips[1]	Total Haul Truck Trips[2]
	Equipment Type	Quantity	Usage Hours			
Gen-tie Line Pulling and Stringing	Forklifts	2	8	49	4	600
	Generator Sets	2	8			
	Tractors/Loaders/Backhoes	2	8			
Testing and Commissioning	Off-highway Trucks	3	8	100	0	0

Notes:

Construction activities and equipment data were provided by the Applicant.

1/ Number reflects daily one-way trips.

2/ Number reflects total trips per phase.

Emission Calculation Assumptions

On-road Equipment Assumptions:

- Exhaust emissions for on-road equipment were calculated using CalEEMod for years 2024 and 2025
- All on-road construction equipment emissions were determined using on-road emission factors; none were estimated using off-road emission factors (water trucks and dump trucks were modeled as on-road vehicles).
- Exhaust from the onsite diesel construction equipment.
- Exhaust from onsite water trucks used to control construction dust emissions.
- Exhaust from pickup trucks and diesel trucks used to transport workers and materials around the Project site.
- Exhaust from diesel trucks used to deliver equipment and materials.
- Exhaust from automobiles used by workers to commute to and from the Project site.
- Fugitive dust emissions were estimated for both paved roads and unpaved roads, where applicable.

Off-road Equipment Assumptions

- Exhaust emissions were calculated using the CalEEMod for years 2024 and 2025.
- Fugitive dust emissions were estimated for grading activities and truck loading using CalEEMod.

Construction Information and Assumptions

Construction-related emissions are based on the following:

- The site total acreage inside the proposed fence line is approximately 32 acres.

- Mobilization of the construction equipment may occur in the open spaces of the shared facilities area. Equipment and vehicle travels may also occur within the 32-acre Project site and the shared facilities area during the construction period.
- Land usage: 32 acres
- Grading area: 160 acres total grading activity
- Material exported: 1,000 cubic feet
- Material imported: zero cubic feet

Combustion

Combustion emissions during construction will result from:

- Exhaust from the onsite diesel construction equipment;
- Exhaust from onsite water trucks used to control construction dust emissions;
- Exhaust from pickup trucks and diesel trucks used to transport workers and materials around the Project site;
- Exhaust from diesel trucks used to deliver equipment and materials; and
- Exhaust from automobiles used by workers to commute to and from the Project site.

Fugitive Dust

Fugitive dust emissions during construction will result from:

- Earth-moving activities; and
- Vehicle travel on paved and unpaved surfaces.

4.3.4.2 Operation

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be operated by the Applicant or an affiliated company remotely. Periodic augmentation of batteries within the Project site may occur. Only occasional, onsite maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

During operation of the Project substation, operations and maintenance (O&M) staff would visit the substation periodically for switching and other operations activities. Maintenance trucks would be utilized to perform routine maintenance, including, but not limited to, equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance.

The expected maintenance would generate little traffic during operation. Heavy equipment would not be utilized during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement, or for vegetation control. Routine operations

would require one or two workers in a light utility truck to visit the facility on a weekly basis. Typically, one major maintenance inspection would take place annually.

Emissions from Project operations were estimated using CalEEMod. Based on available information, the operational year 2025 was used for estimating emissions for the following sources in CalEEMod:

- Mobile sources: Mobile sources would include motor vehicles (i.e., pickup trucks or light duty trucks) traveling to and from the site for infrequent maintenance. Based on conservative estimates, the Project is anticipated to have up to 130 round trips per year, accounting for regular operation with two full-time-equivalent staff and maintenance activities.
- Area sources: No hearths, consumer products, or architectural coating would be needed for facility operation. Occasional use of landscape equipment may be needed.
- Energy use: No emissions are expected from onsite energy use during operation. Electricity used onsite would be supplied from the onsite batteries.
- Water and wastewater: Up to 1 acre-foot (325,851 gallons) of water may be used for O&M, including panel washing.
- Solid waste: The facility would not have operations or emissions associated with solid waste.
- Stationary sources: The facility would not have operations or emissions associated with stationary sources, such as emergency generators, fire pumps, or boilers.

4.3.5 Thresholds of Significance

4.3.5.1 California Environmental Quality Act Guidelines

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines, which indicates that a project has significant air quality impact if the following occurs:

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 project region is nonattainment under an applicable federal or state ambient air quality standard;*
3. *Expose sensitive receptors to substantial pollutant concentrations; and*
4. *Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.*

Under CEQA, Project proponents are required to identify any significant environmental impacts that would occur as a result of their actions. CEQA also requires that Project proponents avoid or mitigate any impacts to the extent feasible.

4.3.5.2 San Joaquin Valley Air Pollution Control District

In addition to the air quality criteria above, the SJVAPCD's Guidance for Assessing and Mitigating Air Quality includes one additional criterion as follows:

5. *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

The Guidance for Assessing and Mitigating Air Quality Impacts has established emissions-based thresholds of significance for criteria pollutants (SJVAPCD 2015a), which are shown in Table 4.3-6. The SJVAPCD has established significance thresholds for construction emissions and operational permitted and non-permitted equipment and activities, and it recommends evaluating impact significance for these categories separately. These thresholds of significance are based on a calendar-year basis, although construction emissions are assessed on a rolling 12-month period. A segment of the gen-tie line (less than 0.25 mile) is located in Alameda County. This segment of the gen-tie line will also be compared to the SJVAPCD's significance thresholds as these are more stringent than the Bay Area Air Quality Management District's (BAAQMD) significance thresholds, with the exception of $PM_{2.5}$. The BAAQMD construction significance threshold of 10 tons per year will be used for $PM_{2.5}$.

Table 4.3-6. SJVAPCD Air Quality Thresholds of Significance – Criteria Pollutants

Pollutant	Construction (tons per year)	Operational Emissions (tons per year)	
		Permitted Equipment and Activities	Non-permitted Equipment and Activities
Reactive Organic Gasses (ROG)	10	10	10
Nitrogen Oxides (NO_X)	10	10	10
Particulate Matter Exhaust (PM_{10})	15	15	15
Fine Particulate Matter Exhaust ($PM_{2.5}$)[1]	10	10	10
CO	100	100	100
SO_x	27	27	27

Sources: BAAQMD 2017a; SJVAPCD 2015a

In addition to the annual emissions mass thresholds described in Table 4.3-6, the SJVAPCD has also established screening criteria to determine whether a project would result in a CO hotspot at affected roadway intersections (SJVAPCD 2015a). If neither of the following criteria are met at any of the intersections affected by the project, the project would result in no potential to create a violation of the CO standard:

- 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.
- A traffic study indicates that the Project will substantially worsen an already existing LOS F on one or more streets or at more intersections in the Project vicinity.

An LOS E Roadway is characterized by unstable traffic flow at or near capacity levels with poor levels of comfort and convenience. An LOS F Roadway is characterized by forced traffic flow in which the amount of traffic approaching a point exceeds the amount that can be served. LOS F

is characterized by stop-and-go waves, poor travel times, low comfort and convenience, and increased accident exposure. The Project is located in a sparsely populated area and is unlikely to result in challenges to traffic flow.

Ambient Air Quality Analysis

The SJVAPCD recommends that an Ambient Air Quality Analysis (AAQA) be performed when onsite emissions of any criteria pollutant would equal or exceed 100 pounds per day (lbs/day). If emissions of one criteria pollutant exceeds the threshold, then all criteria pollutants are to be modeled. In the AAQA, air pollutant concentrations are determined by conducting air dispersion modeling, adding the resulting concentrations to ambient background levels, and comparing to the applicable ambient air quality standard. A project would be considered a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any CAAQS or NAAQS. If an exceedance of the CAAQS or NAAQS is predicted, modeled concentrations may be compared to significant impact levels to assess whether a project's emissions would contribute significantly to an existing violation of the CAAQS or NAAQS.

Toxic Air Contaminants

The SJVAPCD has established thresholds of significance for combined TAC emissions from the operations of both permitted and non-permitted sources (SJVAPCD 2015a). Projects that have the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the maximally exposed individual equals or exceeds 20 in 1 million people.
- Hazard Index for acute and chronic noncarcinogenic TACs equals or exceeds 1 for the maximally exposed individual.

Odors

As described in the Guidance for Assessing and Mitigating Air Quality Impacts, due to the subjective nature of odor impacts, there are no quantitative thresholds to determine if potential odors would have a significant impact (SJVAPCD 2015a). Projects must be assessed for odor impacts on a case-by-case basis for the following two situations:

- Generators: Projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.
- Receivers: Residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

4.3.6 Impacts Analysis

IMPACT 4.3-1: *Would the project conflict with or obstruct implementation of the applicable air quality plan?* **(Less than Significant Impact)**

The Project would result in an increase in short-term emissions related to construction and an increase in long-term operational emissions for those pollutants and precursors (ROG and NO_x) for which the SJVAB is in nonattainment (O_3, PM_{10}, and $PM_{2.5}$). The SJVAPCD has prepared several air quality attainment plans to achieve ozone and particulate matter standards. The SJVAPCD has determined that projects the generate emissions below the thresholds of significance for criteria pollutants would not conflict or obstruct implementation of the applicable SJVAPCD air quality plans (SJVAPCD 2015a).

The Project would comply with applicable SJVAPCD rules and regulations, such as Regulation VIII (Fugitive PM_{10} Prohibitions) and IX (Mobile and Indirect Sources), which are discussed in detail in Appendix D (Air Quality and Greenhouse Gas Technical Report). Rule 9510 requires reductions in NO_x and diesel particulate matter (as PM_{10}). In addition, the Project would not conflict with existing land uses or result in population growth. The Project would not result in a long-term increase in the number of trips or increase the overall vehicle miles traveled in the area. Worker vehicle trips, vendor trucks, and haul trucks would be generated during the proposed construction activities but would cease after construction is completed. NO_x emissions during construction would not exceed the SJVAPCD significance threshold. Additionally, compliance with SJVAPCD Regulation VIII and Rule 9510 would further reduce the Project's less than significant NO_x emissions.

The purposes of Rule 9510 are to reduce emissions from NO_x and PM_{10} that are associated with construction and operation of new development projects in the San Joaquin Valley. Specifically, Rule 9510 was promulgated to reduce the growth in NO_x and PM_{10} emissions associated with the construction and operation of new development projects, including transportation and transit development projects in the San Joaquin Valley.

The Rule 9510 for NO_X and PM_{10} reduction requires at least 20 percent reduction of NO_X construction emissions and 45 percent of construction diesel exhaust particulate matter (expressed as PM_{10}). The rule assures that the Project will not interfere with SJVAPCD attainment plans. Table 4.3-7 provides NO_X and PM_{10} construction exhaust emissions with and without emissions reduction measures, and the percent reduction from the use of Tier 4 engines for equipment greater than 85 horsepower.

Table 4.3-7. Rule 9510 NO_x and PM_{10} Reductions

Exhaust Emissions	NOx (tons per year)		Diesel Exhaust PM_{10} (tons per year)	
	2024	2025	2024	2025
No Reductions	9.06	0.29	0.38	0.01
Rule 9510 Reductions	5.13	0.09	0.21	0.003
Percent Reduction	43%	69%	45%	70%

During the longer-term operational phase, the Project would have routine inspection and maintenance activities that would result in a net increase in emissions. However, as discussed in Section 2.5.2, the increase in emissions would not exceed any significance thresholds or violate any SJVAPCD rules or regulations. Based on emissions from construction and operation, the Project would not conflict with or obstruct implementation of the SJVAPCD's air quality plans, and the associated impact would be less than significant.

Compliance with Rule 9510 would reduce NO_x emissions by 43 percent in 2024 and 69 percent in 2025 through the use of Tier 4 engines for equipment greater than 85 horsepower. In addition, the use of Tier 4 engines will also decrease diesel PM_{10} by 45 percent in 2024 and 70 percent in 2025. These reductions are well above the Rule 9510 reduction requirements and the impact would be less than significant. Fugitive particulate matter will be reduced by preparing a Dust Control Plan.

Mitigation: None required; however, the Applicant-proposed compliance with Rule 9510 and preparation of a Dust Control Plan have been included as **Mitigation Measures AQ-1** and **AQ-2**, respectively, to ensure their implementation.

IMPACT 4.3-2: *Would the project result in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard?* **(Less than Significant Impact)**

The Project would result in an increase in short-term emissions related to construction and an increase in long-term operational emissions for those pollutants and precursors (ROG and NO_x) for which the SJVAPCD is in nonattainment (O_3, PM_{10}, and $PM_{2.5}$). Although the Project site is located in a region that is in nonattainment for O_3, PM_{10}, and $PM_{2.5}$, the cumulative emissions associated with the Project would not be considerable as the emissions would fall below SJVAPCD significance thresholds. Under this condition, the Project would not make a cumulatively considerable contribution during construction or operations. Therefore, impacts would be less than significant. Additionally, the Project would not conflict with the SJVAPCD O_3, PM_{10}, or $PM_{2.5}$ attainment plans, which address cumulative emissions in the SJVAB and account for emissions associated with construction activity. Therefore, impacts would be less than significant.

Construction Emissions

Project construction emissions were calculated using CalEEMod. Table 4.3-8 presents the estimated maximum annual emissions generated during construction of the Project. As previously stated, the BAAQMD annual significance threshold for $PM_{2.5}$ was used instead of the SJVAPCD threshold, as the BAAQD annual $PM_{2.5}$ threshold is more conservative. Table 4.3-9 presents the estimated onsite maximum daily emissions generated during construction of the Project. Emissions with and without Rule 9510 and dust control reductions , along with both onsite and offsite contributions. Detailed emission calculations are provided in Appendix D.

The SJVAPCD has determined that projects with emissions below the thresholds of significance for criteria pollutants would not conflict with or obstruct implementation of the SJVAPCD's air quality plan (SJVAPCD 2015a).

Table 4.3-8. Estimated Maximum Annual Construction Criteria Air Pollutants Emissions

Total Project Emissions	Emissions (tons per year)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
No Reductions	1.09	9.35	10.98	0.03	1.25	0.72
Rule 9510 and Dust Control Reductions	1.09	5.22	10.98	0.03	0.76	0.41
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*10*
Threshold Exceeded?	No	No	No	No	No	No

CO – carbon monoxide; NO_x – nitrogen oxide; PM_{10} – particulate matter between 2.5 and 10 micrometers in diameter; $PM_{2.5}$ – particulate matter 2.5 micrometers in diameter or smaller; ROG – reactive organic gas; SJVAPCD – San Joaquin Valley Air Pollution Control District; SO_x – sulfur oxide

Table 4.3-9. Estimated On-site Maximum Daily Construction Criteria Air Pollutants Emissions

Total Project Emissions	Emissions (lbs/day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
No Reductions	11.92	99.99	98.44	0.25	18.38	10.83
Rule 9510 and Dust Control Reductions	11.92	51.46	98.44	0.25	8.68	5.33
SJVAPCD On-site Emissions Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	No	No	No	No	No	No

CO – carbon monoxide; NO_x – nitrogen oxide; PM_{10} – particulate matter between 2.5 and 10 micrometers in diameter; $PM_{2.5}$ – particulate matter 2.5 micrometers in diameter or smaller; ROG – reactive organic gas; SJVAPCD – San Joaquin Valley Air Pollution Control District; SO_x – sulfur oxide

As shown in Table 4.3-8, annual construction emissions would not exceed the SJVAPCD annual significance thresholds for any pollutants, both with and without reductions. As shown in Table 4.3-9, maximum daily onsite construction emissions would not exceed the SJVAPCD's localized significance threshold of 100 lbs/day for ROG, NO_X, CO, SO_x, PM_{10}, or $PM_{2.5}$. The SJVAPCD recommends that an AAQA be conducted when onsite emissions from any criteria pollutant would equal or exceed applicable significance thresholds or when onsite emissions would equal or exceed 100 lbs/day for any pollutant. Therefore, an AAQA was not performed for the Project.

Operational Emissions

Project operational emissions were estimated using CalEEMod to include area, mobile, and off-road source emissions. This included potential emissions from landscaping, worker commutes, and heavy trucks used during maintenance. Emissions from energy use were not included since electricity used onsite would be generated from the onsite batteries. Table 4.3-10 presents the estimated maximum annual operational emissions in tons per year with a comparison to SJVAPCD thresholds. The $PM_{2.5}$ significance threshold is based on the BAAQMD threshold of 10 tons per year. Detailed emissions calculations are provided in Appendix D.

Table 4.3-10. Estimated Maximum Annual Operational Criteria Air Pollutants Emissions

Emission Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	Tons per Year					
Area, Mobile, and Offroad	0.006	0.03	0.04	0.0001	0.002	0.0012
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*10*
Threshold Exceeded?	No	No	No	No	No	No

CO – carbon monoxide; NO_x – nitrogen oxide; PM_{10} – particulate matter between 2.5 and 10 micrometers in diameter; $PM_{2.5}$ – particulate matter 2.5 micrometers in diameter or smaller; ROG – reactive organic gas; SJVAPCD – San Joaquin Valley Air Pollution Control District; SO_x – sulfur oxide

Table 4.3-11. Estimated Maximum Daily Operational Criteria Air Pollutants Emissions

Emission Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	Pounds per ay					
Area, , Mobile, and Off-road	1.45	8.60	9.72	0.04	0.32	0.29
SJVAPCD Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	No	No	No	No	No	No

CO – carbon monoxide; NO_x – nitrogen oxide; PM_{10} – particulate matter between 2.5 and 10 micrometers in diameter; $PM_{2.5}$ – particulate matter 2.5 micrometers in diameter or smaller; ROG – reactive organic gas; SJVAPCD – San Joaquin Valley Air Pollution Control District; SO_x – sulfur oxide

As shown in Tables 4.3-10 and 4.3-11, operational emissions would not exceed the SJVAPCD thresholds for ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. Since operational activities would be minimal, including only routine inspection and maintenance, ambient air quality modeling was not required. Additionally, traffic associated with operations would be negligible and would not result in CO hotspots at intersections. Therefore, the operational impacts would be less than significant.

Mitigation: None required; however, the Applicant-proposed compliance with Rule 9510 and preparation of a Dust Control Plan have been included as **Mitigation Measures AQ-1** and **AQ-2**, respectively to ensure their implementation.

IMPACT 4.3-3: *Would the project expose sensitive receptors to substantial pollutant concentrations?* **(Less than Significant Impact)**

Sensitive receptors for air quality include facilities or land uses that serve or house members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors include schools, hospitals, and residential areas. The nearest rural residences on land not owned by the current property owner are located approximately 1,000 feet north of the Project site on the other side of West Patterson Pass and 1,000 feet southwest of the Project site at the southern terminus of Midway Road to the west of the onsite substation, to the east of Midway Road.

In addition to the significance thresholds for criteria pollutants, the SJVPACD has established significance thresholds for TAC emissions. According to Section 39655 of the California Health and Safety Code, a TAC is “an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health.” TACs consist of a variety of compounds, including metals, minerals, soot, and hydrocarbon-based chemicals. Sources of TACs include industrial processes, such as petroleum refining and chrome-plating operations; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust.

Impacts to sensitive receptors are typically evaluated by analyzing the potential for health effects to result from exposure to project-related TACs. In addition, the analysis evaluates the potential for project construction to result in exposure of workers and other receptors to the dust-borne spores that cause Valley Fever. Impact 4.3-2 describes the analysis conducted for air contaminant emissions from construction and operation of the Project.

The Project consists of construction of a battery energy storage facility that may have the potential to affect nearby sensitive receptors. The use of combustion equipment in Project construction activities could result in elevated concentrations of DPM, which could lead to an increase in cancer risk or chronic health impacts.

The greatest potential for exposure to air pollutants would occur during construction. The primary TAC from the Project is DPM from construction equipment. PM_{10} and $PM_{2.5}$ are surrogates for DPM. Tables 4.3-8 and 4.3-9 above provide a summary of total PM_{10} and $PM_{2.5}$ emissions during construction (including fugitive dust) on an annual and daily basis, respectively. Tables 4.3-10 and 4.3-11 provide a summary of total PM_{10} and $PM_{2.5}$ emissions during operation (including fugitive dust) on an annual and daily basis, respectively. Both construction and operational emissions of PM_{10} and $PM_{2.5}$ are a small fraction of the significance thresholds.

Because of the relatively small levels of DPM emissions during Project construction and operation, DPM emissions from Project construction would disperse to negligible levels and, therefore, the health impacts associated with exposure to DPM from Project construction and operation are not expected to be significant.

As previously noted, the SJVAPCD also provides significance thresholds for TACs:

Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in:

- A cancer risk greater than or equal to 20 in 1 million; and/or
- A Hazard Index (non-cancerous) greater than or equal to 1.

Exposure to emissions would vary throughout construction and would depend on the staging of the work being conducted, location of work relative to receptors, and weather conditions.

While TACs from the Project during construction are expected to have insignificant impacts on the surrounding communities, **Mitigation Measure AQ-1** would help to further minimize exhaust emissions from construction equipment. Tier 4 engine technology would be utilized for equipment greater than 85 horsepower are also equipped with diesel particulate filters. Based on the temporary nature and the timeframe for construction, these measures will maintain construction emissions and impacts to levels well within compliance with the SJVAPCD air quality regulations. Use of these emission control strategies will ensure that the site does not cause any violations of existing air quality standards as a result of construction-related activities, and impacts would be less than significant.

Since operational activities would be limited to routine inspection and maintenance, an operational health risk assessment (HRA) was not required and the impact would, therefore, be less than significant.

Valley Fever

According to the California Department of Public Health, incidences of Valley Fever have been consistently high in the Southern San Joaquin Valley and Central Coast regions. The Northern San Joaquin Valley has shown a large increase in cases between 2000 and 2018; the highest median annual incidences were in the Southern San Joaquin Valley (90.6 per 100,000 people), Central Coast (9.7 per 100,000 people), and Northern San Joaquin Valley (5.6 per 100,000 people) (Sondermeyer Cooksey et al. 2020).

There are currently no recommended thresholds of significance for Valley Fever. Construction activities, including site preparation and grading, would have the potential to make *C. immitus* fungus spores airborne. However, the Project would comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. The Project would develop a dust control plan

and employ all best available fugitive dust control measures that would reduce the risk of contracting Valley Fever. The Project would also comply with SJVPACD Regulation VIII, which requires fugitive dust sources to implement best available control measures for all sources, as described earlier.

The nearest sensitive receptors (rural residences) are located approximately 1,000 feet from the nearest Project boundary. Based on this distance, earthmoving activities during Project construction would not result in exposure of nearby sensitive receptors to Valley Fever. The California Department of Public Health recommends that employers in areas with endemic *C. immitus* should implement infection prevention measures and protect workers who are at risk for exposure to *C. immitus*. Infection risk can be decreased by using dust control measures and appropriate personal protective equipment at work. The Project would implement dust control strategies to limit fugitive dust leaving the site and will also implement Valley Fever awareness and training. **Mitigation Measure AQ-3** would address the potential for Valley Fever and would further reduce impacts. It is included to ensure that the Applicant-proposed measures to prevent Valley Fever are implemented.

Mitigation: None required; however, the Applicant-proposed compliance with Rule 9510 and Valley Fever prevention measures have been included as Mitigation Measures AQ-1 and AQ-3, respectively to ensure their implementation.

IMPACT 4.3-4: *Would the project create objectionable odors affecting a substantial number of people?* **(Less than Significant Impact)**

During Project-related construction activities, various diesel-powered vehicles and equipment could create minor odors. These odors are not likely to be noticeable beyond the immediate vicinity and would be temporary and short lived. In addition, the nearest sensitive receptors on land not owned by the Project's current property owner are 1,000 feet or more from the Project site. Therefore, construction odor impacts would be less than significant. Long-term odors are associated typically with industrial projects involving use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes. Odors also are associated with such uses as sewage treatment facilities and landfills. The Project involves no elements related to these types of uses. Therefore, no long-term odor impacts would occur with Project implementation.

Mitigation: None required.

IMPACT 4.3-5: *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?* **(Less than Significant Impact)**

The SJVAPCD has established annual significance thresholds to address pollution sources associated with general construction activities, such as the operation of onsite construction equipment, fugitive dust from site grading activities, and travel by construction workers. In addition to the SJVAPCD annual significance thresholds, the SJVAPCD also recommends the use of daily emissions thresholds for the evaluation of project impacts on localized ambient air quality. Based on these recommended thresholds, the proposed Project would result in a significant contribution to localized ambient air quality if onsite emissions would exceed a daily average of 100 lbs/day for any of the pollutants evaluated.

The Project would comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. Standard construction practices that would be employed to further reduce fugitive dust emissions are provided in **Mitigation Measure AQ-2** to ensure their implementation.

The Project would also use of Tier 4 engines for construction equipment to reduce NO_X and DPM emissions and meet the requirements of Rule 9510 as noted in **Mitigation Measure AQ-1**. In addition to dust control measures, the use of Tier 4 engines (**Mitigation Measure AQ-1**) was incorporated to CalEEMod. For the purpose of this assessment, it was assumed that all off-road diesel equipment greater than 85 horsepower would meet USEPA Tier 4 off-road emission standards or equivalent.

Mitigation: None required; however, the Applicant-proposed compliance with Rule 9510, preparation of a Dust Control Plan, and Valley Fever prevention measures have been included as **Mitigation Measures AQ-1, AQ-2,** and **AQ-3**, respectively, to ensure their implementation.

4.3.7 Mitigation Measures

Impacts from the Project are less than significant; however, the following typical project design elements are included as mitigation measures to ensure Applicant-proposed design measures are implemented to reduce impacts to air quality.

AQ-1: Implement NO_x and diesel PM_{10} emission-reduction measures during construction. To control NOx and diesel PM_{10} emissions during construction and in accordance with Rule 9510, the Project proponent/operator and/or its contractor(s) shall implement the following measures during construction of the project, subject to verification by the County:

- Off-road equipment engines over 85 horsepower shall be equipped with USEPA Tier 4 engines unless Tier 4 construction equipment is not locally available.
- All equipment shall be maintained in accordance with the manufacturer's specifications.
- Construction-related equipment, including heavy duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.
- Notification shall be provided to trucks and vehicles in loading or unloading queues that their engines shall be turned off when not in use for more than 5 minutes.
- Electric equipment shall be used to the extent feasible in lieu of diesel- or gasoline-powered equipment.
- All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_x emissions.

- On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.
- Existing electric power sources shall be used to the extent feasible. This measure would minimize the use of higher polluting gas or diesel generators.
- The hours of operation of heavy-duty equipment and/or the quantity of equipment in use shall be limited to the extent feasible.

AQ-2: Prepare and implement a dust control plan in accordance with Rule 8021 and Table 8021-1. The Project proponent/operator and/or its contractor(s) shall implement the following measures during construction of the Project, subject to verification by the County. The plan shall include all SJVAPCD-recommended measures, including, but not limited to, the following:

- Pre-water the site before construction begins. Land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled utilizing application of water or by presoaking to limit visible dust emissions to less than 20 percent opacity.
- Phase work to reduce the amount of disturbed area at any one time.
- Minimize and clean up track-out onto paved roads.
- Cover haul trucks.
- Rapid cleanup of Project-related track-out or spills on paved roads.
- Minimize grading and soil movement when winds exceed 30 miles per hour.
- Implement a speed limit of 15 miles per hour during all construction phases for vehicles traveling on unpaved roads.

AQ-3: Minimize exposure to potential Valley Fever-containing dust. To minimize personnel and public exposure to potential Valley Fever-containing dust onsite and offsite, the following control measures shall be implemented during Project construction:

- Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved offsite to other work locations.
- Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind 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.
- In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying.
- All heavy duty earth-moving vehicles shall be closed-cab and equipped with an high efficiency particulate-filtered air system.

- 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.
- A Valley Fever informational handout shall be provided to all onsite construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment.
- Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health–approved respirators shall be provided to onsite personnel upon request.

4.3.8 Pacific Gas and Electric Tesla Substation Improvements

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

PG&E would implement **Mitigation Measures AQ-1, AQ-2**, and **AQ-3** as standard practices, such that these improvements would not have a substantial adverse effect on any applicable air quality plans, nor would the improvements cause an increase in pollutants that may be considered as nonattainment by federal or state standards. The Tesla Substation improvements would not expose any sensitive receptors to substantial pollutants or any objectional odors. Therefore, no additional mitigation is required.

4.3.9 Cumulative Impacts

The SJVAB is considered the area of cumulative effects, and it is currently nonattainment for the California AAQS for 1-hour ozone 8-hour ozone PM_{10} and $PM_{2.5,}$ and the NAAQS for 8-hour ozone and $PM_{2.5}$. Therefore, there is an existing adverse cumulative impact in the SJVAB relative to these pollutants.

The contribution of a project's individual air emissions to regional air quality impacts is a cumulative effect due to the collective nature of the air quality resource. Emissions from past, present, and future projects in the region also have or will contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality conditions. The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality

violation or result in a considerable net increase in criteria air pollutants. As discussed above, emissions of air pollutants are less than significant, consistent with the SJVAPCD applicable air plan, and the Project's incremental contribution to the cumulative impact in the region would not be considered cumulatively considerable. While emissions are not significant, **Mitigation Measures AQ-1**, **AQ-2**, and **AQ-3** would be implemented to further limit impacts from the Project. Additionally, as discussed above, the Project would not conflict with or obstruct implementation of the SJVAPCD's air quality plans. Therefore, the Project construction would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Project operation would include very minimal emissions of ozone precursors ROG and NO_x, PM_{10}, and $PM_{2.5}$, well below the SJVAPCD's thresholds; therefore, O&M would not result in a cumulatively considerable increase in emissions of nonattainment pollutants.

Project emissions of pollutants for which the SJVAB is in attainment for state and federal air quality standards also would not lead to a cumulative impact because the individual Project emissions would be well below the thresholds in an area that does not experience violations of these standards.

Lastly, the SJVAPCD considers TAC emissions to be localized impacts. The SJVAPCD has established thresholds of significance for TACs that are conservative and protective of health impacts on sensitive receptors. Because impacts from TACs are localized and the thresholds of significance for TACs have been established at such a conservative level, Project risks over the individual thresholds of significance are also considered cumulatively significant (SJVAPCD 2015a). As discussed above, the Project diesel PM_{10} emissions from construction would not result in health risk impacts in excess of the SJVAPCD 20 in 1 million cancer threshold and chronic Hazard Index of 1 due to the use of Tier 4 engines (**Mitigation Measure AQ-1**). Therefore, the Project would not result in a cumulatively significant impact related to TACs. Similarly, odor impacts from the Project would be very minimal and localized and would not contribute to cumulative odors impacts in the area.

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4.4 BIOLOGICAL RESOURCES

This section describes the biological resources[1] of the proposed Griffith Energy Storage Project (Project) site and surrounding area and evaluates habitat conditions to determine the potential for occurrence of common and special-status species[2] and their habitats.[3] The Project site refers to the entire property on which the area to be developed is located (Figure 4.4-1). Approximately 32 acres of the 106-acre Project site would be used for the Project, of which approximately 32 acres would be disturbed. Most of the Project site is located in San Joaquin County with a small portion in Alameda County (Figure 4.4-1).

Biologists from Tetra Tech conducted literature reviews and field surveys of the biological resources potentially associated with the area to be developed. The following types of general and focused biological surveys were conducted in 2022:

- Vegetation community mapping;
- Rare plant surveys;
- Inventory of all plants and wildlife observed on-site;
- California tiger salamander (*Ambystoma californiense*; CTS) upland and aquatic habitat and migration barrier assessment within a 1.24-mile buffer around the Project Property;
- Identification of potential nesting habitat for Swainson's hawk within a 0.5-mile buffer around the area to be developed;
- Habitat assessment for San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), other special-status species, and nesting birds; and
- Jurisdictional delineation of wetlands and waters of the United States (WOTUS), Waters of the State, and rivers, streams, or lakes regulated by the California Department of Fish and Wildlife (CDFW).

A site visit was also performed on June 7, 2023 to evaluate a new ephemeral pond in the southeast portion of the Project Property that was observed after a historically high rainfall year.

The analysis is based on the Project-specific, biological resources technical reports that are listed below. Each technical report has been prepared on the Applicant's behalf and is provided in Appendix E, *Biological Resources*.

1. Biological Resources Evaluation Report (Tetra Tech 2022a); and
2. Rare Plant Survey Report (Tetra Tech 2022b).

[1] For the purposes of this analysis, "biological resources" refers to the plants, wildlife, and habitats that occur, or have the potential to occur, within the Project Property and surrounding area.

[2] For the purposes of this analysis, "special-status species" refers to any species that has been afforded special protection by federal, state, or local resource agencies (e.g., United States Fish and Wildlife Service, California Department of Fish and Wildlife) or resource conservation organizations (e.g., California Native Plant Society). The term "special-status species" excludes those avian species solely identified under Section 10 of the Migratory Bird Treaty Act (MBTA) for federal protection. Nonetheless, MBTA Section 10 protected species are afforded avoidance and minimization measures per state and federal requirements.

[3] A "habitat" is defined as the place or type of locale where a plant or animal naturally or normally lives and grows.

4.4.1 Existing Conditions

4.4.1.1 Site Setting

The Project site is located within the San Joaquin Valley subregion of the Great Valley (Jepson Flora Project [eds.] 2022). This region experiences hot and dry summers, foggy and rainy winters, and annual rainfall averaging between approximately 5 and 20 inches. The elevational range of the Project site is approximately 300 to 500 feet above mean sea level. The Project site currently supports cattle grazing and residential uses. Vegetation on most of the Project site consists of non-native grassland dominated by low growing herbaceous plants. There are also three residences with small areas of ornamental trees and landscaping. Although no wetlands were found on the Project site in 2022 (Tetra Tech 2022a, 2022b), an ephemeral pond was observed in the southeast portion of the Project site in 2023 after a historically high rainfall year.

4.4.1.2 Vegetation Communities

Vegetation communities were mapped within the Biological Survey Area (BSA) during the surveys, which is defined as the Project site and 150-meter buffer. No CDFW sensitive natural communities were found. The Project site was undeveloped other than three small residential areas. The vegetation on the Project site was dominated by non-native herbs; grazing on the Project site has greatly reduced the cover of non-native grasses, such as oat (*Avena* sp.) and brome (*Bromus* sp.), as compared to surrounding areas that are not grazed. One small patch of the non-native Russian thistle (*Salsola* sp.) and a small area of cut logs and leaf litter were found in the southeast corner of the Project site. Ornamental and non-native trees, such as Pepper trees (*Schinus* sp.), were found on the Project site and 150-meter buffer in residential areas. One erosional feature was located in the northern portion of the Project site. An ephemeral pond was observed in the southeast portion of the Project site (labeled as “Open Water” in Figure 4.4-1). Within the 150-meter buffer, there was another erosional feature that had collected pooled water from a previous rain event (labeled as “Open Water” in Figure 4.4-1) and a ditch on the south side of W Patterson Pass Road. The areas described above are shown in Figure 4.4-1.

Vegetation communities within the BSA were mapped during the survey (Table 4.4-1 and Figure 4.4-1). Descriptions of the communities are provided below.

Table 4.4-1. Vegetation Communities

Vegetation Communities	Acres within Area to be Developed[1/]	Acres within Project Site[1/]	Acres within 150-meter Buffer[1/]
Avena spp.–*Bromus* spp. Herbaceous Semi-natural Alliance	30.9	75.9	100.0
Developed	0	0	4.3
Disturbed	0	0	0.5
Open Water	0	0.9	0.5
Residential	0	3.4	10.9
Total	30.9	80.2	116.2

1/ The acres in this table are not double counted between columns.

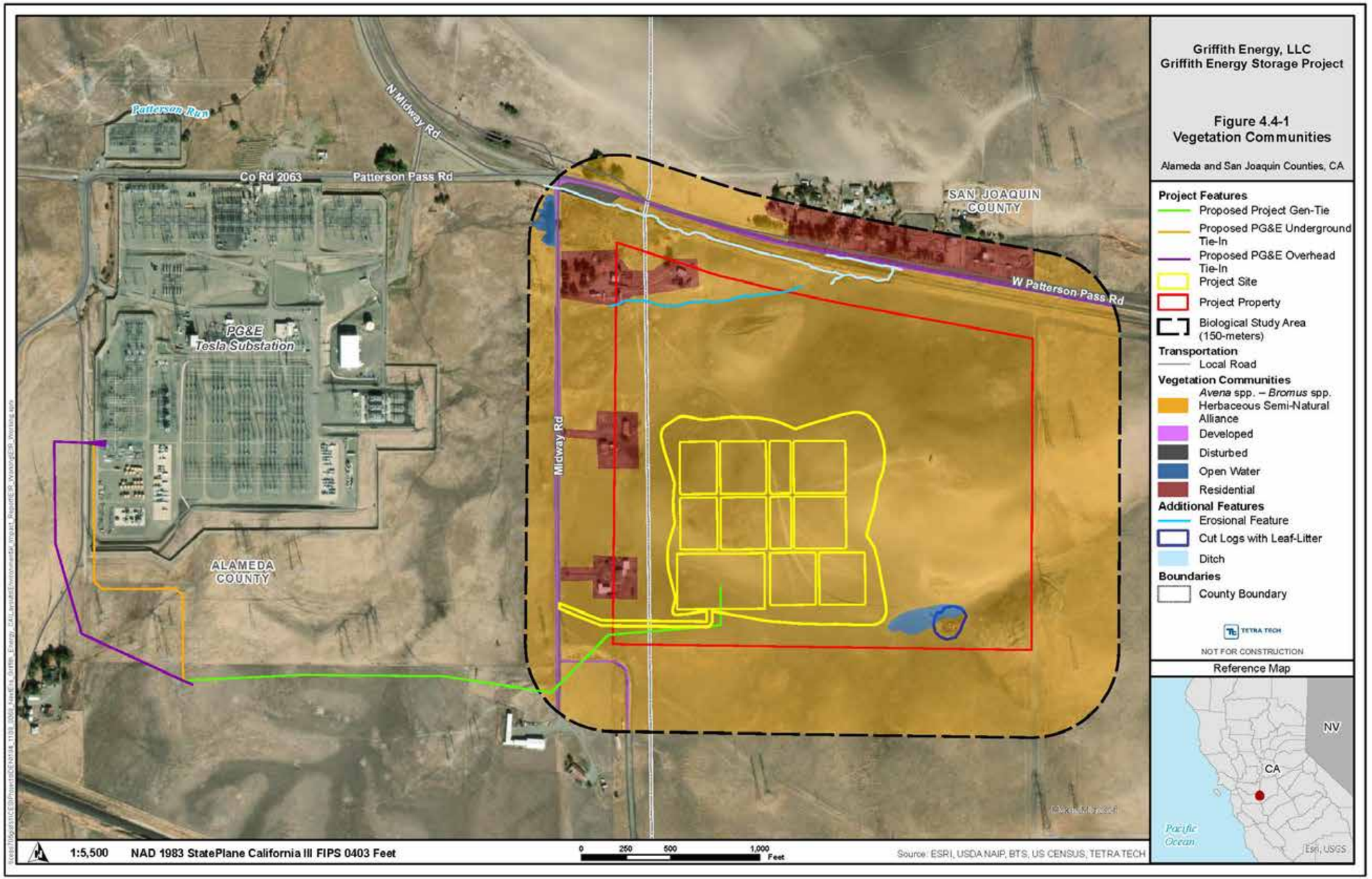


Figure 4.4-1. Vegetation Communities

***Avena* spp.–*Bromus* spp. Herbaceous Semi-natural Alliance.** The majority of the BSA was *Avena* spp.–*Bromus* spp. Herbaceous Semi-natural Alliance. Although patches of annual grasses were present, this community is regularly grazed by cattle, and grazing has greatly reduced the cover of grasses. Most of the ground cover in this community was composed of non-native filaree (*Erodium* sp.), but patches of cheeseweed (*Malva parviflora*), black mustard (*Brassica nigra*), and greenstem filaree (*Erodium moschatum*) were also present. Low cover of Russian thistle was also found in the southwest corner of the Project site. Areas in the 150-meter buffer along the southern side of Patterson Road supported *Avena* spp.–*Bromus* spp. Herbaceous Semi-natural Alliance with other non-native plants, including Russian thistle, poison hemlock (*Conium maculatum*), and star thistle (*Centaurea* sp.).

Disturbed. The disturbed area shown in Figure 4.4-1 consisted of a graded, dirt pad adjacent to Patterson Road. Other disturbed areas consisted of narrow, dirt roads, which have not been individually mapped. All disturbed areas occurred only within the 150-meter buffer.

Developed. The developed areas shown in Figure 4.4-1 consisted of two paved roads (W Patterson Pass Road and Midway Road) within the 150-meter buffer.

Open Water. In January 2022, this area located west of Midway Road in the 150-meter buffer held standing water that was a maximum of approximately 0.5 feet deep. This area was bounded by native salt grass (*Distichlis spicata*) and *Avena* spp.–*Bromus* spp. Herbaceous Semi-natural Alliance. This area is unlikely to support special-status amphibians because it is shallow and unlikely to hold water for 4 to 6 months; however, migrating shorebird species were observed using this area and are likely to do so during winter and spring. An ephemeral pond in the southeast portion of the Project site was observed in June 2023 after a historically high rainfall year. This pond held standing water that was a maximum of approximately 2 feet deep. No vegetation was observed within the pond, and adjacent vegetation around the feature was dominated by non-native grasses (*Avena* spp.–*Bromus* spp. Herbaceous Semi-natural Alliance). Cattle tracks surround the pond. This feature may support special-status amphibians as two common species of amphibians (California toad [*Anaxyrus boreas halophilus*] and Sierran treefrog [*Pseudacris sierra*]) were observed inhabiting and surrounding this pond.

Residential Development. There were several residential areas within the Project site and 150-meter buffer. All tree species found within the BSA were within these areas.

4.4.1.3 Plants and Wildlife

The Project site supports an assortment of plants and wildlife and provides shelter, cover, roosting, foraging, and breeding habitats to mammals, birds, invertebrates, reptiles, and amphibians as year-round residents, seasonal residents, and/or migrants. Overall, the Project site supports low-quality wildlife habitat since it is disturbed by cattle grazing and lacks complex vegetation communities. Areas mapped as residential could host tree-nesting or structure-nesting bird species or nesting raptors. During the 2022 field surveys, 46 native and non-native plant species, three mammals, 21 birds, seven invertebrates, one reptile, and one amphibian species were recorded within the BSA. A list of plant and wildlife species recorded during the field surveys is provided in Appendix E, *Biological Resources* (Tetra Tech 2022a, 2022b). Numerous small mammal burrows and burrow networks were scattered in the Project site, which could serve as habitat for estivating CTS, California red-legged frog (*Rana draytonii*; CRLF), and western

spadefoot (*Spea* hammondii), burrowing owl (*Athene cunicularia*; BUOW), or SJKF. These and other special-status species are discussed in the section below.

Special-status Species

Special-status species are plants and wildlife that require special consideration or protection at state and/or federal levels due to vulnerability from human environmental impacts or population decline of the species. Critical Habitat is also designated for certain species that are listed as threatened or endangered under the federal Endangered Species Act (ESA). No Critical Habitat occurs at/on the Project site. Table 4.4.2 presents the special-status species observed on the Project site during the field surveys or with potential to occur on-site. Descriptions of these species are provided below the table. Additional details for each are provided in in Appendix E, *Biological Resources* (Tetra Tech 2022a, 2022b). Caper-fruited tropidocarpum (*Tropidocarpum capparideum*) was not found during the focused rare plant surveys conducted for the species and, therefore, is not included for further discussion below.

Other special-status species known to occur in the region include coast horned lizard (*Phrynosoma blainvillii*), western pond turtle (*Emys marmorata*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), tricolored blackbird (*Agelaius tricolor*), golden eagle (*Aquila chrysaetos*), and short-eared owl (*Asio flammeus*). Overall, these species were determined to be unlikely to occur in the Project area since habitat consists of grazed annual grassland and the preferred habitats of these species are not present. For example, due to the lack of preferred sandy substrates for burrowing, bushes for cover, and suitable prey base (ants and other insects), the coast horned lizard has a low potential to occur. Therefore, these species are not discussed below.

Table 4.4-2. Special-status Species

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Summary
Blepharizonia plumosa	Big tarplant	None	CRPR 1B.1	Observed. This species has been previously documented within the 150-meter buffer west of the Project site in 2003 (CDFW 2022). This species was found during the rare plant surveys conducted on the Project site in 2022. Two populations were found during surveys, both of which are located on the Project site in Alameda County.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Summary
Ambystoma californiense	California tiger salamander (CTS)	Threatened	Threatened	Medium Potential to Occur. The nearest known breeding site for CTS is 2 miles southwest from the Project site, and there are additional known occurrences 3 miles to the north and east from 2015 and 2016 (CDFW 2022). Ground squirrel burrows in low-sloping areas are present on the Project site and could provide upland refuges for CTS. Also, the soils on-site are moist enough to support burrowing amphibians. Within the 1.24-mile radius assessed for potential breeding ponds/pools, five potential breeding pools exist (Pool Numbers 1 through 5 in Figure 4.4-4). Two pools were visited and determined to be a potential CTS breeding pool (Pools Number 1 and 5) and three potential breeding habitats could not be observed because they occur on private property (Pool Numbers 2 through 4). Five other pools were visited and determined to not be breeding habitat for CTS. Barriers to CTS migration were found within the 1.24-mile radius, including high-density development and steep slopes greater than 14 degrees without passages. Migration from Pool Number 1 is affected by one partial barrier (PG&E Tesla Substation), dispersal from Pool 2 is affected by one partial barrier (Union Pacific Railroad), and Pools 3 and 4 have no barriers to CTS migration. Therefore, the potential for this species to utilize the Project site as upland dispersal habitat is medium. Likewise, CTS has the potential to use the ephemeral pond in the southeast portion of the Project site as breeding habitat; however, this feature is likely only present during high rainfall years.
Rana draytonii	California red-legged frog (CRLF)	Threatened	SSC	Medium Potential to Occur. This species has been previously recorded several times within 0.5 to 2 miles from the Project site from 2001 to 2004, and most recently in 2016 about 3 miles to the north (CDFW 2022). Critical habitat is located approximately 0.25 miles to the south. The Project site could be utilized as upland habitat but does not provide breeding habitat. The ephemeral pond in the southeast portion of the Project site lacks vegetation required for breeding habitat. On rainy nights, CRLF may roam away from aquatic sites as much as 1 mile (USFWS 2005). The nearest known CRLF breeding pond is 1.5 miles northwest of the Project site from 2004 (CDFW 2022), and there are two pools within a 1-mile radius from the Project site which could serve as potential breeding habitat (Pool Numbers 1 and 6 in Figure 4.4-4). In addition, there are ephemeral creeks within 0.5 to 1 mile of the Project site that could facilitate dispersal. Potential for this species to utilize the Project site as upland dispersal habitat is medium. CRLF would not use the Project site as breeding habitat given the lack of emergent vegetation required for breeding habitat in the ephemeral pond in the southeast portion of the Project site.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Summary
Spea hammondii	Western spadefoot	None	SSC	Medium Potential to Occur. This species has been previously recorded several times approximately 4 to 5 miles to the west and also to the south of the Project site from 1998 to 2020 (CDFW 2022). The ephemeral pond within the southeast of the Project site could provide breeding habitat for the species if water is present, and the Project site could be utilized as upland habitat due to the presence of crevices and burrows to provide shelter. Therefore, potential to occur on-site is medium.
Arizona elegans occidentalis	California glossy snake	None	SSC	Medium Potential to Occur. This species has been previously documented approximately 1 mile away from the Project site in 1984 and 3 miles away in 2010 (CDFW 2022). This species inhabits grassland habitat that is present on the Project site. Therefore, potential to occur on-site is medium.
Masticophis flagellum ruddocki	San Joaquin coachwhip	None	SSC	Medium Potential to Occur. San Joaquin coachwhip has been recorded 0.5 mile from the Project site in 1996 and 5 miles away in 2004 (CDFW 2022). Abundant prey and refuge in the form of small mammal burrows is available on the Project site. Therefore, the potential for this species to occur is medium.
Athene cunicularia	Burrowing owl (BUOW)	BCC	SSC	High Potential to Occur. This species has been previously documented in the southwest corner of the Project site in June 2007, and 1 mile away in 2012 and 2014 (CDFW 2022). Within a 5-mile radius, there are 44 previous occurrences of this species (CDFW 2022). Although no BUOW sign was found on the Project site at the time of survey, several burrow networks which could support BUOW were found on-site. Therefore, potential to occur is high.
Buteo regalis	Ferruginous hawk	BCC	WL	Observed. This species was observed flying overhead over the Project site during the survey. Due to the number of California ground squirrels present on the Project site, this species may use this area to hunt prey. The ferruginous hawk does not nest in the San Joaquin Valley, and therefore, will not nest in the vicinity of the Project site.
Buteo swainsoni	Swainson's hawk	BCC	Threatened	Low Potential To Nest in Project site and Medium Potential To Nest in 0.5-mile Buffer. This species has been previously documented approximately 4 miles from the Project site in 1994, and a nesting pair was documented 4.5 miles to the east in 2016 (CDFW 2022). Transmission towers surround the Project site and are suitable sites for nesting. In addition, trees suitable for nesting are found north of the Project site, on the borders of residential areas. This species could use the Project site as foraging habitat, but there is a low potential for this species to nest since the only trees occur in residential areas. Therefore, there is medium potential for this species to nest in the 0.5-mile buffer and low potential for this species to nest in the Project site.
Circus hudsonius	Northern harrier	None	SSC	Medium Potential to Occur. This species has been previously documented along the California Aqueduct 2 miles northeast from the Project site (CDFW 2022). This species could use the Project site as foraging habitat and use the adjacent 150-meter buffer as nesting habitat. Therefore, potential for this species to occur is medium.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Summary
Elanus leucurus	White-tailed kite	None	Fully Protected	Low Potential To Nest in Project site and Medium Potential To Nest in 0.5-mile Buffer. This species has been previously documented approximately 3.5 miles to the south of the Project site in 1996 (CNDDB 2022) and is known to occur in the region. Suitable nesting habitat is present in the survey buffer. Therefore, there is medium potential for this species to nest in the 0.5-mile buffer and low potential for this species to nest in the Project site.
Eremophila alpestris actia	California horned lark	None	WL	Observed. This species has been previously recorded in the vicinity of the Project site (CDFW 2022), and was heard calling on the Project site during the surveys in the southern portion of the Project site in San Joaquin County.
Lanius ludovicianus	Loggerhead shrike	BCC	SSC	Observed. This species has been previously recorded in the vicinity of the Project site (CDFW 2022), and was observed on the Project site during the survey in the southern portion of the Project site in San Joaquin County. This species requires trees and shrubs for nesting; therefore, it would only nest in the residential areas of the Project site.
Vulpes macrotis mutica	San Joaquin kit fox (SJKF)	Endangered	Threatened	Medium Potential to Occur. This species has been previously documented once within the Project site in 1989 and there are 10 occurrences within 5 miles from the Project site from before 2000 (CDFW 2022). Although there are no occurrences from the past 20 years in the California Natural Diversity Database (CNDDB) within 5 miles, several burrows potentially suitable for SJKF based on size (i.e., entrances at least 5 to 8 inches in diameter [USFWS 2011]) were observed on-site, and potential SJKF habitat, including grassland and friable soils, is present. No SJKF sign or burrows being used by SJKF were found during the surveys, but the Project site is within the species range and they could occur on-site. Therefore, potential to occur is medium.
Taxidea taxus	American badger	None	SSC	Medium Potential to Occur. This species has been previously documented 1 mile northwest of the Project site in 2014 (CDFW 2022). This species could forage and reside on the Project site because of the presence of friable soils for dens and adequate food supplies. No badger sign or burrows were found during the survey. Potential to occur is medium.
Bombus crotchii	Crotch's bumble bee	None	Candidate Endangered	Low Potential to Occur. Although this species has not been previously documented to occur at or near the Project site, habitat for this species occurs onsite, and the site is within the known range for the species. Specific nectar plant species for the Crotch's bumble bee observed on site include fiddleneck (*Amsinckia* sp.), monolopia (*Monolopia major*), phacelia (*Phacelia cilata*), and white lupine (*Lupinus albus*). However, the site is routinely grazed and trampled by cattle, which interferes with the habitat requirements for this species and reduces habitat suitability (Xerces Society et al. 2018). Therefore, potential to occur is low.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Summary
Branchinecta longiantenna	Longhorn fairy shrimp	Endangered	None	Low Potential to Occur. Although there are no species occurrences recorded near the Project site (the closest known occurrences are over 5 miles from the Project site to the north and west), longhorn fairy shrimp has the potential to occur in appropriate habitats in San Joaquin County, such as the ephemeral pond in the southeast of the Project site. Therefore, potential to occur is low.
Branchinecta lynchi	Vernal pool fairy shrimp	Threatened	None	Low Potential to Occur. Although there are no species occurrences recorded near the Project site (the closest known occurrences are over 5 miles from the Project site to the north and west), vernal pool fairy shrimp are known to occur in the northeastern part of San Joaquin County and have the potential to occur in vernal pools and swales and other seasonal aquatic habitats (San Joaquin Council of Governments [SJCOG] 2000). Therefore, potential to occur is low.

Notes: BCC – U.S. Fish and Wildlife Service Birds of Conservation Concern; CRPR 1B.1 – California Rare Plant Rank, rare, threatened, or endangered in California and elsewhere (seriously threatened in California); SSC – California Department of Fish and Wildlife (CDFW) Species of Special Concern; WL – CDFW Watch List.

Special-status Plants

Big tarplant (*Blepharizonia plumosa*) has a California Rare Plant Rank (CRPR) of 1B.1, indicating that this species is rare, threatened, or endangered in California and elsewhere, and is seriously threatened in California (over 80 percent of occurrences threatened). This species can be found in valley grassland habitats.

Big tarplant was found on the western portion of the Project site during rare plant surveys (Tetra Tech 2022b). Two populations of big tarplant were observed within the Project site, both of which occur in Alameda County (Figure 4.4-2); population 1 consisted of 395 individuals (0.09 acre), and population 2 consisted of 167 individuals (0.15 acre). Both populations occurred in ephemeral erosional features that had higher cover of bare soil relative to other areas of the Project site (Tetra Tech 2022b).

California Tiger Salamander

CTS is a federally and state threatened species. Ephemeral ponds lasting at least 30 days for breeding and an additional 10 weeks for larval development are necessary for successful breeding (USFWS 2004). Suitable breeding habitat consists of vernal pools, stock ponds, or other ephemeral wetlands that do not contain fish or bullfrog predators. Emergent or submerged vegetation or debris is necessary for egg attachment. Suitable upland habitat includes grazed annual grassland no further than 1.24 miles from a known or potential breeding site (USFWS 2003). Networks of small mammal burrows in upland habitat are necessary for CTS estivation (i.e., dormancy during hot, dry season) (Pittman 2005).

The Project site has many California ground squirrel burrows in San Joaquin and Alameda Counties (all except two are in San Joaquin County) as shown in Figure 4.4-3. In addition, an ephemeral pond in the southeast portion of the Project site was observed in 2023 after a historically high rainfall year. This pond could provide CTS breeding habitat, however the presence of cattle and their trampling around the pond may reduce the likelihood of it being used

for breeding purposes. Therefore, the Project site is potential upland and breeding habitat and may support estivating and breeding amphibians. One concrete cattle trough was found on-site, but is unlikely to be used as CTS breeding habitat because there was no bank or slope for CTS to access the water in the trough, and CTS cannot climb over structures greater than 15 inches (Langton 2021).

An assessment was also conducted within 1.24 miles of the Project site to analyze potential barriers to CTS migration between potential breeding ponds/pools and the Project site (Figure 4.4-4). The nearest known breeding site is 2 miles to the southwest of the Project site (CDFW 2022). Within 1.24 miles, five potential breeding pools exist (Pool Numbers 1 through 5 in Figure 4.4-4); two pools were visited and determined to be potential CTS breeding pools (Pool Numbers 1 and 5) and three potential breeding habitats (Pool Numbers 2 through 4) could not be observed because they occur on private property. The five other pools (Pool Numbers 6 through 10) shown in Figure 4.4-4 were visited in the field and determined to not be potential breeding habitat for CTS (Tetra Tech 2022a; USFWS 2003). Two types of potential CTS barriers were identified within 1.24 miles of the Project site: high-density development and steep slopes over 14 degrees without passages. Migration from Pool Number 1 is affected by one partial barrier (PG&E Tesla Substation), dispersal from Pool 2 is affected by one partial barrier (Union Pacific Railroad), and Pools 3 and 4 have no barriers to CTS migration as shown in Figure 4.4-4. Based on this assessment, CTS could migrate through the Project site.

California Red-legged Frog

CRLF is a federally threatened species and a CDFW Species of Special Concern. Ideal CRLF breeding habitat has emergent vegetation and surface water at a 2-foot depth or deeper; water must last a minimum of 4 to 6 months for breeding and metamorphosis. This species is also known to use stock ponds and cattle troughs for breeding (Hemingway 2005). Ideal upland habitats are creeks, seeps, or freshwater spring corridors with riparian vegetation, but this species can also occupy other types of upland habitats, including annual grassland. CRLF upland habitat is typically located within 1 mile of a breeding site.

The Project site provides potential CRLF estivation habitat primarily in the form of California ground squirrel burrows. CRLF may roam away from aquatic sites as much as 1 mile on rainy nights (USFWS 2005). Although the nearest known CRLF breeding pond is 1.5 miles northwest of the Project site from 2004 (CDFW 2022), two potential breeding ponds were found within 1 mile during the surveys (Pool Numbers 1 and 6 in Figure 4.4-4). In addition, there are at least seven cattle ponds approximately 1.5 miles to the west and southwest of the Project site, as well as four ephemeral creeks within 0.5 to 1 mile that could facilitate safe dispersal for CRLF from these potential breeding sites to the Project site. The ephemeral pond in the southeast of the Project site may attract CRLF dispersing across the area to be developed but is not breeding habitat due to the lack of emergent vegetation. Overall, the Project site may provide upland dispersal habitat that could be used by CRLF, but does not provide breeding habitat given the lack of suitable breeding habitat on-site.

Western Spadefoot

Western spadefoot is a CDFW Species of Special Concern. The spadefoot toad is primarily found in open grasslands and breeds in seasonal shallow waters such as ephemeral ponds, vernal pools, or intermittent streams. They spend most of their time in underground burrows that they

construct themselves, becoming active on the surface nocturnally during rains or when humidity is high (Stebbins 1972).

The ephemeral pond in the southeast portion of the Project site provides potential breeding habitat for western spadefoot, when water is present. The surrounding grasslands provides potential upland dispersal habitat. Since common amphibians were observed in this pond (i.e., California toad and Sierran treefrog), this pond has the potential to support special-status amphibians.

Special-Status Reptiles

California glossy snake and San Joaquin coachwhip are CDFW Species of Special Concern. These reptiles inhabit grassland habitats. California glossy snake is a primarily fossorial species and is found in areas with sandy and loose soils. The San Joaquin coachwhip inhabits open, valley grassland habitats with sparse shrub cover and requires small mammal burrows for egg-laying and refuge.

The Project site provides potential habitat for the California glossy snake and San Joaquin coachwhip in the form of grassland habitat (i.e., *Avena* spp.–*Bromus* spp. Herbaceous Semi-natural Alliance) with small mammal burrows.

Special-status Vernal Pool Invertebrates

Special-status vernal pool invertebrates have an ephemeral lifecycle, relying on seasonal ponds formed during winter rains. These vernal pools or seasonal ponds have an impervious substrate layer that allow for water to pond. Cysts from the substrate hatch when pools fill with rainwater and then rapidly develop into adults. When the pools dry, offspring persist as desiccation-resistant cysts in the pond soil until the return of winter rains the following year.

The ephemeral pond in the southeast portion of the Project site may provide habitat for special-status vernal pool invertebrate species. The federally endangered longhorn fairy shrimp (*Branchinecta longiantenna*) and federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*) are documented to occur more than 5 miles away north and west of the Project site (CDFW 2022). Since the Project site is within the known range of these species and due to the presence of suitable ponding habitat, special-status vernal pool invertebrates may occur within the ephemeral pond. However, based on a review of available aerial imagery from 1937 to 2022, this pond only holds water seasonally during high rainfall years and is typically dry.

Crotch's Bumble Bee

Crotch's bumble bee is a candidate for listing under the California Endangered Species Act (CESA). Crotch's bumble bee primarily nest in late February through late October in abandoned small mammal burrows underground. Overwintering sites include soft, disturbed soil or leaf litter or other debris used by mated queens. Crotch's bumble bee forages a variety of suitable floral resources, including plants in the Asteraceae, Boraginaceae, Fabaceae, and Hydrophyllaceae families (Xerces Society et al. 2018).

Although no bumble bees of any species were observed during Project biological surveys and there are no known occurrences recorded near the Project site, floral resources (foraging habitat), burrows and crevices (nesting habitat), and leaf litter (overwintering habitat) were observed within the Project site. However, the site is routinely grazed and trampled by cattle, which likely interferes

with the habitat requirements of this species and reduces habitat suitability (Xerces Society et al. 2018).

Burrowing Owl

BUOW is a CDFW Species of Special Concern. BUOWs breed and live in burrows and use coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean Desert scrub, Sonoran Desert scrub, and valley and foothill grassland habitats as well as agricultural areas or any open dry area with low vegetation.

The Project site is in the known distributional range of the BUOW and contains potentially suitable BUOW habitat due to low-growing vegetation and abundance of small mammals. In addition, this species has been previously documented on the Project site in 2007 (CDFW 2022). A total of eight small mammal burrows and one burrow surrogate (i.e., culvert) that were potentially suitable for BUOW were found within the Project site in San Joaquin and Alameda Counties (all except one are in San Joaquin County) as shown in Figure 4.4-3. These burrows had entrance diameters greater than approximately 4 inches and were above 60 inches in depth and, therefore, were considered potentially suitable for BUOW (Tetra Tech 2022a). Although no BUOW sign was observed at the potential burrows or burrow surrogate, several burrow networks that could support BUOW were found on-site.

Swainson's Hawk

Swainson's hawk is a state threatened species, and the San Joaquin Valley hosts the majority of California's breeding pairs. This species nests primarily in riparian or isolated trees between March and September.

Potential Swainson's hawk and raptor nesting habitat within 0.5 mile of the Project site consists of more than 10 transmission towers and numerous 8- to 10-foot-tall trees of various species in residential areas and in stands along ephemeral water features in San Joaquin and Alameda Counties (Figure 4.4-5). Although trees within the BSA are considered potential Swainson's hawk habitat, these residential areas are exposed to high levels of disturbance (e.g., vehicle traffic, dogs, human activity, noise, light pollution). Adjacent areas in the 0.5-mile buffer undergo comparably less disturbance. One inactive raptor nest was found in a transmission tower approximately 100 feet east from the Project site in San Joaquin County (Figure 4.4-5). Overall, Swainson's hawk could use the Project site as foraging habitat, but there is a low potential for this species to nest on-site since the only trees occur in residential areas. This species could nest within 0.5 mile of the Project site.

White-tailed Kite

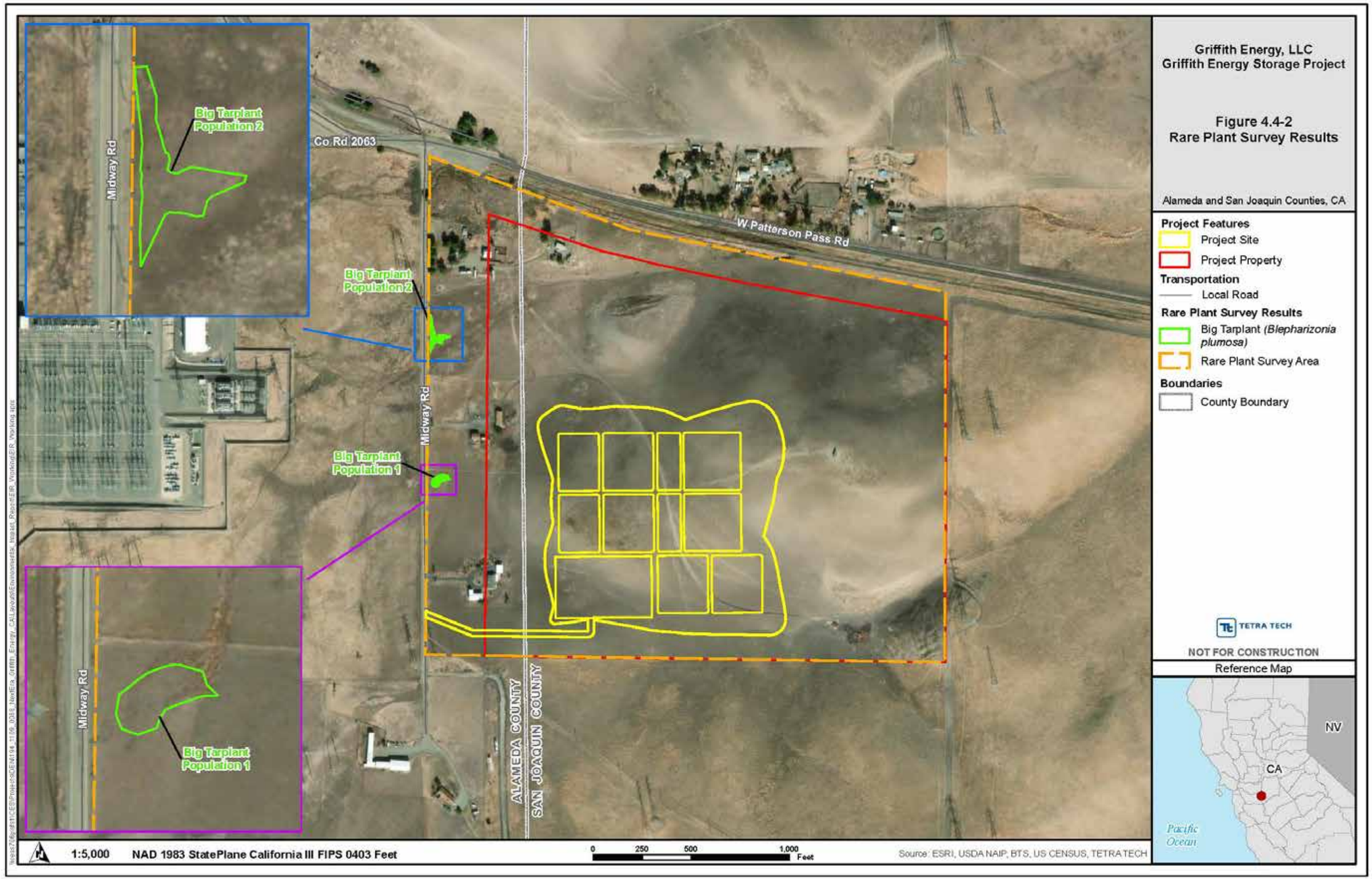
The white-tailed kite is a fully protected species by CDFW. White-tailed kites forage for rodents and insects in undisturbed grasslands, meadows, farmlands, and emergent wetlands (Thompson 1975). Their nesting habitat includes dense oak, willow, or other tree stand, usually 6 to 20 meters above ground, located near an open foraging area (Dixon et al. 1957). Nesting typically occurs from March through early August, peaking from March through June.

Potential white-tailed kite nesting habitat includes trees located adjacent to the Project site to the north and northwest. Numerous 8- to 10-foot-tall trees of various species in residential areas have

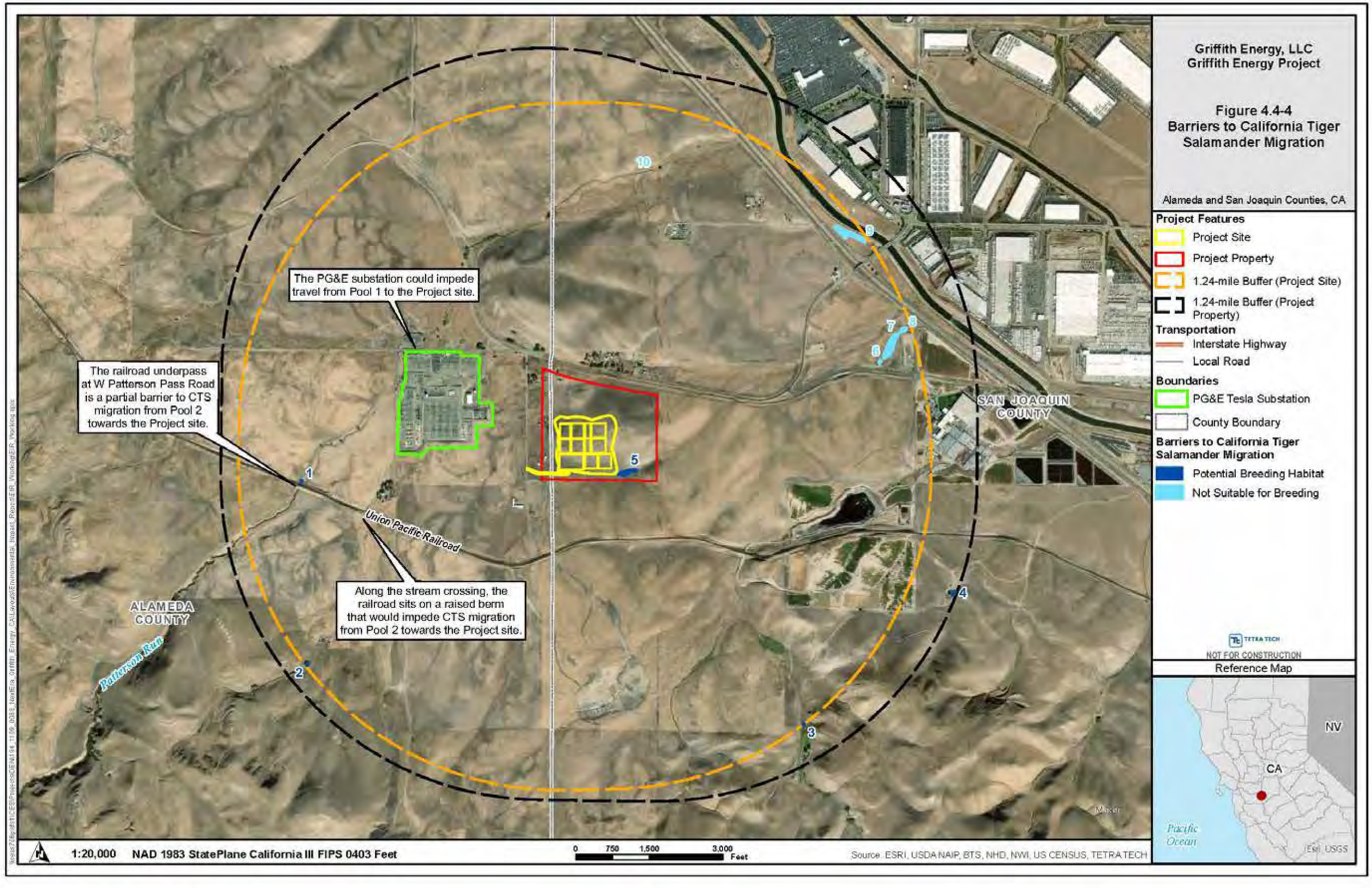
the potential to provide nesting habitat. The open grassland within the Project site provides potential foraging habitat for white-tailed kites.

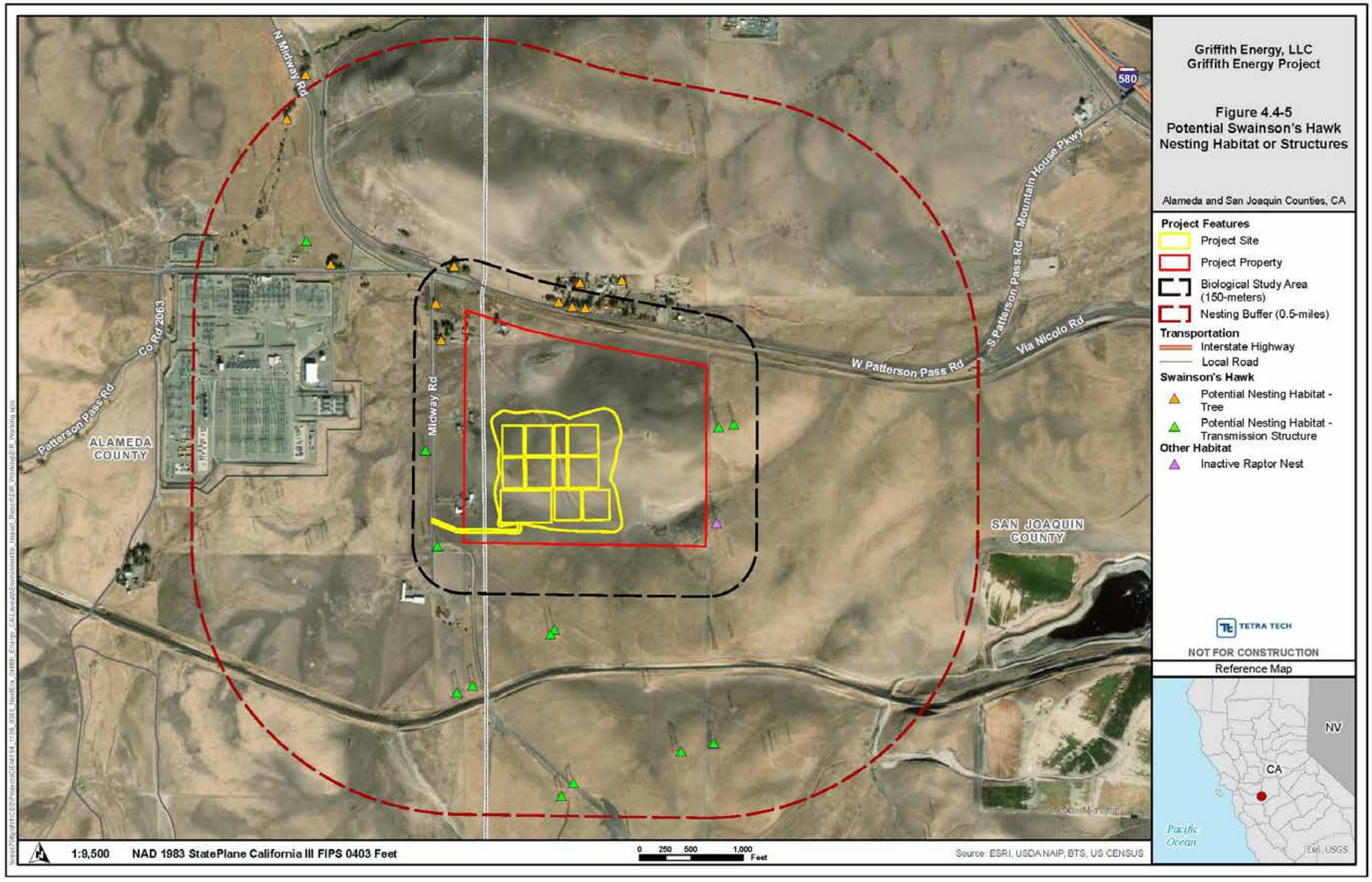
Other Special-status Birds

During the surveys, two loggerhead shrikes, one ferruginous hawk, and one California horned lark were observed. Loggerhead shrikes and California horned lark were identified in the southern portion of the Project site in San Joaquin County, and the ferruginous hawk was observed soaring overhead. Loggerhead shrike is a CDFW Species of Special Concern, and the ferruginous hawk and California horned lark are CDFW Watch List species. The ferruginous hawk does not nest in the San Joaquin Valley, but it may hunt on-site; the loggerhead shrike may nest in the trees and shrubs within the residential areas of the Project site; and California horned larks may nest in grassland areas of the Project site. Although northern harrier, a CDFW Species of Special Concern, was not observed during surveys, it may also use the Project site as foraging habitat and the adjacent areas as nesting habitat.


Griffith Energy, LLC
Griffith Energy Storage Project
Figure 4.4-2
Rare Plant Survey Results
Alameda and San Joaquin Counties, CA
Project Features
Project Site
Project Property
Transportation
Local Road
Rare Plant Survey Results
Big Tarplant (Blepharizonia plumosa)
Rare Plant Survey Area
Boundaries
County Boundary
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
Big Tarplant Population 2
Big Tarplant Population 2
Big Tarplant Population 1
Big Tarplant Population 1
Midway Rd
Midway Rd
Midway Rd
Co Rd 2063
W Patterson Pass Rd
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
1:5,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0
250
500
1,000
Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS, TETRA TECH


Patterson Pass Rd
Co Rd 2063
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
W Patterson Pass Rd
Midway Rd
Griffith Energy, LLC
Griffith Energy Storage Project
Figure 4.4-3
Locations of Potential Special-Status Species Habitat
Alameda and San Joaquin Counties, CA
Project Features
Project Site
Project Property
Biological Survey Area (150-meters)
Transportation
Local Road
Locations of Potential Special-Status Species Habitat
Potential Underground California Tiger Salamander Refugia
Potential Burrowing Owl or San Joaquin Kit Fox Burrow
Potential Burrowing Owl Burrow
Potential Amphibian Breeding Habitat
*While these features represent areas where burrows and burrow surrogates were photographed in the field on 01/11 and 01/12/2022, CTS burrows and burrow surrogates observed on-site are not limited to the points seen on this figure.
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
Esri, USGS
1:4,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0
250
500
1,000
Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS, TETRA TECH


The PG&E substation could impede travel from Pool 1 to the Project site.
The railroad underpass at W Patterson Pass Road is a partial barrier to CTS migration from Pool 2 towards the Project site.
Along the stream crossing, the railroad sits on a raised berm that would impede CTS migration from Pool 2 towards the Project site.
Union Pacific Railroad
Patterson Run
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
1
2
3
4
5
6
7
8
9
10
Griffith Energy, LLC
Griffith Energy Project
Figure 4.4-4
Barriers to California Tiger Salamander Migration
Alameda and San Joaquin Counties, CA
Project Features
Project Site
Project Property
1.24-mile Buffer (Project Site)
1.24-mile Buffer (Project Property)
Transportation
Interstate Highway
Local Road
Boundaries
PG&E Tesla Substation
County Boundary
Barriers to California Tiger Salamander Migration
Potential Breeding Habitat
Not Suitable for Breeding
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
1:20,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 750 1,500 3,000 Feet
Source: ESRI, USDA NAIP, BTS, NHD, NWI, US CENSUS, TETRA TECH


Griffith Energy, LLC
Griffith Energy Project
Figure 4.4-5
Potential Swainson's Hawk Nesting Habitat or Structures
Alameda and San Joaquin Counties, CA
Project Features
Project Site
Project Property
Biological Study Area (150-meters)
Nesting Buffer (0.5-miles)
Transportation
Interstate Highway
Local Road
Swainson's Hawk
Potential Nesting Habitat - Tree
Potential Nesting Habitat - Transmission Structure
Other Habitat
Inactive Raptor Nest
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
Esri, USGS
N Midway Rd
Co Rd 2063
Patterson Pass Rd
ALAMEDA COUNTY
Midway Rd
W Patterson Pass Rd
S Patterson Pass Rd
Mountain House Pkwy
Via Nicolo Rd
580
SAN JOAQUIN COUNTY
1:9,500
NAD 1983 StatePlane California III FIPS 0403 Feet
0 250 500 1,000 Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS

San Joaquin Kit Fox

The SJKF is federally listed as endangered and state listed as threatened. This species uses grasslands and sparsely vegetated shrubland habitats. SJKF digs and lives in dens and preys primarily on small mammals, but may also feed on various insects, reptiles, birds and eggs, and rarely vegetation. Suitable SJKF dens are defined as any suitable underground hole that has entrances of 5 to 8 inches in diameter, including those of other species and manmade features that meet the size requirement (USFWS 2011).

The Project site supports an abundant prey base and friable soils for burrows/dens. SJKF have been previously documented on the Project site in 1989, and there are 10 occurrences within 5 miles of the Project site from before 2000 (CDFW 2022). Long-term surveys beginning in 2016 and continuing for 10 years to 2026 on the Contra Costa Water District's 3,000-acre Corral Hollow property just southeast of the Project site are being performed. So far to date, no SJKF have been found since occurrences are required to be reported to the CNDDB and occurrences in this area were not found during the literature review (CDFW 2022). Three potential burrows likely dug by small mammals but that met the size requirements described above for SJKF were observed on the Project site, all of which are located in San Joaquin County (Figure 4.4-3). Although this species has not been recently observed in the vicinity (CDFW 2022) and no SJKF sign was found during the Project biological surveys, burrows potentially suitable for SJKF based on size (i.e., entrances at least 5 to 8 inches in diameter [USFWS 2011]) were observed on-site and potential SJKF habitat, including grassland and friable soils, is present. Therefore, this species could use the Project site.

American Badger

The American badger is a CDFW Species of Special Concern. The American badger is a habitat generalist that often occurs in dry, open grasslands, including semi-desert, sagebrush, and meadows. The badger is a fossorial mammal that prefers to dig their burrows in loose soil.

This species may use grazed grasslands such as those on the Project site. The Project site and 150-meter buffer contain friable soils for dens and an abundant prey base of small mammals. Although no sign of American badger was found on-site, this species could forage and reside within the Project site and 150-meter buffer.

Migratory Birds and Nests

Native birds and their nests are protected under the federal Migratory Bird Treaty Act (MBTA). Ground-nesting, cavity-nesting, shrub-nesting, and tree-nesting bird species were observed foraging on the Project site. Ground-nesting birds could nest in grassland areas mapped as *Avena* spp.–*Bromus* spp. Herbaceous Semi-Natural Alliance, cavity and structure-nesting birds could nest in the areas mapped as residential, and tree nesting species could nest in the areas mapped as residential or areas mapped as suitable nesting habitat for Swainson's hawk (Figure 4.4-5).

It is unlikely that raptor nesting will occur in trees located in the residential areas of the Project site because of the level of human disturbance. Within the 150-meter buffer, there is suitable raptor nesting habitat and one inactive raptor nest in San Joaquin County was found in January 2022 (Figure 4.4-5). This nest could become active during the nesting season (February 1 to August 31).

4.4.1.4 Hydrology

The Project site is located in the Lower Old River watershed area. The nearest natural aquatic feature is Patterson Run, which is approximately 0.5 to 1 mile from the Project site.

Two potential wetland areas were identified and surveyed on the Project site in 2022 (Tetra Tech 2022a). Neither area was determined to be under the jurisdiction of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), or CDFW. One area consisted of an erosional feature with no ponded or flowing water, no evidence of standing water, and no defined bed, banks, or channel (Figure 4.4-1). This feature is not a WOTUS because it is an ephemeral feature that is hydrologically isolated from other WOTUS. It is also not jurisdictional to the RWQCB or CDFW.

In 2022, the second area was determined to be a pile of cut logs and leaf litter with no associated depression or channel, no standing water present, and no hydrophytic vegetation. This area did not have any wetland characteristics. However, after historically high rainfall in the 2022-2023 winter, an ephemeral pond with standing water was observed in this same location in the southeastern portion of the Project site in spring 2023 (Figure 4.4-1). The U.S. Geological Survey National Hydrography Dataset (NHD) identified one potential body of water located in the southeast portion of the Project site, and it was verified in the field that this ephemeral pond is the feature from the dataset. Historic aerial imagery indicates that this feature rarely ponds with water and has not ponded in recent years. This pond is not a USACE wetlands due to the lack of hydrophytic vegetation. This feature is not a WOTUS because it is hydrologically isolated. However, it is likely jurisdictional to the RWQCB and CDFW.

4.4.1.5 Wildlife Movement

A wildlife corridor is a connection of habitat, generally native vegetation, which joins two or more larger areas of similar habitat that are otherwise separated by natural barriers, changes in vegetation composition, or land permanently altered for human activities, such as farms; and infrastructure, such as roads, railroads, residential development, or fencing. When native vegetation is cleared, fragmented patches of open space or isolated “islands” of wildlife habitat are created. Fragmentation and habitat loss are the two main contributors to continuing biodiversity decline. The main goal of corridors is to facilitate movement of individuals through dispersal, seasonal migration, and movement for foraging, breeding, cover, etc. Corridors allow for physical and genetic exchange between isolated wildlife populations and are critical for the maintenance of ecological processes, including allowing for the movement of animals and the continuation of viable populations and higher species diversity.

The Project site lies within an area designated as Rank 4 in CDFW’s Terrestrial Connectivity Areas of Conservation Emphasis. This designation indicates that habitat connectivity linkages occur in the area. Habitat connectivity linkages represent the best connections between core natural areas to maintain habitat connectivity. However, these linkages are not considered irreplaceable and essential corridors (i.e., Rank 5). The Project site is also within the California Bay Area Linkage Network (Penrod et al. 2013), which identifies areas that are either high-quality habitat or highly permeable to wildlife movement and connect larger wildlands with smaller wildlands. In addition, the Project site is within a San Joaquin Valley Wildlife Corridor (Huber 2006). San Joaquin Valley Wildlife Corridors connect areas of conservation opportunity to healthy, native habitats. However, these designated areas also extend far beyond the boundaries of the Project site and have not incorporated specific on-site conditions into the analysis.

The residential and heavy grazing uses and lack of natural habitat on the Project site, as well as grazing and development of the surrounding areas, may limit habitat continuity or wildlife movement on-site. Cattle fences are currently in place around the entire perimeter of the Project site, which may impede the movement of some wildlife species. In addition, public paved roads are located along the western and northern boundaries of the Project site. While the site has been subject to grazing, the Project site is a disturbed natural area, compared with nearby residential development and the adjacent substation. Thus, various wildlife species are capable of moving across the landscape through the site.

4.4.1.6 Pacific Gas and Electric Tesla Substation Improvements

The Project includes a proposed gen-tie line that would extend from the battery storage facility to the available PG&E Tesla Substation. The gen-tie line would be located primarily in Alameda County with a small portion located in San Joaquin County (Figure 4.4-1). Within the existing Tesla Substation footprint, PG&E would also complete other upgrades and improvements. Biological surveys were conducted by Jacobs in the proposed gen-tie line area in 2020, 2021, and 2022 (Jacobs 2022). Jacobs conducted the following surveys (Jacobs 2022):

- Initial reconnaissance-level field surveys to evaluate habitats, determine potential to occur for special-status species, and evaluate potential wetlands and aquatic features (November 2020; March 2021);
- Protocol-level surveys for BUOW (December 2021 to July 2022); and
- Rare plant surveys (April 2021; March, April, July, and September 2022).

Within the gen-tie line area, California Annual Grassland is the primary land cover type, comprised of the typical non-native grassland species, such as wild oat and bromes, and is used as cattle pasture and for grazing (Jacobs 2022). No wetlands, vernal pools, ephemeral waters, or other waters that are potentially jurisdictional under state or federal regulations were found (Jacobs 2022). In addition, no BUOW or their signs were found during protocol-level surveys (Jacobs 2022). Likewise, no rare plants were found during the rare plant surveys (Jacobs 2022).

Other special-status species determined by Jacobs to have the potential to occur in the gen-tie line area based on habitats present include CTS, coast horned lizard (*Phrynosoma blainvillii*), CRLF, western spadefoot (*Spea hammondii*), California glossy snake, western pond turtle (*Emys marmorata*), San Joaquin coachwhip, Alameda whipsnake (*Masticophis lateralis euryxanthus*), tricolored blackbird (*Agelaius tricolor*), golden eagle (*Aquila chrysaetos*), short-eared owl (*Asio flammeus*), Swainson's hawk, northern harrier, white-tailed kite (*Elanus leucurus*), loggerhead shrike, as well as American badger and SJKF, which were both considered likely to occur (Jacobs 2022). Only upland habitat was identified during surveys, and for the special-status bird species besides BUOW, only grazed/low grassland foraging habitat is available that does not provide nesting habitat (Jacobs 2022). Overall, coast horned lizard, western spadefoot, western pond turtle, Alameda whipsnake, tricolored blackbird, golden eagle, short-eared owl, and white-tailed kite were determined to have a low potential to occur in the Project area since habitat consists of grazed annual grassland and the preferred habitats of these species are not present. For example, due to the lack of preferred sandy substrates for burrowing, bushes for cover, and suitable prey base (ants and other insects), the coast horned lizard has a low potential to occur. Therefore, these species are not discussed below.

4.4.2 Regulatory Setting

4.4.2.1 Federal Endangered Species Act

The federal ESA of 1973, as amended (Title 16, United States Code [U.S.C.] 1531, et seq.) designates and provides for protection of federally listed threatened and endangered plant and animal species and their Critical Habitat. The U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries share responsibility for administration of the ESA. These responsibilities include listing and delisting species, designating critical habitat, and formulating recovery plans. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NOAA Fisheries are mainly marine wildlife.

The ESA is divided into 18 sections that are intended to work together to prevent species from going extinct by helping to stabilize populations, reducing the threats to their survival, and helping species recover to the point that they no longer require federal protection. Once a species is listed, Section 9 of the Endangered Species Act makes it unlawful for any person, including private and public entities, to "take" species listed as endangered without a permit issued under Section 10 or an incidental take statement issued under Section 7. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

4.4.2.2 Federal Migratory Bird Treaty Act

The federal MBTA of 1918 (Title 16, U.S.C. §§703–712), as amended, implements various treaties and conventions between the United States and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg or any such bird, unless authorized under a permit issued by the Secretary of the Interior. Some regulatory exceptions apply. "Take" is defined in regulations implementing the MBTA as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to carry out these activities." The MBTA prohibits the collection and destruction of a migratory bird, its nest, and birds or eggs contained in the nest. USFWS' Migratory Bird Permit Memorandum (MBPM-2) dated April 15, 2003, clarifies that destruction of most unoccupied bird nests is permissible under the MBTA; exceptions include nests of federally listed threatened or endangered migratory birds, bald eagles (*Haliaeetus leucocephalus*), and golden eagles. Take under the MBTA does not include habitat destruction or alteration, if there is not a direct taking of birds, nests, eggs, or parts thereof. The USFWS has statutory authority and responsibility for enforcing the MBTA.

4.4.2.3 California Endangered Species Act (Fish and Game Code §2050 et seq.)

CESA was enacted in 1984 to parallel the federal ESA and allows the California Fish and Game Commission to designate species, including plants, as "threatened" or "endangered." The CESA states that all native species of fishes, amphibians, reptiles, birds, mammals, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. In May 2022, a California Court of Appeal ruled that insects (invertebrates) can be protected under the California Endangered Species Act (see *Almond Alliance of California v. California Department of Fish and Wildlife*, No. C093542 [3rd District, May 31, 2022]).

The CESA makes it illegal to import, export, take, possess, purchase, sell, or attempt to do any of those actions to species that are designated as threatened, endangered, or candidates for listing, unless permitted by the CDFW. Section 2080 of the California Fish and Game Code prohibits take of any species that the California Fish and Game Commission determines to be an endangered species or a threatened species. “Take” is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Under Section 2081 of the CESA, the CDFW may permit take or possession of threatened, endangered, or candidate species for scientific, educational, or management purposes, and may also permit take of these species that is incidental to otherwise lawful activities if certain conditions are met. Some of the conditions for issuance of permits allowing incidental take are that the adverse effects of the take must be minimized and fully mitigated, adequate funding must be ensured for implementation of identified mitigation, and that the activity shall not jeopardize the continued existence of the listed species. The CESA emphasizes early consultation to avoid potential impacts on candidate and listed endangered and threatened species, and to develop appropriate mitigation to offset project caused losses of listed species populations and their essential habitats.

4.4.2.4 California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 – Fully Protected Species

The classification of fully protected was California’s initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for birds (Section 3511), mammals (Section 4700), amphibians and reptiles (Section 5050), and fish (Section 5515). Fully protected animal species may not be taken or possessed at any time and no licenses or permits may be issued for their take, except for collecting these species for scientific research and relocation of the species for certain purposes.

Sections 3503, 3503.5, and 3513

California Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered take. Avoidance measures sufficient to prevent incidental take of bird nests and eggs protected by this statute must be incorporated into the Project.

All raptors and their nests are protected under Section 3503.5. Avoidance measures sufficient to prevent incidental take of these species, their eggs, and their nests protected by this statute must be incorporated into the Project.

California Fish and Game Code Section 3513 protects California’s migratory birds by making it unlawful to take or possess any migratory non-game bird as designated by the MBTA, except as authorized in regulations adopted by the federal government under provisions of the MBTA. Except as permitted by the USFWS under a Habitat Conservation Plan (HCP), avoidance measures sufficient to prevent incidental take of these species, their eggs, and their nests protected by this statute must be incorporated into the Project.

Sections 1900–1913 – Native Plant Protection Act

The Native Plant Protection Act, enacted in 1977, allows the California Fish and Game Commission to designate native plants as state "endangered" or "rare," mirroring the designations created for animal species by the CESA of 1970. The Native Plant Protection Act, administered by the CDFW, requires all state agencies to utilize their authority to preserve, protect, and enhance endangered or rare native plants of California. Section 1908 of the Act prohibits the take of any native plant that the California Fish and Game Commission determines to be an endangered or rare native plant, except when the take is incidental to agricultural and nursery operations, emergencies, or the possession or sale of real property on which the plant is growing. Section 1913(c) further provides that where the owner of land has been notified by the CDFW that native plant listed as rare or endangered is growing on such land, the owner shall notify the CDFW at least 10 days in advance of changing the land use to allow for salvage of the listed plant(s) subject to the notification. The failure by the CDFW to salvage such plant within 10 days of notification of change in land use shall entitle the owner of the land to proceed with the change.

4.4.2.5 Federal Clean Water Act

The federal Clean Water Act (CWA) is the principal federal law governing pollution control and water quality of the nation's waterways. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." It establishes the basic structure for regulating discharges of pollutants into WOTUS and for regulating water quality and establishing water quality standards for surface waters. Sections 404 and 401 of the CWA are pertinent to surface and coastal WOTUS. The CWA provides regulatory authority over the navigable WOTUS, which are defined as the "waters of the United States, including the territorial seas" (33 U.S.C. §1362(7)). This statute is implemented by the USACE and the U.S. Environmental Protection Agency (USEPA).

Congress did not define in the CWA what it meant by "Waters of the U.S." and left it up to the USACE and USEPA to provide more detail through rulemaking. WOTUS are comprised of those wetland and non-wetland bodies of water that met criteria set forth in 33 Code of Federal Regulations (CFR) Section 328.3, as interpreted by several court opinions and guidance. On June 29, 2015, the USACE and USEPA published an amendment to 33 CFR Section 328.3, revising the definition of WOTUS in a manner intended to consider but supersede prior judicial decisions, regulations, and guidance. The revised regulation, named the "Clean Water Rule," was published in the *Federal Register* (FR; 80 FR 124: 37054–37127) and became effective on August 28, 2015.

The Clean Water Rule was challenged in court and on October 22, 2019, the USACE and USEPA published a final rule (Step One) to repeal the 2015 Clean Water Rule and to restore the regulatory text that existed prior to the 2015 Clean Water Rule. The final rule (Step One) became effective on December 23, 2019.

On April 21, 2020, the USACE and USEPA completed Step Two of the two-step "repeal and replace" process by publishing The Navigable Waters Protection Rule: Definition of "Waters of the United States" in the FR. The Navigable Waters Protection Rule revises the definition of WOTUS under the CWA. It creates four categories of jurisdictional waters and it provides specific exclusions for many water features that traditionally have not been regulated. The Navigable Waters Protection Rule (Step Two) became effective on June 22, 2020, replacing the final rule (Step One).

Following a federal district court decision on August 30, 2021, the USACE and USEPA halted implementation of the Navigable Waters Protection Rule and began interpreting WOTUS consistent with the "pre-2015" regulatory regime. On December 7, 2021, the USACE and USEPA announced a Proposed Rule, published in the FR, to revise the definition of WOTUS to formalize the Supreme Court's decisions and put back into place the "pre-2015" definition of WOTUS (33 CFR Section 328.3). The pre-2015 regulations also include the Supreme Court's decisions in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001); and *Rapanos v. United States*, 547 U.S. 715 (2006). The public comment period closed in February 2022 and the Proposed Rule is anticipated to become effective in 2023.

4.4.2.6 California Porter-Cologne Water Quality Control Act

In 1969, the California Legislature enacted the Porter-Cologne Water Quality Control Act (Porter-Cologne) to revise the existing water quality laws in California. Through the Act, the California SWRCB and nine RWQCBs were entrusted with duties and powers to preserve, restore, and enhance the quality of California's water resources. The SWRCB has the ultimate authority over state water rights and water quality policy. The SWRCB adopts statewide water quality control plans, policies, and guidance that direct RWQCBs in designating beneficial uses, setting water quality control standards, and administering programs to protect and preserve the "Waters of the State." Pursuant to these statewide plans, policies, and guidance, each of the nine RWQCBs within California is required to adopt a Basin Plan that sets water quality standards, including narrative and numeric water quality objectives for various constituents of concern, recognizing and reflecting the regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions

Pursuant to Porter-Cologne, the SWRCB and RWQCBs, on a statewide and regional basis, respectively, have authority to regulate the "discharge of waste" to "Waters of the State" independently of the CWA and as a matter of state law. Discharges of waste are defined to:

> *include sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation or of human or animal origin, or from any producing, manufacturing or processing operations, include waste placed in containers of whatever nature prior to and for purposes of, disposal* (California Water Code §13050(d)).

Discharges of fill are included in the Porter-Cologne definition of discharge of "waste."

"Waters of the State" are defined to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code §13050€). Under Porter-Cologne, Waters of the State include, but are not limited to, WOTUS. As a matter of state law, any party proposing a discharge of waste, including fill or other pollutants, that threatens to affect any Water of the State that is not also a WOTUS must file a Report of Waste Discharge with the appropriate RWQCB, as applicable (California Water Code §§13260; 13264). The RWQCB, after a public hearing, will then respond to the Report of Waste Discharge by imposing appropriate Waste Discharge Requirements (WDRs) (California Water Code §§13263; 13264), or by issuing a Waiver of WDRs with appropriate conditions (California Water Code §13269), to control discharges for the protection of Waters of the State.

The SWRCB and RWQCBs, on a statewide and regional basis, respectively, also have authority to issue, deny, condition, enforce, and otherwise administer all CWA Section 402 NPDES Permits

for discharges of pollutants into WOTUS, and Section 401 water quality certifications for Section 404 permits. USACE retains and has not delegated jurisdiction to issue Section 404 permits for discharges of fill to WOTUS.

Accordingly, the SWRCB and RWQCBs have, respectively, issued the statewide Construction General NPDES Permit and the MS4 NPDES Permits, which constitute both federal CWA Section 402 permits and state Porter-Cologne WDRs under guidance issued by the SWRCB. Discharges of fill subject to USACE CWA Section 404 permitting are reviewed and protected by the SWRCB by issuance of Section 401 water quality certifications, and no additional state law WDRs are required to authorize discharges of fill. Discharges of fill to Waters of the State that are not also WOTUS are subject to regulation by the SWRCB or appropriate RWQCBs, as applicable. Any Project proponent proposing such discharges of fill must submit a report of waste discharges along with USACE jurisdictional disclaimers and, prior to placing such fill, must either obtain coverage for such discharges under:

(i) The SWRCB's Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by USACE to be Outside of Federal Jurisdiction (Order No. 2004-004-DWQ);

(ii) Individual WDRs; or

(iii) A conditional waiver of WDRs (Guidance for Regulation of Discharges to "Isolated" Waters).

The SWRCB has adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, which became effective on May 28, 2020 (SWRCB 2019). The Procedures define an area as a wetland as follows: an area is a 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 Procedures consider natural wetlands, wetlands created by modification of surface Waters of the State, and areas that meet the current or historic definitions of WOTUS, to be Waters of the State (SWRCB 2019). In addition, the Procedures consider artificial wetlands (i.e., wetlands that result from human activity) that meet specific criteria to be Waters of the State (SWRCB 2019). However, contrary to the USACE wetland definition, California's wetland delineation also protects non-vegetated wetlands. This definition does not affect the meaning of Waters of the State as it pertains to SWRCB/RWQCB jurisdiction pursuant to the Porter-Cologne Act, nor does it modify the current authorities of the SWRCB/RWQCB to protect water quality.

4.4.2.7 California Fish and Game Code Sections 1600–1616

Pursuant to Sections 1600–1616 of the California Fish and Game Code, the CDFW regulates all substantial diversions, obstructions, or changes to the natural flow or the bed, channel, or bank of any river, stream, or lake which provides habitat and supports fish or wildlife. The CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation" (CCR, Title 14, Division 1, Subdivision 1, Chapter 1, Section 1.72). "Bank" means the slope or elevation of land that bounds the bed of the stream in a permanent or

longstanding way, and that confines the stream water up to its highest level. “Lake” includes “natural lakes or man-made reservoirs.”

Rivers, streams, lakes, and riparian vegetation that provide habitat for fish and wildlife species are subject to jurisdiction by the CDFW under Sections 1600–1616 of the California Fish and Game Code. Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Section 2785(e) defines “riparian habitat” as lands that contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source. The CDFW regulates the bed, bank to bank, as well as associated riparian vegetation and fish and wildlife resources. The CDFW has interpreted jurisdictional boundaries to be defined by the tops of stream banks (i.e., the limit of stream influence) and/or the limit of the canopy of riparian vegetation (outer drip line) that is hydrologically connected to river, stream, or lake, whichever is greatest. As a result, the area of CDFW jurisdiction is usually greater than the active channel and overlaps and extends beyond the USACE jurisdiction. Isolated wetlands not associated with a river, stream, or lake are not protected under Sections 1600 et seq. of the California Fish and Game Code. In addition, the CDFW does not have regulatory authority on tribal lands.

CDFW jurisdiction may also extend to altered or artificial waterways based upon the value of those waterways to fish and wildlife (CDFG-ESD 1994), particularly to the extent that such constructed waterways were originally natural waterways.

The Lake and Streambed Alteration Program requires execution of an agreement with the CDFW before any activity substantially modifies a river, stream, or lake. It is not legal to alter the bed or bank of a stream or lake or their natural water flow without a CDFW Streambed Alteration Agreement. The California Fish and Game Code Section 1602 requires an entity to notify the CDFW of any proposed activity that may substantially modify a perennial, intermittent, and ephemeral river, stream, or lake in the state. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The notification requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. This includes intermittent and ephemeral streams and washes, and other watercourses with subsurface flows, or drainages with beds and banks that support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife.

4.4.2.8 San Joaquin County Multi-species Habitat Conservation and Open Space Plan

The Project site is within the planning area for the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). The SJMSCP plan area covers all of San Joaquin County except for federally owned lands. Most of the Project site is in San Joaquin County (approximately 90 percent). A small portion (approximately 10 percent) of the Project site is in Alameda County. The current area to be developed plans avoid Alameda County with the exception of the gen-tie line that is partially in Alameda County as described below. The portion of the proposed Project in San Joaquin County would be permitted under the SJMSCP. The

portion in Alameda County would be permitted separately through coordination with the USFWS and CDFW. The mitigation measures presented in Section 4.4.5 are drawn from the SJMSCP. These are comparatively protective as the measures included in the East Alameda Conservation Strategy, described below, and would allow measures be consistently implemented on the ground, during construction. Having different measures apply in San Joaquin County than in Alameda County would be unnecessarily difficult to implement, likely resulting in lower quality protection for the resources.

The SJMSCP (SJCOG 2000) satisfies the requirements of the federal and state ESAs, and provides measures to mitigate impacts on special-status species and their habitat to a less than significant level in compliance with CEQA. This plan has been finalized. Projects with anticipated impacts to special-status species are eligible for incidental take coverage under the SJMSCP and would not require separate incidental take permits or consultations for SJMSCP Covered Species.

The SJMSCP provides incidental take coverage for 97 listed and non-listed plants, fish, and wildlife, and provides compensation for habitat losses through collection of fees. Species with potential to occur on-site that are covered by the SJMSCP include CTS, western spadefoot, CRLF, San Joaquin coachwhip, BUOW, Swainson's hawk and other nesting birds, SJKF, American badger, and special-status vernal pool invertebrates. As described below in Section 4.4.5, *Mitigation Measures,* the SJMSCP would be used to mitigate potential impacts to these special-status species and their habitats. Participation of the Project in the SJMSCP will reduce impacts to covered species and habitats to a less than significant level under CEQA. Conversion of natural lands (e.g., agricultural rangelands), like those on the area to be developed, has a current per-acre fee of $19,561 to provide compensation for habitat losses (SJCOG 2022).

4.4.2.9 East Alameda County Conservation Strategy

The proposed gen-tie line is partially in Alameda County and is within the planning area for the East Alameda County Conservation Strategy (EACCS; ICF International 2010). The EACCS is a regional conservation strategy that provides guidelines and recommended avoidance, minimization, and mitigation measures for impacts on selected focal special-status species and sensitive habitats. The resources agencies have participated in development of the EACCS, but it does not provide incidental take permits for special-status species, as is the case in an HCP, but rather serves as guidance for project-level permits. Therefore, work within Alameda County would still require project-level incidental take permits for impacts to special-status species. To retain consistency across all aspects of the project the mitigation measures presented in Section 4.4.5 are consistent with the SJMSCP. These vary slightly from those included in the EACCS; however, they are equally or greater protective. While use of the EACCS general and species avoidance and minimization measures are required if seeking coverage for a project under the Programmatic Biological Opinion between the Corps and the USFWS, they are only recommendations if pursuing and individual incidental take permit. In order to provide a consistent approach across the entire project mitigation measures consistent with the SJMSCP were included instead of measures from EACCS. In some instances, when a species was not addressed in the SJMSCP (i.e., big tarplant) the EACCS measures were employed.

Methodology

The following summarizes the literature and field survey methods used for evaluating biological resources.

Literature Review

Prior to the field surveys, biologists reviewed relevant literature, databases, and aerial imagery. The following sources were reviewed:

- CDFW California Natural Diversity Database data (CDFW 2022)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants data (CNPS 2022)
- USFWS National Wetland Inventory and Critical Habitat data (USFWS 2022a, 2022b)
- Natural Resources Conservation Service (NRCS) data (NRCS 2022)
- U.S. Geological Survey topographic maps (*Midway* Quadrangle)
- *Griffith Critical Issues Analysis* (Tetra Tech 2021)

Field Surveys

The following types of general and focused biological surveys were conducted at the Project site in 2022 (Tetra Tech 2022a, 2022b):

- Vegetation community mapping;
- Rare plant surveys;
- CTS habitat and migration barrier assessment;
- Swainson's hawk nesting habitat assessment;
- Habitat assessment for special-status species and nesting birds; and
- Jurisdictional delineation.

Within the proposed gen-tie line area, reconnaissance-level biological surveys, protocol-level surveys for BUOW, and rare plant surveys were conducted between 2020 and 2022 (Jacobs 2022).

Impact Analysis

Biological resources either may be "directly" or "indirectly" impacted by a project (defined by CEQA Guidelines section 15358):

- *Direct impact*: impacts which are caused by the project and occur at the same time and place. Any alteration, disturbance or destruction of biological resources that could result from project-related activities is considered a direct impact.
- *Indirect impact*: impacts which are caused by the project and are later in time or farther removed in distance but are still reasonably foreseeable. Examples include growth-inducing impacts and other impacts related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Impacts either may be "permanent" or "temporary" in nature:

- *Temporary impacts (short-term)*: impacts considered as having reversible impacts on biological resources can be viewed as temporary, such as construction noise.

- *Permanent impacts (long-term)*: impacts that result in the irreversible removal of biological resources are considered permanent, such as development.

4.4.3 Thresholds of Significance

A project would result in significant impacts to biological resources if it would:

a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the 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, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;*

c) *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;*

d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or*

e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

4.4.4 Impacts Analysis

IMPACT 4.4-1: *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?* **(Less than Significant Impact with Mitigation Incorporated)**

The area to be developed would impact approximately 30.9 acres within the Project site (Table 4.4-1, Figure 4.4-1). These 30.9 acres would be permanently converted to a BESS and support infrastructure. Perimeter fencing would also be installed. The development would occur in non-native grassland (i.e., *Avena* spp.–*Bromus* spp. Herbaceous Semi-natural Alliance) that is disturbed by cattle grazing. Not all areas within the Project site would be impacted; these areas would remain as the current habitat type and no disturbance would occur (Figure 4.4-1). Impacts to specific biological resources and mitigation measures are discussed in the sections below. The proposed gen-tie line that would extend through Alameda County to the existing PG&E Tesla Substation as well as improvements within the existing Tesla Substation footprint are discussed in Section 4.4.6.

SJMSCP

The SJMSCP allows SJMSCP Permittees (San Joaquin Council of Governments; County of San Joaquin; and the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy) to issue Incidental Take Permits (ITPs) or project applicants to mitigate for impacts to SJMSCP Covered Species resulting from open space land conversion. The ITP allows for the unintentional take of a threatened or endangered species listed under FESA and CESA. The applicant for this Project

plans to seek coverage for certain species under the SJMSCP and has been coordinating with SJCOG. Participation in the SJMSCP is voluntary. Should the Project participate, mitigation would be implemented for those species covered by the SJMSCP according to the SJMSCP requirements. Under this approach, EIR mitigation measures would only be implemented for the balance of species impacts identified in the EIR but not covered by the SJMSCP.

Project applicants have the four following options to receive coverage, with approval by SJCOG (SJCOG 2000):

1. Pay the appropriate fee. This fee is determined based on which of the four habitats the Project lies within,
2. Dedicate habitat lands as conservation easement or fee title,
3. Purchase mitigation bank credits from a SJMSCP-approved mitigation bank, or
4. Propose an alternative mitigation plan, consistent with the SJMSCP goals.

Applicants pay mitigation fees on a per-acre basis to mitigate impacts to various habitat and biological resources. Mitigation is specific to different types of land being impacted. The appropriate fees are collected by the County and remitted to SJCOG for administration. These fees are then used to purchase conservation easements or purchase land for preservation in order to offset Project impacts.

Table 4.4-3 identifies the special-status species that are SJMSCP Covered Species and which ones are not covered by the SJMSCP. Special-status species that are not covered by the SJMSCP will require Project-specific consultation with wildlife agencies (USFWS and CDFW) and mitigation, as necessary.

Table 4.4-3 SJMSCP Covered Species

Species	SJMSCP Covered Species
California tiger salamander	Yes
California red-legged frog	Yes
Western spadefoot	Yes
San Joaquin coachwhip (also known as San Joaquin whipsnake)	Yes
Longhorn fairy shrimp	Yes
Vernal pool fairy shrimp	Yes
Burrowing owl	Yes
Swainson’s hawk	Yes
White-tailed kite	Yes
San Joaquin kit fox	Yes
American badger	Yes
Big tarplant	No
California glossy snake	No
Crotch’s bumble bee	No

California Tiger Salamander

The Project site is potential upland habitat for CTS and contains an ephemeral pond that may provide CTS breeding habitat. Numerous potential underground refugia (e.g., ground squirrel burrows) were found on the Project site that may support estivating CTS, four of which occur on the area to be developed (Figure 4.4-3). CTS could also migrate between the area to be developed and the potential breeding ponds that are within a 1.24-mile radius from the Project site (Pool Numbers 1 through 3 and Pool Number 5 in Figure 4.4-4); Pool Number 4 is within 1.24 miles from the Project site boundary but it is over 1.4 miles from the area to be developed. There is a partial barrier to CTS migration between Pool Number 1 and the area to be developed (PG&E Tesla Substation) and a partial barrier between Pool Number 2 and the site (Union Pacific Railroad) that would limit CTS movement, but the species could still access the site through adjacent areas or the underpass below the railroad tracks. CTS are known to migrate up to 1.24 miles. Project construction activities, including ground disturbance, may impact this species if they are present on the site during construction, either estivating in burrows underground that are destroyed during daytime grading activities or dispersing through upland habitats during construction activities. These impacts could include direct mortality and loss of upland estivation habitat. Since CTS emergence and dispersal usually happens on rainy nights (USFWS 2003), and construction would be limited or stopped under those conditions, the potential for direct morality is reduced. With implementation of **Mitigation Measures BIO-1** and **BIO-2**, including mitigating for on-site presence of CTS and their habitat in accordance with the SJMSCP and use of BMPs for biological resources, construction impacts would be reduced to a less than significant level and the Project would have no substantial adverse effects on CTS.

Vehicle travel on roads during Project operations could result in mortality of dispersing CTS if present. Similarly, the chain-linked perimeter fence would not impede potential CTS movement into the area to be developed. However, infrastructure areas where the Project operations and maintenance activities would occur are unlikely to support CTS. All impacts to CTS and their habitat would be mitigated with the implementation of **Mitigation Measure BIO-1** and **BIO-2**. Therefore, Project O&M would have no substantial adverse effects on this species, and the impact would be less than significant with mitigation incorporated.

California Red-legged Frog

The Project site is potential upland habitat for CRLF but does not provide CRLF breeding habitat since the ephemeral pond in the southeast portion of the Project property lacks emergent vegetation and would be avoided during construction. However, the ephemeral pond may attract CRLF to disperse through the upland habitats on site. The Project site provides potential CRLF estivation habitat (e.g., California ground squirrel burrows). CRLF may disperse through the area to be developed from off-site potential breeding sites (Pool Numbers 1 and 6 in Figure 4.4-4), which are about 1 mile from the area to be developed. Project construction activities, including ground disturbance, may impact this species if they are present on the site during construction. These impacts could include direct mortality and loss of upland estivation habitat. With implementation of **Mitigation Measures BIO-1** and **BIO-2**, including preconstruction surveys in accordance with the SJMSCP and use of BMPs for biological resources, construction impacts would be reduced to a less than significant level and the Project would have no substantial adverse effects on CRLF.

Vehicle travel on roads during Project operations could result in mortality of dispersing CRLF if present. Similarly, the chain-linked perimeter fence would not impede potential CRLF movement into the area to be developed. However, infrastructure areas where the Project O&M activities would occur are unlikely to support CRLF. If vegetation removal is required in areas of potential habitat, **Mitigation Measure BIO-1** and **BIO-2** would be implemented to protect CRLF. Therefore, Project O&M would have no substantial adverse effects on this species, and the impact would be less than significant with mitigation incorporated.

Western Spadefoot

The Project site is potential habitat for the western spadefoot as it contains an ephemeral pond for breeding, burrows and crevices for refuge, and grasslands for upland dispersal. Project construction activities, including ground disturbance, may disturb western spadefoot if they are present on the site during construction. These impacts could include direct mortality and loss of habitat. With implementation of **Mitigation Measure BIO-1** and **BIO-2**, including preconstruction surveys, construction impacts would be reduced to less than significant level.

Vehicle travel on roads during Project operations could result in mortality of dispersing western spadefoot if present. Similarly, the chain-linked perimeter fence would not impede potential western spadefoot movement into the area to be developed. However, infrastructure areas where the Project operations and maintenance activities would occur are unlikely to support western spadefoot. All impacts to western spadefoot and their habitat would be mitigated with the implementation of **Mitigation Measure BIO-1** and **BIO-2**. Therefore, Project O&M would have no substantial adverse effects on this species, and the impact would be less than significant with mitigation incorporated.

Special-status Reptiles

The Project site is potential habitat for the California glossy snake and San Joaquin coachwhip. The area to be developed contains small mammal burrows and grassland habitat that could be used by these species. Project construction activities, including ground disturbance, may impact these species if they are present on the site during construction. These impacts could include direct mortality and loss of habitat. With implementation of **Mitigation Measures BIO-1** and **BIO-2**, including preconstruction surveys, construction impacts would be reduced to a less than significant level and the Project would have no substantial adverse effects on special-status reptiles.

Infrastructure areas where the Project O&M activities would occur are unlikely to support special-status reptiles. If vegetation removal is required in O&M areas of potential habitat, **Mitigation Measures BIO-1** and **BIO-2** would be implemented to protect special-status reptiles. Therefore, Project O&M would have no substantial adverse effects on these species, and the impact would be less than significant with mitigation incorporated.

Special-status Vernal Pool Invertebrates

Construction activities are not anticipated to have direct or indirect effects on special-status vernal pool invertebrates, such as longhorn fairy shrimp and vernal pool fairy shrimp, since the only potential habitat for these species (the ephemeral pond in the southeast portion of the Project site) is outside of the Project footprint. However, indirect effects to the ephemeral pond may occur

during Project operations as the Project could be constructed as close as 40 feet to the ephemeral pond, which is within the 250-foot required setback from vernal pools and vernal swales, per Section 5.5.9B of the SJMSCP. Also, the hydrology of the site has the potential to change after the Project is constructed. This could result in indirect effects on vernal pool branchiopods, if present. Since the ephemeral feature has been infrequently observed to be ponded in historical aerial imagery, the likelihood of fairy shrimp presence in this pond is low. Branchiopod cysts can persist in soil substrate for decades, but generally require recurring ponding to continue their lifecycle. Standing water was observed in this ephemeral pond only after the historic 2022-2023 rainfall year.

With implementation of **Mitigation Measures BIO-1** and **BIO-2**, all impacts to special-status vernal pool invertebrates, including indirect effects from Project operations, would be less than significant with mitigation incorporated.

Burrowing Owl

The area to be developed contains potentially suitable BUOW habitat. A total of eight small mammal burrows that could be used by BUOW were found on the Project site, two of which were within the area to be developed (Figure 4.4-3). No BUOWs or their sign was found during the general biological survey. Project construction, including ground disturbance, noise, vehicle traffic, temporary lighting during limited nighttime activities, and on-site personnel, may impact this species if they are present on or near the site during construction. These impacts could include direct mortality, loss of burrow or foraging habitat, behavioral disturbance, and nest failure. All construction lighting would be temporary, shielded, and directed downward to minimize potential impacts in adjacent habitat, which will remain suitable for BUOW. With implementation of **Mitigation Measures BIO-1** and **BIO-2**, including a preconstruction survey and a measure to minimize lighting impacts, construction impacts would be reduced to a less than significant level and the Project would have no substantial adverse effects on BUOW.

Project O&M are unlikely to impact BUOW since vehicle traffic and on-site personnel would be minimal, and heavy equipment would be infrequently used. Furthermore, infrastructure areas where the activities would occur are unlikely to support BUOW since they would be paved or support minimal vegetation and friable soils for small mammals that the BUOW requires. The minor increase in vehicle traffic and on-site personnel would be temporary and normal wildlife behavior is expected to resume after the disturbance. Lighting during operations has the potential to impact BUOW through behavioral disturbance and/or nest failure. However, all Project security lighting would be shielded, directed downward, and equipped with switches or motion detectors (rather than remaining on from dusk to dawn) to minimize potential impacts. If vegetation removal is required in areas of potential habitat, **Mitigation Measures BIO-1** and **BIO-2** would be implemented to protect BUOW. Therefore, Project O&M would have no substantial adverse effects on this species, and the impact would be less than significant with mitigation incorporated.

Swainson's Hawk, White-tailed Kite, and Other Raptors

Potential Swainson's hawk, white-tailed kite, and raptor nesting habitat was found within 0.5 mile of the Project site, consisting of transmission towers as well as numerous 8- to 10-foot trees in residential areas and in stands along off-site ephemeral water features (Figure 4.4-5). One inactive raptor nest was found about 100 feet east of the Project site in a transmission tower, although the survey identified the nest outside of the raptor nesting season. Trees within the

residential areas in the western portion of the Project site and to the north of the Project site have high levels of disturbance and are less likely to support nesting. No trees exist within the area to be developed (Figure 4.4-5). The only special-status raptor species observed during the surveys was ferruginous hawk, which does not nest in the San Joaquin Valley. Project construction would occur in Swainson's hawk and raptor foraging habitat on the area to be developed (30.9 acres), which consists of non-native grassland. Overall, the Project would impact a very small percentage of total potential Swainson's hawk foraging habitat in a 10-mile radius around the area to be developed. In addition, although suitable for foraging, potential use of the area to be developed by Swainson's hawks and other raptors is likely lower than surrounding areas that have less disturbance from grazing and human activity. The Project would not reduce the number or restrict the range of the species. Therefore, the construction impact to foraging habitat would not result in substantial adverse effects on the species.

Ground disturbance, noise, vehicle traffic, and on-site personnel may also disturb these species if nesting near the area to be developed during construction. However, implementation of **Mitigation Measures BIO-1**, **BIO-2**, and **BIO-3**, including preconstruction surveys, would reduce construction impacts to Swainson's hawk, white-tailed kite, and other raptors to a less than significant level and ensure that the Project would have no substantial adverse effects on these species.

Potential direct impacts, such as injury or mortality, to raptor species from Project O&M may occur through the collisions into and/or electrocution from transmission lines or structures to be installed. Raptors may use the solar panels, perimeter fencing, and utility structures for perching while hunting. While collision/electrocution impacts to raptors are potentially significant, impacts would be reduced through the implementation of **Mitigation Measure BIO-2**, which requires power lines to be installed per the most recent Avian Power Line Interaction Committee (APLIC) guidance (APLIC 2012) to reduce the potential for bird injury and mortality from collisions and electrocution.

Vehicle traffic and on-site personnel during Project O&M are unlikely to impact Swainson's hawk, white-tailed kite, and other raptors since on-site traffic and presence would be minimal, and heavy equipment would be infrequently used. Furthermore, infrastructure areas where the activities would occur are unlikely to support nesting raptors. The minor increase in vehicle traffic and on-site personnel would be temporary and normal wildlife behavior is expected to resume after the disturbance. If vegetation removal is required in areas of potential habitat, **Mitigation Measures BIO-1, BIO-2,** and **BIO-3** would be implemented to protect nests. Therefore, Project O&M would have no substantial adverse effects on these species, and the impact would be less than significant with mitigation incorporated.

Special-status Migratory Birds

Special-status migratory birds known to occur on the Project site include loggerhead shrike and California horned lark. The area to be developed does not provide potential nesting sites (i.e., trees and shrubs) for loggerhead shrike, but potential nesting sites do occur in residential areas on the Project site. Loggerhead shrike may nest in non-native grassland areas on and surrounding the area to be developed. Construction of the proposed Project would develop potential foraging habitat that could be used by special-status birds. However, as described above for raptors, this represents a very small percentage of the total suitable foraging habitat available in the region and would result in an insignificant impact. In addition, ground disturbance, noise, vehicle traffic, and on-site personnel during construction have the potential to disturb nesting birds in and near

the area to be developed. However, implementation of **Mitigation Measures BIO-2** and **BIO-3**, including preconstruction surveys, would reduce construction impacts to a less than significant level and ensure that the Project would have no substantial adverse effects on special-status migratory birds.

Potential direct impacts, such as injury or mortality, to special-status migratory birds from Project O&M may occur through the collisions into and/or electrocution from transmission lines or structures to be installed. Special-status migratory birds may use the solar panels, perimeter fencing, and utility structures for perching. While collision/electrocution impacts to special-status migratory birds are potentially significant, impacts would be reduced through the implementation of **Mitigation Measure BIO-2**, which requires power lines to be installed per the most recent Avian Power Line Interaction APLIC guidance (APLIC 2012) to reduce the potential for bird injury and mortality from collisions and electrocution.

Vehicle traffic and on-site personnel during Project O&M are unlikely to impact special-status migratory birds since on-site traffic and presence would be minimal, and heavy equipment would be infrequently used. Furthermore, infrastructure areas where the activities would occur are unlikely to support special-status nesting birds. The minor increase in vehicle traffic and on-site personnel would be temporary and normal wildlife behavior is expected to resume after the disturbance. If vegetation removal is required in areas of potential habitat, **Mitigation Measures BIO-1, BIO-2,** and **BIO-3** would be implemented to protect nests. Therefore, Project O&M would have no substantial adverse effects on these species, and the impact would be less than significant with mitigation incorporated.

San Joaquin Kit Fox

While neither SJKF nor its sign was observed during the field surveys, it could use the Project site due to suitable grassland habitat with abundant prey base and friable soils for burrows/dens. A total of three small mammal burrows that could be used by SJKF were found on the Project site, one of which is within the area to be developed (Figure 4.4-3).

Construction of the proposed Project, including ground disturbance, noise, vehicle traffic, temporary lighting during limited nighttime activities, and on-site personnel, has the potential to affect SJKF if present in or near the construction area. These impacts may result in direct mortality or behavioral disturbance. All construction lighting would be temporary, shielded, and directed downward to minimize disturbance on adjacent areas, which will remain suitable for SJKF. With implementation of **Mitigation Measures BIO-1** and **BIO-2**, including preconstruction surveys and a measure to minimize lighting impacts, construction impacts would be reduced to a less than significant level and the Project would have no substantial adverse effects on SJKF.

Project O&M are unlikely to impact SJKF since vehicle traffic and on-site personnel would be minimal, and heavy equipment would be infrequently used. Furthermore, infrastructure areas where the activities would occur are unlikely to support SJKF. The minor increase in vehicle traffic and on-site personnel would be temporary and normal wildlife behavior is expected to resume after the disturbance. Lighting during operations has the potential to impact SJKF through behavioral disturbance. However, all Project security lighting would be shielded, directed downward, and equipped with switches or motion detectors to minimize potential impacts. If vegetation removal is required in areas of potential habitat, **Mitigation Measures BIO-1** and **BIO-2** would be implemented to protect SJKF. Therefore, Project O&M would have no substantial

adverse effects on this species, and the impact would be less than significant with **Mitigation Measures BIO-1** and **BIO-2**.

American Badger

While neither American badger nor its sign was observed during the field surveys, it could use grazed grasslands such as those on the area to be developed and Project site. Construction of the proposed Project, including ground disturbance, noise, vehicle traffic, temporary lighting during limited nighttime activities, and on-site personnel, has the potential to affect American badger if present in or near the construction area. These impacts may result in direct mortality or behavioral disturbance. All construction lighting would be temporary, shielded, and directed downward to minimize disturbance on adjacent areas, which will remain suitable for American badger. With implementation of **Mitigation Measures BIO-1** and **BIO-2**, including preconstruction surveys and a measure to minimize lighting impacts, construction impacts would be reduced to a less than significant level and the Project would have no substantial adverse effects on American badger.

Project O&M are unlikely to impact American badger since vehicle traffic and on-site personnel would be minimal, and heavy equipment would be infrequently used. Furthermore, infrastructure areas where the activities would occur are unlikely to support American badger. The minor increase in vehicle traffic and on-site personnel would be temporary and normal wildlife behavior is expected to resume after the disturbance. Lighting during operations has the potential to impact American badger through behavioral disturbance. However, all Project security lighting would be shielded, directed downward, and equipped with switches or motion detectors to minimize potential impacts. If vegetation removal is required in areas of potential habitat, **Mitigation Measures BIO-1** and **BIO-2** would be implemented to protect American badger. Therefore, Project O&M would have no substantial adverse effects on this species, and the impact would be less than significant with **Mitigation Measures BIO-1** and **BIO-2**.

Special-status Plants

Overall, the area to be developed provides low quality habitat for special-status plant species due to high levels of grazing and non-native plant cover. Most special-status plant species are sensitive to disturbance and would be outcompeted by non-native plants. One special-status plant species, big tarplant (CRPR 1B.1), was found within two small areas on the Project site that are located outside the area to be developed (Figure 4.4-2). This species can occur in disturbed areas and was found on the Project site where soil was disturbed and supported less herbaceous cover. With implementation of **Mitigation Measure BIO-1**, a 30-foot no-disturbance buffer around all locations of big tarplant would be flagged in the field by a qualified biologist and maps would be provided to on-site staff for avoidance during construction. During Project operations, no ground disturbance of new areas would occur and locations of big tarplant would continue to be avoided. Furthermore, all on-site vehicle traffic and personnel would be confined to designated work areas and transportation routes. The area to be developed is anticipated to avoid all locations of this species and the 30-foot buffer. If big tarplant cannot be avoided, a restoration/enhancement plan would be prepared to mitigate impacts in accordance with **Mitigation Measure BIO-1**. Therefore, the Project would have no substantial adverse effects on special-status plants, and the impact would be less than significant with mitigation incorporated.

Crotch's Bumble Bee

The area to be developed contains annual grasslands with small mammal burrows and potential floral host plants, which is considered suitable habitat for the Crotch's bumble bee. However, because the site is routinely grazed and trampled by cattle, which likely interferes with the habitat requirements of this species, the habitat suitability is considered to be low (Xerces Society et al. 2018). Construction activities, such as excavation, grading, or stockpiling of soil or fill, could result in direct injury or mortality of individuals. Potential direct impacts include mortality or injury by equipment, entrapment in burrows, and removal or disturbance of grassland habitat that results in damage or elimination of suitable burrows. The potential for lethal take is considered low with the implementation of the **Mitigation Measures BIO-1** and **BIO-2.** Therefore, construction impacts would be reduced to a less than significant level with mitigation incorporated, and the Project would have no substantial adverse effects on Crotch's bumble bee.

Project O&M are unlikely to impact Crotch's bumble bee since vehicle traffic and on-site personnel would be minimal, and heavy equipment would be infrequently used. Similarly, the Project would not create additional barriers to dispersal for Crotch's bumble bee, as they can fly over the facility. Thus, no impacts to this species are anticipated during Project O&M.

IMPACT 4.4-2: *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?* **(No Impact)**

No riparian habitat or sensitive natural community occurs in the area to be developed or Project site. Therefore, no impact to any riparian habitat or other sensitive natural community would occur.

IMPACT 4.4-3: *Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?* **(Less than Significant Impact with Mitigation Incorporated)**

An ephemeral pond is located in the southeast portion of the Project site, outside of the Project footprint. The Project would not directly remove this feature that ponds infrequently, likely only during very high rainfall years. However, the Project may impact the ephemeral pond indirectly during Project operations as the Project could be constructed as close as 40 feet to the ephemeral pond. This pond is not a USACE wetlands due to the lack of hydrophytic vegetation. This pond is not a WOTUS because it is hydrologically isolated. However, it may be a Water of the State and/or a 1602 feature, and thus is regulated by the RWQCB and CDFW. Since the pond would not be directly removed, a CDFW Lake and Streambed Alteration Agreement is not required since alterations of the ephemeral pond would not be performed. However, the Project could have an impact on state jurisdictional waters through indirect effects. With the implementation of **Mitigation Measure BIO-4**, impacts to state jurisdictional waters would be less than significant with mitigation incorporated.

IMPACT 4.4-4: *Would the project 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?* **(Less than Significant with Mitigation Incorporated)**

Construction and operation of the proposed Project may impede wildlife movement through the area to be developed. The proposed infrastructure, including the BESS, electrical substations, and perimeter fencing, as well as vehicle traffic and on-site personnel, could inhibit the movement of larger or more sensitive wildlife through the area to be developed. The area to be developed consists of a relatively small footprint and likely provides limited opportunities for habitat continuity or wildlife movement due to existing disturbances, such as grazing and cattle fencing enclosing the Project site. Wildlife that do move through the area to be developed are likely acclimated to low levels of human activity given the existing grazing and residential uses. In addition, the ability of wildlife to move through areas surrounding the area to be developed would not be affected. Potential direct impacts, such as injury or mortality, to raptor species and special-status migratory birds from Project O&M may occur through the collisions into and/or electrocution from transmission lines or structures to be installed. While collision/electrocution impacts are potentially significant, impacts would be reduced through the implementation of **Mitigation Measure BIO-2**, which requires power lines to be installed per the most recent Avian Power Line Interaction Committee (APLIC) guidance (APLIC 2012) to reduce the potential for bird injury and mortality from collisions and electrocution.

No native wildlife nursery sites are known to occur in the area to be developed or Project site. Therefore, the impact due to interference with movement of native fish or wildlife, established native wildlife corridors, or native wildlife nursery sites would be less than significant.

IMPACT 4.4-5: *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?* **(Less than Significant with Mitigation Incorporated)**

The Project would not conflict with any local policies or ordinances protecting biological resources because the Project would not impact trees or wetlands. No trees would be removed during construction or operations and maintenance of the Project. In addition, incorporation of **Mitigation Measures BIO-1**, **BIO-2**, and **BIO-3** would implement preconstruction surveys and minimization and avoidance measures. Therefore, the impact due to conflicts with local policies protecting biological resources would be less than significant with mitigation incorporated.

IMPACT 4.4-6: *Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?* **(Less than Significant with Mitigation Incorporated)**

The area to be developed is within the covered area for the SJMSCP. The SJMSCP is an HCP, and participation ensures that potential impacts to covered species are mitigated to less than significant levels and satisfies the requirements of federal and state endangered species acts. The mitigation measures for SJMSCP-covered species that may occur on the area to be developed would be followed and are incorporated into the proposed **Mitigation Measures BIO-1**, **BIO-2**, and **BIO-3**. These species include CTS, western spadefoot, CRLF, San Joaquin coachwhip, BUOW, Swainson's hawk and other nesting birds, SJKF, longhorn fairy shrimp, vernal pool fairy shrimp, and American badger.

Therefore, the impact due to conflicts with the SJMSCP would be less than significant with mitigation incorporated.

4.4.5 Mitigation Measures

The following mitigation measures are recommended to reduce significant impacts to biological resources.

BIO-1: Protection of Special-status Species

SJMSCP Covered Species

Prior to commencement of grading activities, the Project applicant shall obtain coverage under the SJMSCP to mitigate for habitat impacts to SJMSCP Covered Species. Coverage involves minimizing habitat impacts through implementation of Incidental Take Minimization Measures and payment of fees for conversion of lands that may provide habitat for SJMSCP Covered Species. These fees are then used to preserve and/or create habitat in preserves to be managed in perpetuity. Coverage for a Project includes incidental take authorization in the form of an ITP. Coverage under the SJMSCP would fully mitigate all habitat impacts on SJMSCP Covered Species.

California Tiger Salamander

This species is covered under the SJMSCP. The following measures would be implemented in accordance with the SJMSCP (see Section 5.2.4.6) and as best management practices to mitigate impacts:

> A qualified biologist shall conduct preconstruction surveys prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species are present and/or verify that the appropriate Incidental Take Minimization Measures have been implemented, as specified in the conditions of Project approval (see SJMSCP, Section 5.2.2.1b). The results of the preconstruction surveys shall be submitted to the implementing agency prior to start of construction.
>
> Before Project construction, and under the direction of a qualified biologist, a wildlife exclusion fence shall be installed at strategic locations (e.g., where a work area occurs within 500 feet of suitable breeding habitat). The exclusion fence will remain in place and be maintained for the duration of ground disturbance. The wildlife exclusion fence will be tall enough to discourage dispersal of CTS into active work areas. Any damage or gaps in the wildlife exclusion fence will be repaired immediately during routine inspections.
>
> Pools shall be retained, and appropriate pool hydrology shall be maintained to enable successful metamorphosis of larvae to occur but shall not allow for non-native aquatic predators.
>
> Small mammal burrows and other suitable estivation habitat (e.g., underground holes, cracks, or niches) shall be retained in adjacent upland habitat.
>
> For impacts to CTS upland dispersal habitat, compensatory mitigation shall be completed by the Project owner in accordance with the mitigation ratios and requirements in the SJMSCP. Compensatory mitigation shall be provided for permanent impacts at a ratio of 3:1 for natural lands (e.g., non-wetland agricultural rangelands) in accordance with the SJMSCP. Temporary impacts shall be restored to pre-Project conditions. A fee-based approach could be used for compensatory mitigation under the SJMSCP at a fee per acre set in the current SJMSCP fee

schedule for natural lands (SJCOG 2022). Alternatively, credits at an agency approved mitigation bank if available for purchase or a habitat enhancement/conservation easement on a protected property could be used as mitigation. Compensatory mitigation may be combined with other special-status plant and animal species. If the Project owner chooses to establish an on-site or off-site conservation easement as compensatory mitigation, it must be managed in perpetuity to provide suitable habitat for the target species and to prohibit development/disturbance. A qualified biologist shall prepare a Habitat Mitigation and Monitoring Plan to ensure success of the compensatory mitigation site, which shall describe the long-term management plan, routine monitoring methods, and success criteria. The implementing agency shall approve the Plan prior to implementation.

California Red-legged Frog

This species is covered under the SJMSCP. The following measure would be implemented in accordance with the SJMSCP (see Section 5.2.4.7) and as best management practices to mitigate impacts:

A qualified biologist shall conduct preconstruction surveys for CRLF within 48 hours prior to the start of construction activities, including ground disturbance, vegetation clearing, and staging of equipment. The biologist shall survey the area to be developed and all suitable habitat within 300 feet of the area to be developed. If CRLF are identified during the preconstruction survey, a 300-foot no-disturbance setback would be established in accordance with the SJMSCP to protect the species. No construction or other ground disturbances would be allowed within the setback unless concurrence was obtained by USFWS and SJCOG. The setback distance may be reduced by a qualified biologist with concurrence from the implementing agency if determined to not result in an adverse impact to the species or a reduction in the biological values of the habitat. Setbacks would be delineated with brightly colored flagging during the construction process and shown on maps that would be provided to on-site staff. If impacts are required within a setback occupied by CRLF and the species cannot or does not move off-site on its own, consultation with the USFWS and CDFW would be required to determine the appropriate course of action. The results of the preconstruction surveys shall be submitted to the implementing agency prior to start of construction.

Water quality within water bodies inhabited by CRLF shall be maintained by implementing appropriate erosion control measures to reduce siltation and contaminated runoff from area to be developed (e.g., maintaining vegetation within buffers, and/or through the use of hay bales, filter fences, vegetative buffer strips, or other acceptable options per Section 5.2.4.7 of the SJMSCP).

Western Spadefoot

This species is covered under the SJMSCP. The following measures would be implemented in accordance with the SJMSCP (see Section 5.2.4.6) and as best management practices to mitigate impacts:

A qualified biologist shall conduct preconstruction surveys prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species are present and/or verify that the appropriate Incidental Take Minimization Measures have been implemented, as

specified in the conditions of Project approval (see SJMSCP, Section 5.2.2.1b). The results of the preconstruction surveys shall be submitted to the Implementing agency prior to start of construction.

Before Project construction, and under the direction of a qualified biologist, a wildlife exclusion fence shall be installed at strategic locations (e.g., where a work area occurs within 500 feet of suitable breeding habitat). The exclusion fence will remain in place and be maintained for the duration of ground disturbance. The wildlife exclusion fence will be tall enough to discourage dispersal of western spadefoot into active work areas. Any damage or gaps in the wildlife exclusion fence will be repaired immediately during routine inspections.

For impacts to spadefoot toad upland dispersal habitat, compensatory mitigation shall be completed by the Project owner in accordance with the mitigation ratios and requirements in the SJMSCP. Compensatory mitigation may be combined with other special-status plant and animal species, such as the CTS.

San Joaquin Coachwhip

The San Joaquin coachwhip (also called the San Joaquin whipsnake) is covered under the SJMSCP, but is considered of very limited distribution in the County and specific Incidental Take Minimization Measures are not provided for this species (see Section 5.2.4.9). This species is not a focal species in the EACCS. The following measure would be implemented in accordance with the SJMSCP to mitigate impacts to this species in all Project areas:

A qualified biologist shall conduct preconstruction surveys prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species are present and/or verify that the appropriate Incidental Take Minimization Measures have been implemented, as specified in the conditions of Project approval (see SJMSCP, Section 5.2.2.1b). If any special-status reptiles are found and cannot or do not move off-site on their own, work would not begin until coordination with the USFWS and/or CDFW has occurred to determine the appropriate course of action. Incidental Take Minimization Measures shall be formulated by the Technical Advisory Committee (TAC) and approved by the Joint Powers Authority (JPA) with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP's Adaptive Management Plan (see Section 5.9.4).

Special-status Vernal Pool Invertebrates

The longhorn fairy shrimp and vernal pool fairy shrimp are covered species under the SJMSCP (see Sections 5.2.4.4 and 5.5.9). Per the SJMSCP, if final site design is confirmed to be within 250 feet of the ephemeral pond, then one of the following will occur:

1. Receive concurrence from USFWS that the ephemeral pond does not support special-status vernal pool invertebrate species given the lack of ponding observed in historic aerial imagery.
2. Conduct pre-construction surveys in compliance with current USFWS protocols to determine the presence or absence of longhorn fairy shrimp within ponds southwest of I-580 unless complete avoidance of vernal pools and/or wetlands is achieved, per Section 5.2.2 of SJMSCP.
3. Conduct a hydrologic study to determine if a setback less than 250 feet would maintain the hydrology of the ephemeral pond and achieve the same, if not greater, habitat value

as a 250-foot setback. If verified, conduct a site visit with USFWS to inspect the unique characteristics of the area to be developed to request approval to reduce the setback to be less than 250 feet. If approved, ensure activities inconsistent with the maintenance of the ephemeral pond within the approved setback are prohibited, per Section 5.5.9 of SJMSCP. This option provides an alternative mitigation approach which allows complete avoidance of SJMSCP Covered Species and habitats through the implementation of the measures established in Section 5.5.9. Under this scenario, compensation is not required as long as the Section 5.5.9 measures are followed.

4. If pre-construction surveys are found to be prohibitively expensive or result in Project delays and a setback less than 250 feet is not feasible, assume presence of longhorn fairy shrimp and vernal pool fairy shrimp and pay compensatory mitigation in accordance with the mitigation ratios and requirements in the SJMSCP.

Burrowing Owl

This species is covered under the SJMSCP. The following measure would be implemented in accordance with the SJMSCP (see Section 5.2.4.15) and as best management practices to mitigate impacts:

> A qualified biologist shall conduct preconstruction surveys prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species are present and/or verify that the appropriate Incidental Take Minimization Measures have been implemented, as specified in the conditions of Project approval (see SJMSCP, Section 5.2.2.1b). Specifically, the Project owner shall have preconstruction surveys performed no less than 14 days prior to the initiation of equipment staging or ground disturbing activities (e.g., vegetation clearing or grading) and again within 24 hours prior to these activities. A qualified biologist shall conduct preconstruction surveys on the area to be developed and 150 meters around the area to be developed (access permitting) in areas with suitable burrowing habitat to locate any active breeding or wintering BUOW burrows. The survey methodology shall be consistent with the Take Avoidance Survey methods outlined in the CDFW (2012) *Staff Report on Burrowing Owl Mitigation* and shall consist of walking parallel transects 7 to 20 meters apart, noting any potential burrows with fresh BUOW sign or presence of BUOWs, and visiting potential burrows during the time of day described in the protocol. If the work activity halts for a period of 7 days or more, the survey would need to be conducted again prior to the continuation of site activities. Copies of the survey results shall be submitted to the CDFW. If BUOWs are found during the preconstruction surveys, the following measures shall be implemented. Buffer distances may be modified based on the judgement of a qualified biologist, in coordination with CDFW, USFWS, and SJCOG.
>
> · If BUOWs are detected on the area to be developed or within 150 meters during the breeding season (February 1 to August 31) or non-breeding (winter) season, no ground disturbing activities, such as vegetation clearance, grading, or equipment staging, shall be permitted within 75 meters of the occupied burrow until and unless the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, or unless a qualified biologist approved by the Permitting Agencies verifies through non-invasive means that either 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and capable of independent

survival. Once the fledglings are capable of independent survival, the burrow can be destroyed per Section 5.2.4.15 of the SJMSCP.

- If avoidance of occupied burrows is infeasible during the non-breeding season (September 1 to January 31) or during the breeding season (February 1 to August 31) where resident BUOWs have not yet begun egg laying or incubation or where the juveniles are foraging independently and capable of independent survival, a qualified biologist shall implement a passive relocation program in accordance with the CDFW (2012) *Staff Report on Burrowing Owl Mitigation*. If passive relocation is anticipated due to on-site BUOW populations, a Burrowing Owl Exclusion Plan in accordance with CDFW *Staff Report on Burrowing Owl Mitigation* would be prepared by a qualified biologist prior to passive relocation activities.

Swainson's Hawk

This species is covered under the SJMSCP but is not a focal species in the EACCS (see Section 5.2.4.11). Participation in the SJMSCP affords the Project applicant Incidental Take authorization for Swainson's hawk pursuant to ESA, CESA, and CEQA. The following measure would be implemented in accordance with the SJMSCP to mitigate impacts in all Project areas:

The Project owner has the option of retaining known or potential Swainson's hawk nest trees (i.e., trees that hawks are known to have nested in within the past 3 years or trees that the hawks prefer for nesting) or removing the nest trees. Trees occur on the Project site in residential areas but do not occur within the area to be developed. If trees are retained, the following applies:

- If construction (i.e., equipment staging, vegetation removal, or ground disturbance) is scheduled to commence outside of the Swainson's hawk nesting season (September 1 to February 15), no preconstruction surveys are required. During the nesting season (February 16 to August 31), a qualified biologist shall conduct preconstruction surveys for nesting Swainson's hawk within the area to be developed and at any potential nesting trees that are within a distance from the site of two times the dripline of the tree, and are accessible to survey. Surveys shall occur no more than 10 days prior to construction activities.
- If a nest tree becomes occupied during construction activities, then all construction activities shall remain a distance of two times the dripline of the tree, measured from the nest. No construction within the buffer shall be allowed until the biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest), adult and juvenile Swainson's hawks have left the area, or the nesting season has ended. Encroachment into the buffer for Swainson's hawk must be authorized by the CDFW.

White-tailed Kite

This species is covered under the SJMSCP. The following measures would be implemented in accordance with the SJMSCP (see Section 5.2.4.19) to mitigate impacts:

Prior to Project tree removal/pruning or ground-disturbing activities, such as grubbing, grading, or excavation during the nesting season (e.g., typically February 15 to September 15), a qualified biologist shall perform a preconstruction survey. All potential nesting trees on the area to be developed and within 100-feet of the area to be developed shall be surveyed.

If a nest is observed during the preconstruction survey, a 100-foot setback shall be established and maintained during the nesting season until the fledglings leave nests. The setback shall be applied whenever construction or ground-disturbing activities begin during the nesting season with known occupied nests. Setbacks shall be marked by brightly colored temporary fencing.

San Joaquin Kit Fox

This species is covered under the SJMSCP. Participation in the SJMSCP affords the Project applicant Incidental Take authorization for San Joaquin kit fox pursuant to ESA, CESA, and CEQA. The following measure would be implemented in accordance with the SJMSCP (see Section 5.2.4.25) and per the most current USFWS Standardized Recommendations for SJKF (USFWS 2011) to mitigate impacts from the project:

Preconstruction surveys for SJKF shall be conducted 14 to 30 days prior to commencement of ground disturbance by a qualified biologist. Surveys shall be performed of the area to be developed and within a 250 feet buffer around the site. When surveys identify potential dens (potential dens are defined as burrows at least 4 inches in diameter which open up within 2 feet), den entrances shall be dusted and cameras will be set up and monitored for 3 days to find any SJKF present. If no SJKF activity is identified, potential dens may be destroyed. If SJKF activity is identified, then dens shall be monitored to determine if occupation is by an adult fox only or is a natal den (natal dens usually have multiple openings). If the den is occupied by an adult only, the den may be destroyed when the adult fox has moved or is temporarily absent. If the den is a natal den, a buffer zone of 250 feet shall be maintained around the den until the qualified biologist determines that the den has been vacated. If SJKF are identified, the provisions of the USFWS (2011) *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* will be followed (except that preconstruction survey protocols shall remain as established in this measure). These standards include provisions for educating construction workers, keeping heavy equipment operating at safe speeds, and checking construction pipes for SJKF occupation during construction and similar activities.

American Badger

This species is covered under the SJMSCP. The following measure would be implemented in accordance with the SJMSCP (see Section 5.2.4.26) to mitigate impacts from the Project:

- A preconstruction survey for the American badger shall occur during the SJKF preconstruction surveys. If occupied badger dens are located on the area to be developed or within 200 feet, then dens shall be monitored by a qualified biologist to determine if occupation is by an adult badger only or is a natal den. This can occur during San Joaquin kit fox den monitoring using tracking medium and cameras. If the den is unoccupied it can be collapsed, if it is occupied by an adult only, the den may be destroyed when the adult has moved or is temporarily absent. If the den is a natal den, a buffer zone of 200 feet shall be maintained around the den until the qualified biologist determines that den has been vacated.

Non-SJMSCP Covered Species

Big Tarplant

This species is not covered under the SJMSCP. Big tarplant is a focal species in the EACCS. The following measure would be implemented to mitigate impacts in all Project areas:

- For big tarplant populations that are not within the direct impact area but are located within 50 feet of disturbance, a qualified biologist shall flag a minimum no-disturbance buffer of at least 30 feet around the populations in the field (or other distance as approved by a qualified biologist), and maps shall be provided to on-site staff. These areas shall be avoided during construction if feasible. To delineate the areas of avoidance, a preconstruction survey would be required during the blooming period for this species (July to November) prior to the start of construction. For example, if construction was planned to start in June 2024, the area would be surveyed between July and November 2023 and those results would be used to determine the extent of the population areas.
- If big tarplant populations cannot be avoided by the Project, a restoration/enhancement plan to reduce impacts to big tarplant shall be prepared by a qualified biologist. The plan shall include the following components as needed: description of area to be developed, including maps, goals/objectives of the Project; description of the proposed site; implementation plan, including topsoil and/or seed collection and dispersal protocols; maintenance requirements, including weed removal and invasive species management during the monitoring period; monitoring plan; success criteria/performance standards; adaptive management program and remedial measures; and reporting requirements. If permanent impacts occur to big tarplant, the actual areas impacted would be mapped post-construction to quantify the amount of big tarplant impacted and the amount required to be restored. Temporary impacts (i.e., impacts in areas that would be restored to natural conditions) may be mitigated by salvaging topsoil during ground disturbance, storing the soil on-site and protecting it from weed seed dispersal, and then returning the soil horizon to its original profile to keep seeds at the appropriate soil depth. All permanent impacts shall be mitigated at a minimum ratio of 1:1 (1 acre restored for 1 acre impacted) terms are otherwise agreed to with CDFW and USFWS.

California Glossy Snake

The California glossy snake is not covered under the SJMSCP. The following measure would be implemented to mitigate impacts to this species in all Project areas:

> Preconstruction surveys for special-status reptiles shall be conducted by a qualified biologist within 14 days prior to the start of construction. The surveys shall cover suitable habitat within the area to be developed and a minimum 100-foot buffer, where accessible. If any special-status reptiles are found and cannot or do not move off-site on their own, work would not begin until coordination with the USFWS and/or CDFW has occurred to determine the appropriate course of action.

Crotch's Bumble Bee

This species is not covered under the SJMSCP. The following measures would be implemented to mitigate impacts to this species in all Project areas:

- Conduct Surveys and Implement Avoidance Measures for Crotch's Bumble Bee. Preconstruction surveys for Crotch's bumble bee habitat (as identified by species habitat suitability modeling) within the Project disturbance footprint and a 50-foot buffer around the footprint will be conducted by qualified biologists within two weeks prior to the start of construction. The purpose of this pre-construction survey will be to identify active nest colonies and associated floral resources outside of permanent and temporary impact areas that could be avoided by construction personnel. If an active nest colony is found outside of the project footprint but within a 50-foot buffer, the project biologist will establish, monitor, and maintain no-work buffers around nest colonies and floral resources. The size and configuration of the no-work buffer will be based on best professional judgment of the project biologist. At a minimum, the buffer will provide at least 50 feet of clearance around nest entrances and maintain disturbance-free airspace between the nest and nearby floral resources. Construction activities will not occur within the no-work buffers until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for three consecutive days indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony). If an active nest is found within the project footprint, CDFW will be contacted for guidance on next steps, but construction shall be allowed to continue with minimal disruption to the schedule.
- Biological Monitoring During Construction. A qualified biologist(s) will be present each day during initial ground disturbance activities if Crotch's bumble bees are identified during preconstruction surveys outside of the Project disturbance footprint. The biologist will monitor the nest to determine when the nest is no longer active. Once the nest has been determined inactive, construction activities within the no-work buffer(s) will be allowed to resume.
- Provide Compensatory Mitigation for Impacts on Crotch's Bumble Bee. The applicant will provide compensatory mitigation for impacts on occupied habitat for Crotch's bumble bee. Impacts on occupied habitat (confirmed through surveys as described above) will be compensated for at a ratio of 1:1, unless a higher ratio is required pursuant to an authorization issued under CESA, through the purchase of CDFW-approved bank credits or through preservation of habitat in perpetuity, including suitable habitat currently preserved by the applicant.

BIO-2: Worker Environmental Awareness Program and Best Management Practices for Biological Resources

During construction, O&M, and decommissioning of the facility, the Project owner shall implement the following general avoidance and protective measures to protect special-status wildlife species and habitats in all Project areas:

- Prior to and for the duration of construction activities, the Project owner, or its contractor, shall implement a Worker Environmental Awareness Program to train all on-site construction personnel how to recognize and protect biological resources on the area to be developed. The Worker Environmental Awareness Program training shall include a review of the special-status species and other sensitive biological resources that could exist in or near the area to be developed, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources, highlighting CTS, CRLF, western spadefoot, San Joaquin coachwhip, longhorn fairy shrimp, vernal pool fairy shrimp, BUOW, Swainson's hawk, white-tailed kite, nesting birds, SJKF, American badger, big tarplant, California glossy snake, and Crotch's bumble bee.

- The Project owner shall limit and flag the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. To the extent feasible, the Project shall be designed to retain small mammal burrows and other suitable estivation habitat for amphibians (e.g., underground holes, cracks, or niches) and will minimize habitat impacts. Buffers and avoidance areas established for biological resources, as described in **BIO-1** and **BIO-3**, shall be delineated with highly visible stakes and/or flagging prior to construction. Construction-related activities and use of vehicles and equipment shall not occur within protected buffers or avoidance areas.
- If at any time during Project construction a special-status species enters the site or otherwise may be impacted by the Project, all Project activities shall cease. The appropriate measures from the SJMSCP relevant to the species found would be implemented, and the USFWS and/or CDFW shall be contacted if necessary to determine the appropriate course of action. No special-status species shall be captured or relocated without prior authorization from the CDFW and/or USFWS.
- To protect special-status amphibians, ground-disturbing activities shall occur during the dry season from April 1 to October 31, if feasible and in accordance with other mitigation measures. Work outside of the dry season may occur with prior approval from CDFW and USFWS. No ground disturbance shall occur during wet weather. Wet weather is defined as 0.25 inch or more of rain in a 24-hour period. Activities may resume 24 hours after wet weather has ended and is no longer forecasted (60 percent chance or less) within 24 hours.
- Trenches will be backfilled as soon as possible. Excavated, steep-walled holes or open trenches shall be searched each day by on-site workers prior to construction to ensure no special-status species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist. Before such holes or trenches are filled, they shall be thoroughly inspected by on-site workers for trapped animals. If trapped animals are observed, escape ramps shall be installed immediately to allow escape. If a special-status species is trapped, the USFWS and/or CDFW shall be contacted immediately. No handling or moving of special-status species shall occur without prior authorization from the USFWS and/or CDFW.
- All pipes, culverts, or similar materials shall be stored so as to prevent special-status wildlife species from using these as temporary refuges, and shall be thoroughly inspected for animals each morning before the pipe is moved or used in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved until a qualified biologist has been consulted to determine the appropriate action. No handling of special-status species shall occur without consultation with the USFWS and/or CDFW.
- Vehicles and equipment parked on the site during construction shall have the ground beneath the vehicle or equipment inspected for the presence of wildlife prior to moving.
- Vehicular traffic shall use existing routes of travel. Off-road vehicle travel shall be minimized, and equipment use outside of the construction area shall be prohibited.
- A speed limit of 20 miles per hour or less shall be enforced within all construction areas.

- All trash and food items shall be contained in closed containers and removed regularly during construction, operations, and decommissioning to reduce the attractiveness to wildlife, such as common raven (*Corvus corax*), coyote (*Canis latrans*), and feral dogs.
- Workers shall be prohibited from bringing pets to the Project site and from feeding wildlife in the vicinity.
- Intentional killing or collection of any wildlife species shall be prohibited.
- Rodenticides shall not be used within the Project site except within buildings and disturbance to mammal burrows shall be avoided and minimized.
- Use of insecticides, herbicides, rodenticides, and pesticides shall only be allowed within established aquatic setbacks in accordance with U.S. Environmental Protection Agency guidelines for use within occupied CRLF habitat and, if applicable, any requirements established by the San Joaquin County Agricultural Commissioner.
- Vehicles or equipment will not be refueled within 100 feet of a wetland, stream, or other body of water unless a bermed and lined refueling area is constructed.
- Erosion control measures will be implemented to reduce sedimentation in nearby aquatic habitat during construction activities. Tightly woven fiber netting or similar material will be used for erosion control to avoid trapping CTS and other special-status amphibians. This specification will be required by the contractor in the bid solicitation package. Plastic monofilament netting will not be used because amphibians could be become entangled or trapped in this material.
- The Project proponent/operator shall install powerlines in conformance with APLIC standards (APLIC 2012) for electrocution-reducing techniques.
- Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives. Down-shielding or directional lighting shall be used to avoid light trespass into adjacent areas. Illumination of lighting on associated construction and operation structures shall be minimized by using motion sensors.

BIO-3: Protection of Nesting Birds

If construction (i.e., vegetation removal or ground disturbance) is scheduled to commence outside of the bird nesting season (September 1 to January 31), no preconstruction surveys or additional measures are required for nesting birds, including raptors. During the bird nesting season (February 1 to August 31), a qualified biologist shall conduct preconstruction surveys of all potential nesting habitat within the area to be developed where construction is planned. The survey shall focus on potential nest sites within the area to be developed and a 500-foot buffer around the area to be developed in areas where access is available or visible using a spotting scope or binoculars. Surveys shall be conducted no more than 10 days prior to construction activities. If the work activity halts for a period of 10 days or more, the survey would need to be conducted again prior to the continuation of site activities.

If active nests are found, a suitable buffer for the species found shall be established by a qualified biologist around active nests, and no construction within the buffer shall be allowed until the biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest) or the breeding season has ended.

BIO-4: Protection of Jurisdictional Waters and Wetlands

If it is determined that the ephemeral pond would be impacted by Project activities, coordination with USACE and RWQCB will be performed to determine if permits are needed prior to initiating ground-disturbing activities. Impacts to the ephemeral pond shall also be minimized by the use of BMPs to ensure water quality standards are not compromised. These practices can include installing orange construction fencing buffers, straw waddles to keep fill from entering preserved/avoided wetlands and other waters, and other protective measures.

If it is determined that the ephemeral pond falls within state jurisdiction and would be impacted by Project activities, mitigation compensation shall be completed. As approved by the RWQCB, the applicant may purchase mitigation credits from an approved mitigation bank or an approved in-lieu fee mitigation entity at a minimum 1:1 ratio. Alternatively, wetlands may be created onsite and, if so, have an equal or higher functional value than the ephemeral pond affected by the Project.

4.4.6 Pacific Gas and Electric Tesla Substation Improvements

To accommodate the Project, PG&E would construct network upgrades, interconnection facilities, and an interconnection gen-tie line that would extend from the battery storage facility to the available PG&E Tesla Substation bay. Two options are available for the gen-tie line route and, therefore, evaluated in this document (Figure 4.4-1). The first option would be to connect via an aboveground line on the west side of the southwestern boundary of the substation. The second option would be to enter the substation on the southwestern edge by way of a belowground line. The belowground line would enter the substation somewhere between the western edge and the center of the south boundary of the substation. The gen-tie line would not include lighting, so potential lighting impacts to wildlife would not occur.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint. Construction during the upgrades at the Tesla Substation, including noise, vehicle traffic, temporary lighting during limited nighttime activities, and on-site personnel, has the potential to affect BUOW, SJKF, and American badger if present in or near the construction area. These impacts would be similar to the impacts analyzed above for construction and operation of the BESS and support infrastructure. With implementation of **Mitigation Measures BIO-1** and **BIO-2**, including a preconstruction survey and a measure to minimize lighting impacts, construction impacts would be reduced to a less than significant level.

Potential direct impacts, such as injury or mortality, to raptor species and special-status migratory birds from Project O&M may occur through the collisions into and/or electrocution from transmission lines or structures to be installed as part of the gen-tie line. Raptors and migratory birds may use utility structures for perching while hunting. While collision/electrocution impacts to raptors and special-status migratory birds are potentially significant, impacts would be reduced through the implementation of **Mitigation Measure BIO-2**, which requires power lines to be installed per the most recent APLIC guidance (APLIC 2012) to reduce the potential for bird injury and mortality from collisions and electrocution.

Through the implementation of **Mitigation Measures BIO-1, BIO-2**, and **BIO-3,** these improvements would not have a substantial adverse effect on any listed, candidate, sensitive, or special-status species that is protected under any local or regional plans, polices, or regulations. These improvements would also not have an adverse effect on any riparian habitat or sensitive natural communities identified in any local or regional plan, policies, or regulations, or on protected wetlands. No resident or migratory wildlife species, established wildlife corridors, or wildlife nursery sites would be affected by the PG&E improvements. In addition, these improvements would not conflict with any local policies or ordinances protecting biological resources with the implementation of **Mitigation Measures BIO-1, BIO-2**, and **BIO-3.** Therefore, no additional mitigation measures would be required.

4.4.7 Cumulative Impacts

Cumulative effects of multiple projects are caused by the incremental impact of a proposed project in combination with the impacts of other closely related past, present, and reasonably foreseeable probable future projects. The ongoing impacts of past projects are reflected in the existing environmental setting. In this context, the cumulative effects of the Project in combination with the

incremental impacts of present and reasonably foreseeable probable future projects in the cumulative scenario are analyzed. For biological resources, the geographic scope of the cumulative analysis includes the regional population or extent of the species, community, or corridor affected, or the extent of the local watershed in the case of impacts to wetlands. The list of projects considered for cumulative analysis is provided in Chapter 2.

As discussed above, there would be no impact with respect to sensitive natural communities, including riparian areas. An ephemeral pond in the southeast portion of the Project site was observed in spring 2023 after a historically high rainfall year. Although the pond is located outside of the Project footprint, it is located approximately 40 feet from the Project footprint. Only indirect effects, if any, are anticipated. Therefore, the incremental impacts of the Project, in combination with the incremental impacts of other past, present, and reasonably foreseeable future projects, is not expected to cause a significant cumulative effect on jurisdictional wetlands.

Project impacts to big tarplant after the implementation of recommended mitigation measures would be less than significant. The area to be developed is anticipated to avoid all locations of this species and a protective buffer. If avoidance is not possible, the acres of habitat for this species that would be impacted by the proposed Project and the identified cumulative projects would be a small fraction of the total potential habitat in the Central Valley. Therefore, the Project would contribute a less than significant amount to a cumulative impact on this species and impacts to the species would not be cumulatively considerable.

Project impacts to CTS, western spadefoot, and CRLF after the implementation of recommended mitigation measures would be less than significant. The cumulative projects may result in impacts to these species, primarily associated with the loss of upland estivation habitat. However, the acres of potential habitat for these species that would be impacted by the proposed Project and the identified cumulative projects would be a small fraction of the total potential habitat in the Central Valley. Therefore, the incremental impacts of the Project, in combination with the incremental impacts of other past, present, and reasonably foreseeable future projects, is not expected to cause a significant cumulative effect on special-status amphibians.

Project impacts to special-status invertebrates (Crotch's bumble bee, longhorn fairy shrimp, and vernal pool fairy shrimp) after the implementation of recommended mitigation measures would be less than significant. The cumulative projects may result in impacts to these species, primarily associated with the loss of Crotch's bumble bee foraging and nesting habitat. However, the acres of potential habitat for these species that would be impacted by the Project and the identified cumulative projects would be a small fraction of the total potential habitat in the Central Valley. Therefore, the incremental impacts of the Project, in combination with the incremental impacts of other past, present, and reasonably foreseeable future projects, is not expected to cause a significant cumulative effect on special-status invertebrates.

Project impacts to special-status reptiles after the implementation of recommended mitigation measures would be less than significant. The cumulative projects may result in impacts to these species, primarily associated with the loss of grassland habitat. However, the acres of potential habitat for these species that would be impacted by the proposed Project and the identified cumulative projects would be a small fraction of the total potential habitat in the Central Valley. Therefore, the incremental impacts of the Project, in combination with the incremental impacts of other past, present, and reasonably foreseeable future projects, is not expected to cause a significant cumulative effect on special-status reptiles.

Project impacts to BUOW after the implementation of recommended mitigation measures would be less than significant. The cumulative projects may result in impacts to this species, primarily associated with the loss of potential nesting and foraging habitat. However, the Central Valley offers substantial amounts of suitable nesting and foraging habitat for this species, and the area affected by the identified cumulative projects does not represent a significant portion of remaining suitable nesting and foraging habitat within the Central Valley. Therefore, the incremental impacts of the Project, in combination with the incremental impacts of other past, present, and reasonably foreseeable future projects, is not expected to cause a significant cumulative effect on BUOW.

Project impacts to Swainson's hawk, white-tailed kite, and other raptors after implementation of recommended mitigation measures would be less than significant. Mitigation measures would protect raptor and other bird nests from disturbance during construction, and loss of foraging habitat is less than significant. The Project, in combination with all identified cumulative projects, would not substantially affect habitat for Swainson's hawk, white-tailed kite, and other raptors relative to the total available habitat in the Central Valley. In addition, any new Project overhead powerlines or associated structures would be designed in accordance with the current APLIC design standards (APLIC 2012), including use of avian-safe line designs and installation of devices to make powerlines visible to birds to reduce the potential for bird injury and mortality from collisions and electrocution, and it is anticipated that the cumulative Projects would also follow similar guidance in areas of potential habitat. Therefore, the Project would not result in a cumulatively considerable impact to Swainson's hawk, white-tailed kite, or other raptors.

Project impacts to special-status migratory birds would be less than significant with mitigation. This proposed Project in combination with the identified cumulative projects would not substantially affect habitat for migratory birds relative to the total available habitat in the Central Valley. In addition, this proposed Project includes the commitment to adhere to current APLIC design standards (APLIC 2012) as described above, which would reduce the potential for bird injury and mortality from collisions and electrocution. Therefore, the incremental effects of the Project on overall bird fatality from collision or electrocution risk in the Central Valley would not be cumulatively considerable.

Project impacts to SJKF and American badger would be less than significant with mitigation. The cumulative projects may result in impacts to these species, primarily associated with the loss of potential habitat. However, the Central Valley offers substantial amounts of suitable habitat for these species, and the area affected by the identified cumulative projects does not represent a significant portion of remaining suitable habitat within the Central Valley. In addition, this proposed Project would design construction and security lighting to avoid potential impacts (e.g., shielded, directed downward) to nocturnal species. Therefore, the incremental impacts of the Project, in combination with the incremental impacts of other past, present, and reasonably foreseeable future projects, is not expected to cause a significant cumulative effect on SJKF or American badger.

Project impacts to movement of wildlife and established native wildlife corridors would be less than significant and no native wildlife nursery sites are known to occur on the area to be developed or Project site. The proposed Project, in combination with the identified cumulative projects, would not impede the overall ability of wildlife to move through the region, and the total area that would be developed represents a small fraction of land in the Central Valley that could be used for wildlife movement. Therefore, the incremental impacts of the Project, in combination with the

incremental impacts of other past, present, and reasonably foreseeable future projects, is not expected to cause a significant cumulative effect on this resource.

4.4.8 References

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4.5 CULTURAL RESOURCES

This section identifies and evaluates issues related to cultural resources in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) did not receive scoping comments related to cultural resources. Analysis pertaining to tribal cultural resources is addressed in Section 4.16, *Tribal Cultural Resources*.

This analysis is based on the *Cultural Resources Phase I Investigation for the Griffith Energy Project, Alameda and San Joaquin County, California* technical report (Farrell and Kitchel 2022) prepared by Tetra Tech, which covered the 106-acre BESS land parcel; and the *Kola Battery Energy Storage System, Alameda County, California, Cultural Resource Assessment* technical report by Jacobs Engineering Group, Inc. (Jacobs), which covered the gen-tie corridor and the Pacific Gas and Electric (PG&E) tie-in (Price et al. 2022).

In compliance with the California Environmental Quality Act (CEQA), Tetra Tech and Jacobs conducted cultural resource studies to determine whether the Project will result in a substantial adverse change in the significance of an archaeological or historical resource (Sections 21083 and 21084 et seq. of the California Public Resources Code [PRC]; under the California Code of Regulations [CCR], Title 14, Chapter 11.5, Section15064.5). The study was also conducted in accordance with Alameda County General Plan (2000) and San Joaquin County General Plan (2016) regarding cultural resources.

The cultural resource reports detail the results of the records search, California Native American Heritage Commission (NAHC) sacred lands file (SLF) search, cultural resource field survey, and resource evaluations for the proposed Project. Due to the culturally sensitive nature of the information in the document, the technical reports are not included as an appendix to this analysis (pursuant to CCR Section 15120(d)). The results of the studies are provided in this section. The preparers of this Draft EIR independently reviewed the reports and other materials prepared by or on behalf of the Applicant and determined them to be suitable for reliance (in combination with other materials included in the formal record) in the preparation of this Draft EIR. As described in Section 4.16, *Tribal Cultural Resources*, San Joaquin County, as the lead agency, invited the following Native American Tribes to consult on the Project (as specified by PRC Section 21080.31 and as amended by Assembly Bill 52): Buena Vista Rancheria, California Tribal TANF Partnership, California Valley Miwok Tribe, North Valley Yokuts Tribe, and United Auburn Indian Community. As responsible agency, Alameda County does not formally consult with tribes as part of the CEQA process.

4.5.1 Existing Conditions

4.5.1.1 Regional and Local Setting

The Project is situated on the rolling foothills (alluvial fans and terraces ecoregion) along the western edge of the San Joaquin Valley, adjacent to the Diablo Range of the Coast Range Physiographic Province. This series of low-relief Coast Range Mountains aligns predominately northwest to southeast and separates the Central Valley from the San Francisco Bay Area.

Specifically, Livermore Valley, followed by the San Francisco Bay, is to the west and San Joaquin Valley is to the east (Farrell and Kitchel 2022).

The topography in the vicinity consists of sloping rounded hills with elevations ranging from 380 feet above mean seal level to 509 feet above mean seal level. The basin was historically drained by Mountain House Creek (2 miles north/northwest of the Project) and Patterson Run Creek (1 mile north of the Project), which drains eastward toward the San Joaquin Valley. No perennial or intermittent freshwater sources are located on or adjacent to the Project, although ephemeral streams are present.

The deposits within the Project consist of Pliocene to early Pleistocene age Orinda and Oro Loma Formations of alluvial pebble conglomerate, sandstone, and claystone (within the central and eastern portions of the Project site); late Miocene age deposits of the Neroly Formation non-marine, locally pebbly (within the northwestern portion of the site); and surficial sediments of alluvial gravels at the base of the hills (Dibblee 2006). Soils within the Project site consist of the Diablo series, Calla-Carbona series, and Carbona clay loam (NRCS 2022).

Prior to water diversions in the nineteenth century for agricultural use and the introduction of nonnative species, the ecoregions adjacent to the Project site (Bay Area and Central Valley basin and adjacent foothills) contained a mosaic of biological diversity (flora and avian, aquatic and terrestrial fauna) that was supported by climatic and hydrological conditions conducive to abundant resource availability and subsistence procurement by aboriginal populations (e.g., Costanoan, Miwok, Yokuts; Preston 1990). Before historic alterations to the landscape occurred, the surrounding environmental setting was characterized by vegetation communities, such as grassland prairies, upland oak-grass savannas, forest, seasonal wetlands, freshwater marshlands and sloughs, and riparian forests along rivers and drainages (Rosenthal et al. 2007). The foothills may have provided a travel corridor to these resources (Farrell and Kitchel 2022). The rolling hills of the Project site appear to have been dominated by annual and perennial native grasses and forbs, with no trees. Native interior grasslands included a variety of grasses and forbs (e.g., California brome, wild rye, lupine, fiddleneck) that would have supported a variety of fauna, such as deer, antelope, rabbits, hares, rodents, and birds (Eviner 2016).

Today, the Project is within a rural, agricultural setting with a low population density. The Project site is primarily surrounded by agricultural and undeveloped lands, with limited rural residential to the north and west, the PG&E Tesla Substation to the west, and agricultural land and undeveloped land to the south and east. It is situated in a historically disturbed setting, where the natural habitat has been displaced by non-native vegetation through agricultural activities since the 1870s. Aerial imagery from 1948 depicts a residential ranch complex located immediately northwest of the Project site. Between 1993 and 2005, two residential buildings were constructed along the western Project boundary, and one modular home is located at the northern edge of the Project site, just within the Project boundary. Based on information provided by the parcel landowner, the Project area is annually grazed by cattle. The Project is surrounded by transmission line corridors, the PG&E Tesla Substation to the west, rural residential housing to the west of the Project site and north of Patterson Pass Road, and agricultural fields and wind turbines that dot the surrounding landscape.

4.5.1.2 Cultural Context

The following is a brief overview of the cultural background relevant to the Project site and general vicinity. More detailed descriptions can be found in ethnographic studies, mission records, and major published sources, including Kroeber (1925), Heizer (1978), Moratto (2004), and Milliken et al. (2007). The following cultural context is excerpted from secondary sources, including the Tetra Tech technical report (Farrell and Kitchel 2022) conducted for this Project.

Prehistoric Overview

Paleo-Indian Period (13,500–10,500 Cal B.P.)

During the Holocene, geological events, such as periodic episodes of erosion and deposition, altered, buried, or removed the Late Pleistocene landscape (Rosenthal et al. 2007). Evidence of this period comes from scattered surface locations in the southern portion of the basin. The Paleo-Indian period is characterized by basally thinned and fluted projectile points. The earliest known human presence in the San Joaquin Valley is indicated by artifacts uncovered at the Witt site (CA-KIN-32), located on the remnant south-southwestern shoreline of Tulare Lake. The Witt site has been classified as one of the only known paleontological sites in the central San Joaquin Valley region. During this period, hunters and gatherers crossed very large subsistence areas with extensive foraging ranges (Jones et al. 2003). This is supported by obsidian tracing and dating of projectile points from the Witt site. This evidence indicates that wide-ranging expeditions to distant areas were made for trade or direct procurement of obsidian sources from Napa Valley and those closer to Tulare Lake, but still representing rather lengthy forays east of the Sierra Nevada. During this period, foragers seem to have operated in small mobile groups with low population densities.

Archaic Period

The period marked by technological and substantial changes in subsistence and material culture is known as the Archaic Period. During this stage, prehistoric residents of the Central Valley developed into efficient hunter-gatherers who successfully exploited localized resource bases.

Lower Archaic Period (10,500–7500 Cal B.P.)

The environment at the end of the Pleistocene was significantly altered by climate change, which facilitated the production of alluvial fans and flood plains (Rosenthal et al. 2007). The Lower Archaic Period is characterized by isolated finds of stemmed points (similar to Borax Lake, Lake Mojave, Siler Lake, and Pinto wide stem types), stone crescents, and other distinctive, formalized, flaked stone artifacts (Rosenthal et al. 2007). Such artifacts were found further south of the current Project in the Central Valley at the Buena Vista Lake Site (CA KER-116; Fredrickson and Grossman 1977), and the shorelines of Tulare Lake at the Witt site. Faunal remains from the Buena Vista Lake site are limited but diverse, including freshwater fish, waterfowl, freshwater mussels (*Margaritifera margaritifera*), and artiodactyl bones.

North of the Project area, archaeological sites that date to this period have been identified near the Los Vaqueros Reservoir in the hills east of Mount Diablo. Archaeological sites CA-CC0-696 and CA-CCO-637 are about 300 meters apart and both contain artifacts and burials. Charcoal identified under a milling slab at CA-CC0-696 yielded a date of 7920 calendar years before

present. Archaeobotanical remains found at this site suggest a diet of acorns and wild cucumbers (Wohlgemuth 1997).

Middle Archaic Period (7500–2500 Cal B.P.)

The Middle Archaic climate was characterized by warmer and drier conditions facilitating the reduction or complete desiccation of Central Valley lakes. Thus, with sea level rising, new wetland habitats were developed and led to the formation of the Sacramento and San Joaquin Delta (Atwater and Belknap 1980; Goman and Wells 2000). This period is categorized by projectile points, such as notched, stemmed, thick-leaf, and narrow concave base darts, groundstone, pottery, twined basketry, basketry awls, and polished stone plummets (Rosenthal et al. 2007). At this time, the classic Windmiller Pattern burial mounds occur. This pattern represents riverine adaptations that were permanent, year-round habitation sites (Rosenthal et al. 2007). Paleobotanical studies of the Windmiller Pattern indicate early use of acorns and pine nuts. Faunal remains include large game animals (elk, deer, pronghorn), leporids, waterfowl, small and large fish, and small rodents. The fauna represented indicates the use of marshes, grasslands, and riverine forests.

A component of the Tranquillity site (CA-FRE-48), located near the Fresno Slough (approximately 56 miles north of the Project), radiocarbon dates to this time period. CA-FRE-48 consists of several burials, faunal remains (e.g., Tule Elk, antelope, fox, rabbits [*Leporidae*]), obsidian and chert lithic tools (e.g., stemmed and notched projectile points), and ground stone (e.g., manos, metates, mortars, and pestles) (Hewes 1946; Moratto 2004).

Upper Archaic Period (2500 Cal B.P.–Cal A.D. 1000)

During the early portion of this period the environment was cooler and wetter. Populations were characterized by geographically complex sociopolitical organizations as evident from archaeological burial data (e.g., contrasting burial postures), artifact styles, and other items of material culture (Rosenthal et al. 2007:156). Specialized technologies appeared during the Upper Archaic Period, such as bone tools and implements and the production of saucer and saddle-shaped shell beads (*Olivella*) and ornaments (*Haliotis*), coiled basketry, and ceremonial obsidian blades. Large amounts of obsidian were obtained from the eastern side of the Sierra Nevada, and lanceolate-shaped bifaces were widely traded (Rosenthal et al. 2007:157). This period was also marked by mortar and pestle use and an increase in plant procurement, specifically acorns (Wohlgemuth 1996; Rosenthal et al. 2007; Rosenthal and Wohlgemuth 2011). Artifact assemblages from the period includes temporally diagnostic forms of beads (*Olivella*) and ornaments (*Haliotis*), charm stones (often found cached), cobble mortars, chisel-ended pestles, and dart points. Other diagnostic artifacts include a wide array of bone tools, such as awls, fish spears, saws, and flake tools.

During the transition from the Upper Archaic Period to the Emergent Period, the Central Valley experienced drier conditions resulting in resource depression of valley and lowland resources. Native groups abandoned the valley floor and relocated to upland resource areas (Moratto 2004). As the climate improved, people expanded downslope again to the valley floor.

Emergent Period (Cal A.D. 1000–Historic)

The Emergent Period is characterized by the appearance of bow and arrow technology, the rise of wealth-linked social status, the specialization of bead manufacturing, and increased social complexity as indicated by increased variation in burial types and furnishings (Milliken and Bennyhoff 1993; Bennyhoff and Fredrickson 1994; Rosenthal et al. 2007). This period is also marked by the intensification of plant resources, and the use of the mortar and pestle (Wohlgemuth 1996; Rosenthal et al. 2007; Rosenthal and Wohlgemuth 2011). Rosenthal and Wohlgemuth (2011) examined environmental and artifact assemblage data for several upland (west-central Sierra Nevada) and lowland (Central San Joaquin Valley) archaeological sites. The authors suggest that plant intensification was adapted earlier in the lowland regions compared to the uplands due to the greater availability and spatial distribution of various resources in the valley, allowing for more residential stability and increased population. Artifact assemblages are characterized by small corner-notched and side-notched projectile points, *Olivella* lipped and clam disc beads and bead drills, magnesite cylinders, hopper mortars, pottery, clay balls, and village sites with house pits.

Ethnographic Overview

The Project area is within the northwestern ancestral land boundaries of the Northern Valley Yokuts, who spoke a branch of the Penutian (Yok-Utian) language family (Gayton 1948; Wallace 1978). The Yok-Utian language is divided into only two distinct subbranches: the Miwok-Costanoan (also known as Ohlone) and Yokuts (Golla 2007). A brief ethnographic summary of the Yokuts culture is provided below.

Northern Valley Yokuts

The Yokuts fall into three geographical divisions: the Foothill Yokuts, Southern Valley Yokuts, and Northern Valley Yokuts (Gayton 1948; Wallace 1978). The Northern Valley Yokuts' territory extended southward from between the Mokelumne and Calaveras Rivers to the upper San Joaquin River, and from the crest of the Coastal Range to the west and the Sierra Nevada foothills to the east. The Project site is within the extreme northwestern territory of the Yokuts. The Northern Valley Yokuts generally established villages on low, natural rises along major water courses (i.e., San Joaquin River or its major tributaries) (Wallace 1978). These water sources supported a large variety and abundance of natural floral, aquatic, and faunal resources. The Yokuts practiced a mixed economy of resource procurement and focused on fishing, hunting, fowling, and collecting freshwater shellfish, as well as plant resources, such as roots and seeds (Wallace 1978). Salmon and acorns were important food staples. The basic domestic and economic social unit of the Southern Valley Yokuts was the nuclear family. Additional grouping consisted of patrilineal totemic lineages represented by a totem symbol that was transmitted by father to all his children. Exogamous lineages were formed by families sharing the same totem (Wallace 1978). The Yokuts did not necessarily own land but did practice collective traditional ownership over specific desirable resource areas (e.g., fishing, hunting, seed-grasses, tree groves) among families, and among the tribelet (Gayton 1945:417, 1948:160; Wallace 1978). Individual women could designate a specific tree or seed resource area as their own, and certain areas may have been inherited from one's mother (Gayton 1945:417). Villages were occupied most of the year until late spring, when families would venture out for several months to collect seed-plant and other resources (Wallace 1978). Collected surplus resources were privately

owned, especially among women, but were often used in ceremonial reciprocity, gift giving, or trade (Gayton 1930, 1948). The Northern Valley Yokuts were immensely involved in trading resources with neighboring tribes such as the Miwok (to the northeast) and Costanoan (also known as Ohlone, to the west and north). The Miwok traded baskets, bows, and arrows with the Yokuts (Levey 1978). The Costanoan (Ohlone) traded mussels, abalone, dried meat, shells, and salt to the Yokuts, and the Yokuts supplied piñon nuts (Levey 1978:488).

Historic Overview

In California, the historic era is generally divided into three periods: the Spanish Mission Period (1769–1821), the Mexican Rancho Period (1821–1848), and the American Period (1848–present). These periods began at various times within different parts of the state due to the vastly diverse landscapes Euro-Americans immigrated into, often in areas inhabited by indigenous communities.

Spanish Mission Period (1769–1821)

The Spanish Mission Period—between 1769 and 1821—designates the time when the Spanish established missions along the California coast (Castillo 1978). The first recorded contact between California natives and Europeans occurred in 1542, when the Juan Rodriguez Cabrillo expedition traveled along the west coast of California (Castillo 1978). Between 1769 and 1833, the Spanish founded 21 missions from San Diego north to the San Francisco Bay area (Presidio). Mission San Francisco Solano (founded 1823), Mission San Rafael Arcángel (founded in 1817), San Francisco de Asís (founded in 1776), Mission San José (founded 1797), and Mission Santa Clara de Asís (founded 1777), were established along the coast near the present-day San Francisco Bay area, over 50 miles northwest, west, and southwest of the Project site (California Missions 2021). Although the inland areas of the San Joaquin Valley were not settled by the Spanish, influences from coastal missions and presidios were felt inland by the end of the eighteenth century. The mission lands extended from the coast east to the San Joaquin Valley. The local Yokuts population was forcibly indoctrinated into the mission system and baptized as neophytes. Many Yokuts were transported to the San José, Santa Clara, Soledad, San Juan Bautista, and San Antonio Missions (Wallace 1978). The padres used the Yokuts as laborers for the mission's large tracts of land, putting them to work with agricultural and ranching duties. The mental and physical health of the Yokuts people suffered, and many people died or tried to escape to the interior valley (Gifford and Schenck 1926). The padres would send soldiers to search for and retrieve the people who escaped, though many were able to elude the soldiers (Gifford and Schenck 1926; Wallace 1978). The ex-neophytes often led raiding parties targeting the mission cattle herds and horses (Wallace 1978).

The transition between the Spanish releases of their northwest coast of California territory to Mexico occurred from 1821 to 1823.

Mexican Rancho Period (1821–1848)

The period from 1821 to 1848 is referred to as the Mexican Rancho Period (Castillo 1978). In 1821, Mexico gained independence from Spain, and the secularization of the missions was completed in 1834. It was during this period that large tracts of land called "ranchos" were granted by the various Mexican Governors of Alta, California, usually to individuals who had worked in the

service of the Mexican Government. No Mexican land grants were identified for the Project site. The Rancho Las Positas was west of the Project site in the modern-day town of Livermore (Livermore Heritage Guild 2022). This period is also characterized by declines in the Native American population in the San Joaquin Valley due to the introduction of new diseases and increasing military raids (Wallace 1978).

American Period (1848–Present)

Following the end of hostilities between Mexico and the United States in January 1847, the United States officially obtained California from Mexico through the Treaty of Guadalupe Hidalgo on February 2, 1848 (Hoover et al. 1962). In 1850, California was accepted into the Union of the United States, primarily due to the population increase created by the Gold Rush of 1849. This increase in foreign immigrants searching for riches and land further decimated the indigenous population.

In 1849, Thomas Goodale put up a blue denim tent along Grant Line Road, near Midway Road, which served as a tavern and stagecoach stop for McLead's Stage Line to Stockton (Wood 1883:462). About 4 years later, Simon Zimmerman purchased Goodale's tavern and changed the name to Mountain House (Thompson and West 1878:25). Roads to and from Mountain House proceeded north to Martinez (and beyond) and to the south through the Altamont Pass into Livermore Valley. The original route of the transcontinental Lincoln Highway followed Grant Line Road out of Tracy to Altamont Pass. Alameda County was established in 1853 and was carved from parts of Santa Clara and Contra Costa Counties. San Joaquin County was incorporated in 1850. By midcentury, settlers began to move to the area that would become Midway (just west of the Project area).

In 1856, Franz (Frank) Haera (a German immigrant) and his wife Cecilia moved to what would become Midway and constructed the Zinc House. In 1872, he was granted 160 acres of land by the United States government (northwest of the Project area) and eventually raised sheep. The 1900 United States Federal Census lists Frank Haera (misspelled "Haira") as born in Germany in 1832. His occupation is listed as a farmer, his wife is listed as Cecilia (age 45), and a son is listed as Henry (age 6) (U.S. Census Bureau 1900). Frank Haera passed away at 68 years old in Midway, California, in 1901 (*The San Francisco Call* 1901a). Frank Haera's 648-acre ranch, livestock (6 horses, 60 head of cattle), 100 tons of hay, and farming implements were auctioned off in November of 1901 (*The San Francisco Call* 1901b). The Zinc House burnt down in the 1930s (Reeve 2002). The completion of the Central Pacific Railroad (a previously recorded segment, P-39-000098, south of the Project area) in 1869 brought more settlers to the Midway area. The community of Midway began to grow along the railroad and the town eventually included a railroad station, the Midway Public School, a store, a post office (ca. 1870 to 1918), and several residential homes and ranches (Wood 1883; Durham 1998).

In 1869, Michael MulQueeney (an Irish immigrant) purchased large tracts of land 2 miles from Midway for ranching. Within 14 years of acquiring land, MulQueeney established one of the largest ranches in Alameda County with 8,000 acres of land and 5,000 to 8,000 sheep (Wood 1883). Michael was married to Mary E., and they had three sons: Michael Jr., John, and William. Michael Sr. passed way in 1884, leaving his ranch and assets to his wife and sons.

In 1872, Reinhold Haera, a German immigrant and relative of Franz Haera, was granted 160 acres of land near Midway (within the Project area, see Section 4.3). The 1880 census for Alameda County lists Reinhold Haera's age at 36 years, his occupation as a farmer, and wife Mary Haera (age 30), daughters Mary J. (age 9), Katie (age 5), and Lizzie (age 1), and son Albert (age 3) (U.S. Census Bureau 1880). In the 1880s, Reinhold served as the postmaster for Midway. He died in 1926 in Oakland, California (Ancestry 2022).

In 1883, Franz and Reinhold Haera and Michael MulQueeney petitioned to construct the Midway Public School. The school was originally built on either the MulQueeney Ranch or Haera Ranch near the intersection of Patterson Pass Road and Midway Road (Shazo 2018). The Midway school house had 16 students in 1878 (Thompson and West 1878:161). The Midway Public School was in use from 1883 to 1946 and the building was eventually moved to the MulQueeney ranch property (1 mile southwest from the Project area) to protect it from vandalism (Shazo 2018). In 1902, John MulQueeney (son of Michael MulQueeney), Cecilia Haera, and Reinhold Haera petitioned the Board of Supervisors to save their homes from the Southern Pacific Company that laid a claim to a right-of-way (ROW) of 400 feet, encompassing the entire town of Midway (*The San Francisco Call* 1902). By the early 1900s, ranching and farming were the main economic industry in Midway and the rural neighborhood consisted of approximately 30 residents (Shazo 2018).

Previously recorded site P-01-010500, recorded as the Haera-Brockman-Griffith Ranch complex, is adjacent (west) of the Project area. The Haera-Brockman family cemetery (previously recorded as site P-01-010498) is located 0.5 mile northwest of the Project area. The Midway Public School is previously recorded as site P-01-012147 and is approximately 1 mile southwest of the Project area. No additional historic information was available for the Haera or MulQueeney families through census sources, historical newspaper articles, or other online sources.

The Standard Oil Company constructed an oil pipeline from Bakersfield to the Midway Station in 1910, and the station included several tanks. During this time, the economic use of the land began to shift to include energy production.

Electrical power distribution was an important factor in the development of California's industries and public utilities. The Tesla electrical substation and adjacent Butler Building (P-01-010502) were built during the late 1940s and are west of the Project area. The substation is a critical power source for both the greater Bay Area and San Joaquin County. As of 2018, the substation was connected to the bulk power system via five 500-kilovolt (kV) lines, fourteen 230-kV lines, three 500/230-kV transformers, and two 230/115-kV transformers (PG&E 2018). PG&E's Tracy-Tesla 230-kV overhead transmission line (P-01-011395) was built between 1949 and 1953 and is west of the Project area. The Pittsburg-Tesla 230-kV overhead transmission line (P-01-010947) extends 31 miles from the Tesla substation to the Pittsburg substation and is west of the Project. As part of the Pacific Northwest-Pacific Southwest Intertie, high-voltage, electrical transmission lines, the Vaca Dixon-Tesla and Table Mountain Tesla 500-kV, high-voltage, overhead transmission line (P-01-10499) was constructed from the late 1960s to the early 1970s and is west of the Project area. The Tesla-Salado-Mateca 115-kV transmission line (P-10-005337) was constructed in ca. 1920s to 2000s and is southwest of the Project area.

Wind energy is an important resource for California's power grid, and wind power generation facilities began to appear in the Project region in the early 1980s. The Altamont Pass Wind Resource Area (APWRA) was created by the California Energy Commission (formerly State Energy Resources Conservation and Development Commissions) in 1980 and is recognized by Alameda County as an area with sufficient wind levels to support economically viable wind energy projects (Alameda County 2022). The APWRA is one of six primary wind generating regions in California, the others consisting of the Tehachapi, San Gorgonio Pass, East San Diego, Pacheco, and Solano (CEC 2022). Currently, the APWRA wind farms are leased by different companies with over 4,000 wind turbines of varying sizes and styles that can generate up over 360 MW (Alameda County 2022).

4.5.2 Regulatory Setting

4.5.2.1 Federal

There are no applicable federal regulations for this issue area.

4.5.2.2 State

California Environmental Quality Act

The CEQA (Section 21084.1) requires a lead agency to determine whether a project could have a substantial adverse change in the significance of a historical resource or tribal cultural resource (PRC Section 21074 [a][1][A]-[B]).

Under the CEQA (Section 15064.5 (a)), a historic resource (e.g. building, structure, or archaeological resource) shall include a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR); or a resource listed in a local register or landmark, identified as significant in a historical resource survey (meeting the requirements of Section 5024.1(g) of the PRC); or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California (Section 15064.5[a][3]). Under the CCR, Title 14, Chapter 11.5, properties listed on or formally determined to be eligible for listing in the National Register of Historic Places (NRHP) are automatically eligible for listing in the CRHR. A resource is generally considered to be historically significant under the CEQA if it meets the following criteria for listing in the CRHR (PRC SS5024.1, Title 14; CCR, Section 4852):

A. *Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (Criterion 1).*
B. *Associated with the lives of persons important to local, California, or national history (Criterion 2).*
C. *Embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possesses high artistic values (Criterion 3).*
D. *Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (Criterion 4).*

Under PRC Section 21074, tribal cultural resources are:

1. *Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:*

    a. *Included or determined to be eligible for the inclusion in the CRHR; or*

    b. *Included in a local register of historical resources as defined by subdivision (k) of Section 5020.1 (designated or recognized historically significant by a local government pursuant to local ordinances or resolution).*

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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.*

    a. *A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; or*

    b. *A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).*

California Health and Safety Code, Sections 7052 and 7050.5

Section 7052 of the California Health and Safety Code states that it is a felony to disturb Native American burials. Section 7050.5(c) requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the NAHC.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act (the Act) applies to both state and private lands. The Act requires that, upon discovery of human remains, construction or excavation activity must cease and the county coroner be notified. If the remains are Native American, the coroner must notify the NAHC. The NAHC will then identify and notify a most likely descendant. The Act stipulates the procedures that the most likely descendant may follow for treating or disposing of the remains and associated grave goods.

California Public Resource Code, Sections 5097 et seq.

California PRC Section 5097 specifies the procedures to be followed in the event of an unexpected discovery of human remains on non-federal land. The disposition of Native American remains falls within the jurisdiction of the NAHC. Section 5097.5 of the Code states:

> *No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or*

vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, public corporation, or any agency thereof.

Assembly Bill 52

Under the CEQA, Assembly Bill (AB) 52 requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. Consultations must include discussing the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe. That consultation must take place prior to the determination of whether a negative declaration, mitigated negative declaration, or EIR is required for a project. Section 4.16 discusses the effort made to contact the tribes that may have an interest in the Project, in compliance with AB 52.

4.5.2.3 Local

Alameda County

East County Area Plan

The ECAP includes the following policies specific to cultural resources and applicable to the proposed Project:

- ***Policy 136****: The County shall identify and preserve significant archaeological and historical resources, including structures and sites which contribute to the heritage of East County.*
- ***Policy 137:*** *The County shall require development to be designed to avoid cultural resources or, if avoidance is determined by the County to be infeasible, to include implement* [sic] *appropriate mitigation measures that offset the impacts.*

The following implementation program pertains to cultural resources:

- ***Program 59:*** *The County shall require a background and records check of a project area if a project is located within an extreme or high archaeological sensitivity zone as determined by the County. If there is evidence of an archaeological site within a proposed project area, an archaeological survey by qualified professionals shall be required as a part of the environmental assessment process. If any archaeological sites are found during construction, all work in the immediate vicinity shall be suspended pending site investigation by a qualified archaeology professional. Proposed structures or roads on property that contains archaeological sites should be sited in consultation with a professional archaeologist to avoid damaging the archaeological sites. The County shall follow CEQA Guidelines for cultural resource preservation procedures in reviewing development projects located near identified cultural resources. Appropriate measures for*

preserving an historic structure include renovation or moving it to another location. Proposals to remove historic structures shall be reviewed by qualified professionals.

Alameda County Municipal Code

The overall purpose of the Alameda County Municipal Code (ACMC) Chapter 17.62, *Historic Preservation Ordinance*, is to outline a consistent process for making determinations of historical significance and identifying significant architectural, historic, prehistoric, and cultural structures, sites, resources, and properties within Alameda County. ACMC Section 17.62.040, *Cultural Resource Surveys*, requires the County to maintain a list of cultural resources surveys to generate an inventory of potential historic resources collectively known as the "Alameda County Register."

San Joaquin County

San Joaquin County General Plan

The *San Joaquin County General Plan*, Part 3 Natural and Cultural Resource Element, provides goals to protect, preserve, and enhance the valuable cultural and historic resources that are vital to the character of the County (San Joaquin County 2016). The Plan provides the following goals and polices:

NCR-6.1 Protect Historical and Cultural Resources: *The County shall protect historical and cultural resources and promote expanded cultural opportunities for residents to enhance the region's quality of life and economy.*

NCR-6.1 No Destruction of Resources: *The County shall ensure that no significant architectural, historical, archeological, or cultural resources are knowingly destroyed through County action.*

NCR-6.3 Encourage Public and Private Preservation Efforts: *The County shall continue to encourage efforts, both public and private, to preserve the historical and cultural heritage of San Joaquin County and its communities and residents.*

NCR-6.4 Registration of Historic Properties: *The County shall encourage owners of eligible historic properties to apply for State and Federal registration, to participate in tax incentive programs for historical restoration, and to enter into Mills Act Contracts.*

NCR-6.5 Protect Archeological and Historical Resources: *The County shall protect significant archeological and historical resources by requiring an archeological report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archeological artifacts that could be disturbed by project construction.*

NCR-6.6 Tribal Consultation: *The County shall consult with Native American tribes regarding proposed development projects and land use policy changes consistent with the State's Local and Tribal Intergovernmental Consultation requirements.*

NCR-6.7 Adaptive Reuse of Historic Structures: *The County shall encourage the adaptive reuse of architecturally significant or historic buildings if the original use of the*

structure is no longer feasible and the new use is allowed by the underlying land use designation and zoning district.

NCR-6.8 Land Use and Development: *The County shall encourage land uses and development that retain and enhance significant historic properties and sustain historical community character.*

NCR-6.9 Educational Programs: *The County shall support educational and outreach programs that promote public awareness of and support preservation of historical and cultural resources. (IGC/PI).*

4.5.3 Identification of Cultural Resources

In accordance with the CEQA, archaeological, historic, and tribal resources were identified using the following methods:

- A records search of the California Historical Resources Information System (CHRIS) via the Central California Information Center (CCIC), Division of Anthropology, California State University, Stanislaus;
- A records search of the CHRIS via the Northwest Information Center (NWIC), Division of Anthropology, California State University, Sonoma;
- Review of California Office of Historic Preservation Historic Properties Directory, NRHP, Office of Historic Preservation Archaeological Determinations of Eligibility, CRHR, California Points of Historical, California Historical Landmarks;
- A review of USGS maps, General Land Office (GLO) plat maps, and historic aerials;
- A review of federal land patents;
- An NAHC SLF Search;
- A Class I cultural resource pedestrian field survey (Farrell and Kitchel 2022) and Cultural Resource Assessment (Price et al. 2022); and
- Tribal consultation per AB 52, as discussed in Section 4.5.2, *Regulatory Setting*, above and detailed in Section 4.16, *Tribal Cultural Resources*.

4.5.3.1 Literature Review Results

CCIC and NWIC Records Search Results

Within a 1-mile radius of the Project, the record searches identified 23 previous studies and 23 documented resources. Two previous archaeological surveys (SJ-08014 and S-11826) overlap with the Project site. SJ-08014 was linear survey conducted in 1984 for a transmission line right-of-way maintenance project; the previous survey covered less than 1 percent of the Project site in the eastern end of the 106-acre parcel (Farrell and Kitchell 2022). S-11826 was a block survey conducted in 1980 that covered a portion of the proposed gen-tie corridor and PG&E tie-in (Price et al. 2022). The remaining studies were conducted between 1978 and 2016 and consist of management and planning, architectural and historical research, field surveys, excavation, and monitoring projects.

Cultural resources identified within 1 mile of the Project area are all historic and include historic-era transmission lines, railroads, irrigation districts, foundations, refuse scatters, a ranch, a school, and a cemetery. One previously recorded built environment resource is within the Project

site and crosses the proposed gen-tie corridor. Resource P-39-005337 is the Tesla-Salado-Manteca 115-kV Transmission Line. This resource is not eligible for listing in the CRHR and, therefore, not a historical resource (Price et al. 2022).

Historic USGS Map, GLO Plat Map, and Historic Aerial Review

Based on historic maps and aerial imagery, the Project area has remained primarily undeveloped and has been used for agricultural purposes (row crops and livestock grazing) since the 1940s. Aerial imagery from 1948 depicts a residential ranch complex consisting of a main building (house), two outbuildings, and several trees located adjacent to the northwest Project boundary (previously recorded site P-01-010500: Haera-Brockman-Griffith Ranch). The Project area appears disced in 1948, 1958, 1966, 1971, and 1979. By 1993, one of the outbuildings associated with the P-01-010500 eastern boundary is no longer extant. By 2018 and 2019, the residential building (main house), fence line/corral, and a structure (open barn) associated with P-01-010500 (Haera-Brockman-Griffith Ranch) are no longer extant, the area appears graded, and several trees were removed. It appears only one original outbuilding from 1948 image may remain. No buildings, structures, or features were observed within the Project area.

Federal Land Patent Review

Review of historic land patents for the Project area (Township 2 South, Range 4 East, southeast quarter of Section 32) indicate Reinhold Haera purchased an agricultural scrip patent in 1872 (see the *Historic Overview* in Section 4.5.1.2 for historic information).

Native American Heritage Commission Sacred Lands File Search

Tetra Tech contacted the NAHC on November 15, 2021, to request an SLF Search. The NAHC replied on December 29, 2021, that results were negative for Native American tribal resources within the Project area and provided a list of local Native American contacts. The lead state agency is responsible for government-to-government tribal consultation compliance under the CEQA and AB 52 or Senate Bill 18. Consultation initiated by San Joaquin County is detailed in Section 4.16, *Tribal Cultural Resources.*

4.5.3.2 Archaeological Survey Results

106-acre Land Parcel Portion of the Project Site

Qualified archaeologists conducted an intensive pedestrian survey of the 106-acre land parcel on March 2, 2022 (Farrell and Kitchel 2022). The ground surface visibility was poor to good (15 to 80 percent) throughout the Project area. Survey transects were walked closer together in areas of heavy vegetation (i.e., 5- to 10-meter transects). Several cows and calves were grazing on the property during the survey and active ground squirrel burrows were present. Loose soils from these burrows were examined for any signs of cultural resources (e.g., artifacts, midden soils). No cultural material was observed within the Project site.

Gen-tie Corridor and PG&E Tie-in Portion of the Project Site

Qualified archaeologists and architectural historian conducted an intensive pedestrian field survey of the land parcel south of the PG&E Tesla Substation that included the gen-tie corridors on September 28, 29, and 30, 2021, and on June 7, 2022 (Price et al. 2022). Ground visibility was good, and the field team walked transects spaced no greater than 15 meters apart across the

entirety of the gen-tie corridors. No archaeological resources were identified. One previously recorded transmission line (P-39-005337) and three newly documented transmission lines were documented crossing the gen-tie corridor (the Tesla-Los Banos 500-kV Transmission Line, the Tesla-Metcalf 230-kV Transmission Line, and the Tesla-Metcalf 500-kV Transmission Line).

Built Environment Resources within the Project Site

Tesla-Salado-Manteca 115kV Transmission Line ca. 1966 (P-39-005337). The entire resource was previously recorded by Cardno, Inc., in 2017 and was recommended not eligible for listing to the CRHR. The record for P-39-00537 was updated as part of this current 2022 assessment. No changes were observed, and Price et al. (2022) concurred with the previous assessment of resource P-39-005337 as not eligible for listing in the CRHR.

Tesla-Los Banos 500-kV Transmission Line (TLBTL). TLBTL is an electrical transmission line that was newly identified as part of this assessment. The linear resource was first identified during a review of historic imagery prior to the field effort and was formally recorded during the pedestrian survey. Research determined that TLBTL was constructed ca. 1966. The TLBTL is 57 miles long and consists of two parallel, single-circuit, 500-kV electrical transmission lines connected to a series of steel lattice towers. A small segment that is within the proposed transmission line area contain wires that connect to adjacent towers. No major changes have occurred to the towers since their original construction. This resource is recommended not eligible for listing in the CRHR.

Tesla-Metcalf 230-kV Transmission Line (TM230TL). TM230TL is an electrical transmission line that was newly identified as part of this assessment. It consists of a double-circuit 230-kV electrical transmission line connected to a series of steel lattice towers. The towers have concrete footprints and a tapered form with three sets of cross-arms located at the top. The line was reconfigured to extend north-south (parallel to Midway Road) due to expansion of Tesla Substation in the 1960s. This segment of the larger transmission line was recommended not eligible for listing in the CRHR.

Tesla-Metcalf 500-kV Transmission Line (TM500TL). TM500TL is an electrical transmission line that was newly identified as part of this assessment. The linear resource was first identified during a review of historic imagery prior to the field effort and was formally recorded during the pedestrian survey. Research determined that the TM500TL was first constructed ca.1949 and later reconfigured ca. 1959. The TM500TL is approximately 35 miles long and consists of a double-circuit, 500-kV, electrical transmission line connected to a series of steel lattice towers. The segment within the proposed transmission line area contains wires that connect to two towers (adjacent) and was reconfigured to extend north-south due to the expansion of the Tesla Substation in the 1960s. This segment of the larger transmission line was recommended not eligible for listing in the CRHR.

Built Environment Resources Adjacent to the Project Site

Two historic resources were identified on land directly adjacent to the 106-acre land parcel portion of the Project site: previously recorded site P-01-10500 (Haera-Brockman-Griffith Ranch) and a historic transmission line.

P-01-10500 (Haera-Brockman-Griffith Ranch) is located at 20044 North Midway Road and is adjacent to the northwestern boundary of the Project area. The site was previously recorded by Foster Wheeler Environmental in 2002 as a ranch complex consisting of a wood-frame ranch house dating to the 1930s and several outbuildings. At the time of the 2002 recording, permission was not granted by the landowner to survey the property and the field team was unable to record the buildings in detail (Reeve 2002). This site was observed from the Project site during this field survey and the site form updated.

Currently, the property consists of a fifth-wheel motorhome (currently occupied), livestock trailers, modern agricultural outbuildings, and a corral. The originally recorded wood-frame ranch house is no longer extant and was demolished or moved off the property by 2018 based on Google Earth imagery. The Department of Parks and Recreation 523 form was updated to reflect the current condition of the site (Farrell and Kitchel 2022). The property has lost its historic integrity and is unlikely to retain significance.

Wooden pole transmission line. A historic transmission line runs adjacent to the 106-acre land parcel's southern boundary. It consists of single wooden poles with two wooden cross bars and ceramic insulators near the top of each pole. Based on stamped metal tags observed on the poles, the line has been maintained and updated with new poles since 1947 to recent times. No transmission line name was found on the poles.

4.5.4 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. Significance criteria pertaining to tribal cultural resources is addressed in Section 4.16 *Tribal Cultural Resources*. The proposed Project would have a significant impact to cultural resources if it would result in any of the following:

- *Cause a substantial adverse change in the significance of a historical resource pursuant to Section15064.5.*
- *Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section15064.5.*
- *Disturb any human remains, including those interred outside of formal cemeteries.*

4.5.5 Impacts Analysis

IMPACT 4.5-1: *Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section15064.5?* **(Less than Significant Impact)**

Based on the background studies and field surveys (Farrell and Kitchel 2022; Price et al. 2022), there are no historical resources within the boundaries of the Project site. Four historic-era linear resources were identified within the gen-tie corridor: P-39-005337 (the Tesla-Salado-Manteca 115-kV Transmission Line), the TLBTL, the TM230TL, and the TM500TL. None are eligible for listing in the CRHR and therefore do not qualify as historic resources.

Two historic era-built environment resources with undetermined CRHR eligibility status are located outside of, but adjacent to, the Project site: the Haera-Brockman-Griffith Ranch (P-01-10500), which is no longer extant, and a recent historic in-use wooden transmission line that has

been maintained and updated with new poles since 1947. Although they remain unevaluated, both resources likely do not qualify as historic resources under CEQA based on lack of historic integrity: the ranch because its buildings are no longer extant, and the transmission line because it has been modified with new materials since 1947. The Project would avoid these resources and, therefore, have no direct impact on these resources. Furthermore, the Project is not anticipated to have an adverse visual impact on the setting of these resources based the current visual setting of the area, which contains several existing transmission line towers, poles, a substation, buildings, and roads. Project elements would be 6 to 10 feet tall, shorter than other elements in the vicinity, which include the PG&E Tesla Substation and at least four transmission lines. Additionally, the Project would be contained within only an estimated 32 acres of the overall parcel, about 0.2 miles to the south-southeast of P-01-10500, further minimizing its potential visual impact to the already impacted setting.

Therefore, the Project would have a less than significant impact to a historical resource or unique resource pursuant to Section15064.5.

Mitigation: None required.

IMPACT 4.5-2: *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section15064.5?* **(Less than Significant Impact with Mitigation Incorporated)**

No archaeological resources were identified within the Project site that meet the CEQA's definition of a significant archaeological resource pursuant to Section15064.5.

Construction of the Project could potentially impact previously unidentified, buried archaeological resources. Based on the natural setting, landforms, records search results, NAHC SLF results, field survey, known site density, and disturbance to native soils, the Project area is assessed as having a low sensitivity for buried archaeological resources. Despite the low sensitivity, there is a possibility that buried archaeological deposits may be encountered during Project-related subsurface excavation.

Mitigation: If previously unidentified archaeological resources are discovered during ground-disturbing activities during construction, the Project may have significant impacts. To reduce potential impacts, **Mitigation Measures CUL-1**, which requires worker awareness training regarding tribal and cultural resources, and **CUL-2**, the inadvertent discovery plan for cultural resources, should be implemented. Thus, the Project would have less than significant impacts to historic and archaeological resources with the implementation of **Mitigation Measures CUL-1** and **CUL-2**.

IMPACT 4.5-3: *Would the project disturb any human remains, including those interred outside of formal cemeteries?* **(Less than Significant Impact)**

No human remains or cemeteries were identified within the Project site as a result of the record searches, NAHC SLF search, AB 52 notification (see Section 4.16), and pedestrian field survey.

Existing regulations require that, if human remains and/or cultural items defined by Health and Safety Code, Section 7050.5, are inadvertently discovered, all work in the vicinity of the find would

cease and the Alameda County or San Joaquin County (depending on the county where the item is identified) Coroner would be contacted immediately. If the remains are found to be Native American as defined by Health and Safety Code, Section 7050.5, the coroner will contact the NAHC by telephone within 24 hours.

Mitigation: None required.

4.5.6 Mitigation Measures

The following mitigation measures are recommended to reduce significant impacts to cultural and tribal resources.

CUL-1. Cultural Resource Worker Education/Training: Prior to Project construction-related, ground disturbing activities (e.g., vegetation removal, excavation, trenching, grading), a cultural resource worker education awareness program shall be conducted for Project construction personnel. A qualified archaeologist pre-approved by San Joaquin County will be retained to prepare the initial cultural resource briefing of the worker education awareness program prior to ground disturbing activities. During construction, the training will be provided to all new construction personnel. The cultural resource training will include:

- An overview of applicable laws and penalties pertaining to disturbing cultural resources;
- A brief discussion of the prehistoric and historic regional context and archaeological sensitivity of the area;
- Types of cultural resources found in the area;
- Instruction that Project workers will halt construction if a cultural resource is inadvertently discovered during construction; and
- Procedures to follow in the event an inadvertent discovery (Inadvertent Discovery Plan discussed below) is encountered, including appropriate treatment and respectful behavior of a discovery (e.g., no posting to social media or photographs).

CUL-2. Inadvertent Discovery of Archaeological Resources During Construction: A qualified archaeologist pre-approved by San Joaquin County shall prepare an Inadvertent Discovery Plan for the Project. The Inadvertent Discovery Plan will provide protocols and notification procedures in the event of an inadvertent discovery. During Project construction (e.g., ground disturbing activities, such as vegetation removal, excavation, trenching, grading), should subsurface archaeological resources be discovered, all ground disturbing activities within 50 feet of the find shall cease and the qualified archaeologist shall be contacted to assess the significance of the find according to CEQA Guidelines Section 15064.5. If any find is determined to be significant, the archaeologist shall determine, in consultation with the implementing agencies and any local consulting Native American groups expressing interest, appropriate avoidance measures or other appropriate mitigation. Under CEQA Guidelines Section 15126.4(b)(3), preservation in place shall be the preferred means to avoid impacts to archaeological resources qualifying as historical resources. Methods of avoidance may include, but shall not be limited to, Project reroute or redesign, or identification of protection measures, such as capping or fencing. Consistent with CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures, such as data recovery or other appropriate measures, in consultation with the implementing agency

and any local consulting Native American representatives expressing interest in prehistoric or tribal resources. If an archaeological site does not qualify as a historical resource but meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site shall be treated in accordance with the provisions of Section 21083.2. If inadvertent discoveries are identified, all findings and treatments shall be documented in a cultural resources report that is submitted to San Joaquin County.

4.5.7 PG&E Tesla Substation Improvements

To accommodate the Project, PG&E would be responsible for siting, design and construction of the gen-tie transmission line from the point of change of ownership (POCO) to their substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a below ground line as shown in Figure 2-1 of Chapter 2, Project Description. Either ROW corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

Through the implementation of **Mitigation Measures CUL-1 and CUL-2,** these improvements would not have a substantial adverse effect on any tribal or cultural resources, and no additional mitigation measures would be required.

4.5.8 Cumulative Impacts

Cumulative impacts to historic properties consider the impact of the proposed Project in connection with past or related future projects. The CEQA Guidelines define a cumulative impact as two or more individual effects which, when considered together, are considerable, or which compound or increase other environmental impacts. When analyzing cumulative impacts to cultural resources, an assessment is made of impacts on individual resources as well as the inventory of cultural resources within the cumulative impact analysis area. The cumulative area for cultural resources is the Project area and the Altamont Hills area. This geographic scope of analysis is appropriate because the cultural resources within this area are expected to be similar to those that occur on the Project area due to their proximity and because the similar environments, landforms, and hydrology would result in similar land-use and resource types.

The Project area and the surrounding area of the Altamont Hills are within an energy infrastructure corridor and the Altamont Pass Wind Resource Area. The Project area is adjacent to the Tesla substation, and the general vicinity has been impacted visually by multiple large transmission line corridors: over 4,000 wind turbines of varying sizes and styles dot the hills, various roads, and the railroad alignment. Thus, implementation of the proposed Project is not anticipated to contribute to cumulative impacts to historical resources and would result in a less than significant impact.

Development of the proposed Project, in combination with other cumulative projects in the area, has the potential to contribute to a cumulatively significant cultural resources impact due to the

potential loss of historical resources, archaeological resources, and human remains unique to the region. However, mitigation measures are included in this EIR to reduce potentially significant impacts to unknown historical/archaeological resources and human remains that could be encountered during construction of the proposed Project. Implementation of **Mitigation Measures CUL-1** and **CUL-2** as discussed in Section 4.5.6 would mitigate impacts to cultural resources to be less than significant, and compliance with existing regulations would ensure that any impacts to human remains would be less than significant. In addition, cultural resources that are potentially affected by related or future projects would be subject to the same requirements of the CEQA and the laws and regulations discussed above in Section 4.5.2, *Regulatory Setting*. Therefore, the Project would contribute to a less than significant cumulative impact to cultural resources.

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4.6 ENERGY

This section identifies and evaluates issues related to energy in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. A Project-specific energy evaluation was completed using information from the Air Quality and Greenhouse Gas Technical Report for the Project, included as Appendix D to this Draft Environmental Impact Report (EIR). The results of the energy evaluation are included below. San Joaquin County (County) did not receive any scoping comments related to energy.

4.6.1 Existing Conditions

This section provides an evaluation of existing energy production and consumption conditions and potential energy use and related impacts from the Project. Total energy usage in California was 6,923 trillion British thermal units (Btu) in 2020 (the most recent year for which specific data are available), which equates to an average of 175 million Btu per capita. These figures place California second among the nation's 50 states in total energy use and 48th in per capita consumption (EIA 2021).

4.6.1.1 State Energy Supply

Electricity needs in California are satisfied by various entities, including publicly owned utilities, investor-owned utilities, electric service providers, and choice aggregators. In 2021 (the last year for which updated information is available), total system electricity generation for California was 277,764 gigawatt-hours (GWh), up 2 percent from 2020's total generation of 272,576 GWh. In 2021, California's in-state electricity generation was derived from natural gas (50.2 percent); nuclear (8.5 percent); large hydro (6.2 percent); oil and coal (less than 1 percent); and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (34.8 percent). Of the approximately 194,127 GWh generated from renewable sources in the state, solar-generated electricity made up the highest proportion (49 percent), followed by wind (23 percent), geothermal (16 percent), biomass (8 percent), and small hydroelectric (4 percent) (CEC 2021).

Local Energy Supply—Pacific Gas and Electric

Pacific Gas and Electric (PG&E) is an investor-owned utility company that provides electricity supplies and services to approximately 16 million people throughout a 70,000-square-mile service area that includes San Joaquin County and extends from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada mountains in the east.

PG&E provides electricity to the 6 million customers in its service territory, including residential, commercial, industrial, and agricultural consumers. In 2020, PG&E generated and/or procured a total of 35,838 GWh of electricity.[1] Of this total, PG&E owns approximately 7,662 MW of

[1] This amount excludes electricity provided to direct access customers and Community Choice Aggregation entities who procure their own supplies of electricity.

generating capacity, itemized below. The remaining electrical power is purchased from other sources in and outside of California.

In San Joaquin County, approximately 5,608.1 GWh of electricity was consumed in 2021, with approximately 3,482.7 GWh consumed by nonresidential uses (CEC 2022a).

4.6.1.2 Transportation Fuels

According to the California Energy Commission (CEC), energy use associated with automobiles and trucks includes the consumption of gasoline and diesel fuel, which are nonrenewable energy products derived from crude oil, which in turn is derived from petroleum. Energy is also consumed in connection with construction and maintenance of transportation infrastructure used by automobiles and trucks. Passenger cars and light-duty trucks are by far the largest consumers of transportation fuel. Retail sales of transportation fuel in California totaled 13.8 billion gallons of gasoline and 1.6 billion gallons of diesel in 2021 (CEC 2022b).

Statewide, there was an overall decrease in gasoline and diesel consumption in 2020 and 2021 due to the economic shutdown associated with the COVID-19 outbreak.

The CEC estimates that 321 million gallons of gasoline was sold in 2021 in San Joaquin County (CEC 2022b).

4.6.2 Regulatory Setting

4.6.2.1 Federal

National Energy Conservation Policy Act

The National Energy Conservation Policy Act (42 United States Code [U.S.C.] § 8201 et seq.) provides federal energy management goals and requirements and establishes energy efficiency standards for new construction.

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 (42 U.S.C. § 13201 et seq.) sets equipment energy efficiency standards and provides incentives to reduce current demand on nonrenewable energy resources. For example, the act provides for federal tax credits for purchasing fuel-efficient appliances, hybrid vehicles, and constructing energy efficient buildings. The act includes incentives for renewable energy production, including solar power.

Energy Independence and Security Act of 2007

The Energy and Independence Security Act of 2007 (42 U.S.C. § 17001) includes key provisions related to fleet vehicle fuel economy, renewable fuel standard goals, including ethanol and other advanced biofuels, and appliance and lighting efficiency standards.

Inflation Reduction Act of 2022

The Inflation Reduction Act (IRA) of 2022 will make the single largest investment in climate and energy in American history. The IRA enables the U.S. to tackle the climate crisis, advance environmental justice, secure the U.S.' position as a world leader in domestic clean energy

manufacturing, and put the U.S. on a pathway to achieving the Biden Administration's climate goals, including a net-zero economy by 2050.

4.6.2.2 State

Warren-Alquist Act

The 1975 Warren-Alquist Act (Public Resources Code § 25000 et seq.) established the California Energy Resources Conservation and Development Commission, now known as the CEC. The act established a state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures.

Renewables Portfolio Standard

California's Renewables Portfolio Standard (RPS) Program was enacted in 2002 with Senate Bill (SB) 1078 and accelerated in 2006, requiring investor-owned utilities to obtain 20 percent of their electric supply from renewable energy sources, such as solar, by 2010. On April 12, 2011, Governor Brown signed SB 2X, requiring California retail electric providers, such as PG&E, to procure 33 percent of their retail energy sales from eligible renewable sources by 2020. In October 2015, Governor Brown signed into legislation SB 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030 (CPUC 2021a).

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also created new standards for the RPS goals that were established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned and publicly owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers also are required to have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350. Governor Brown signed Executive Order B-55-18 with a new statewide goal to achieve carbon neutrality (i.e., net-zero GHG emissions) by 2045 and to maintain net negative emissions thereafter.

On September 16, 2022, Governor Newsom signed SB 1020, the Clean Energy, Jobs and Affordability Act, which adds interim targets to the policy framework originally established in SB 100. The interim targets require renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035 and 95 percent of all retail electricity sales by 2040. The bill also requires all state agencies to rely on 100 percent renewable energy and zero-carbon resources to power their own facilities by 2035 and encourages better information sharing and coordination between agencies for transmission planning.

Energy Storage

Assembly Bill (AB) 2514, passed in 2010, resulted in the CPUC setting a 1,325-megwatt (MW) storage target by 2020 for investor-owned utilities. The three major investor-owned utilities in the state, including PG&E, have exceeded the AB 2514 target of 1,325 MW. AB 2868, passed in 2016, requires California's three major investor-owned utilities to propose programs and

investments for up to an aggregate 500 MW (i.e., 166.6 MW each) of distributed energy storage systems, above and beyond the 1,325 MW target for energy storage (CPUC 2021b).

Energy Efficient Building Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings specified in Title 24, Part 6 of the California Code of Regulations include requirements for nonresidential building lighting, insulation, ventilation, and mechanical systems (CEC 2018). Its provisions would be relevant to the Project's proposed operations and maintenance (O&M) building.

The California Green Building Standards Code (CALGreen, Title 24, Part 11) is a statewide regulatory code for all buildings. CALGreen is intended to encourage more sustainable and environmentally friendly building practices, require use of low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy efficient materials and equipment (CBSC 2019).

4.6.3 Impact Analysis Methodology

Construction and operational energy use were calculated using on-road vehicle trips and distances and the off-road equipment use as described in Section 4.3, *Air Quality*. Fuel consumption factors, in terms of gallons of diesel and gasoline per mile of travel, were calculated by converting the total carbon dioxide (CO_2) emissions to fuel gallons using conversion factors for CO_2 to gallons of diesel and/or gallons of gasoline. The conversion factor for diesel is 10.21 kilograms CO_2 per gallon and the conversion factor for gasoline is 19.2 kilograms CO_2 per gallon (The Climate Registry 2022).

4.6.4 Thresholds of significance

A project would result in significant impacts to energy resources if it would:

a) *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or*

b) *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.*

The 2022 California Environmental Quality Act (CEQA) Guidelines Appendix F, *Energy Conservation,* provides guidance for EIRs regarding potential energy impacts of proposed projects, with a particular emphasis on avoiding or reducing the inefficient, wasteful, and unnecessary consumption of energy and increasing resilience on renewable energy sources. In addition, though not described as thresholds for determining the significance of impacts, Appendix F seeks inclusion of information in an EIR addressing the following topics:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project, including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.

- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

4.6.5 Impact Analysis

IMPACT 4.6-1: *Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?* **(Less than Significant Impact)**

Construction

Construction equipment would comply with federal, state, and regional requirements where applicable. With respect to truck fleet operators, the USEPA and National Highway Traffic Safety Administration have adopted fuel efficiency standards for medium- and heavy-duty trucks. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018 and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. The USEPA and the National Highway Traffic Safety Administration also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline, depending on the compliance year and vehicle type. These regulations would have an overall beneficial effect on reducing fuel consumption from trucks over time as older trucks are replaced with newer models that meet these standards.

In addition, construction equipment and trucks are required to comply with California Air Resources Board regulations regarding heavy duty truck idling limits of 5 minutes at a location and the phase-in of off-road emission standards that result in an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines. These regulations are intended to reduce criteria pollutant emissions; however, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy.

Fuel consumption from construction equipment was conservatively estimated by converting the total CO_2 emissions from the construction phase to gallons using conversion factors for CO_2 to gallons of diesel. The conversion factor for diesel is 10.21 kilograms CO_2 per gallon (The Climate Registry 2022). The Project would emit 2,307 metric tons of CO_2 (2,307,000 kilograms) annually during construction, as calculated in the Air Quality and Greenhouse Gas Technical Report for the Project, included as Appendix D to this EIR. This equates to 225,924 gallons of diesel fuel, if all of the CO_2 is conservatively assumed to be emitted from diesel equipment. If all 2,307 metric tons of CO_2 were associated with gasoline consumption, the conversion factor for gasoline is 19.2 kilograms per gallon (The Climate Registry 2022), equating to 120,156 gallons of gasoline consumption.

Operations

The Project would assist the State of California in achieving or exceeding its RPS and GHG emissions reduction objectives by developing and constructing a new California BESS to store renewable energy, which also would help in achieving or exceeding its energy storage mandates. Net consumption of electricity associated with efficiency loss of equipment would be negligible during operation of the Project.

Fuel consumption from operations is expected to be minimal, as the facility would be unstaffed and would require minimal vehicle usage for O&M. The Project would emit 13.6 metric tons of CO_2 (13,600 kilograms) annually during operations, as calculated in the Air Quality and Greenhouse Gas Technical Report for the Project, included as Appendix D to this EIR. Assuming operational CO_2 would primarily be emitted from worker vehicles, 13.6 metric tons of CO_2 equates to 708 gallons of gasoline consumption, using the 19.2 kilograms per gallon conversion factor (The Climate Registry 2022). As a battery storage project that absorbs energy during periods of increased energy production and releases energy during peak demands for energy, the Project would have a positive effect on the peak and base period system demands for electricity.

As described above, the activities associated with construction of the Project are conservatively estimated to consume a total of 225,924 gallons of diesel fuel annually during construction. Fuel used during operations is calculated to be 708 gallons of gasoline per year). By comparison, the amount of petroleum consumed in the state of California was 13.8 billion gallons of gasoline and 1.6 billion gallons of diesel in 2021 (CEC 2022b). As a result, the proposed Project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation.

Mitigation: None required.

IMPACT 4.6-2: *Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?* **(No Impact)**

The proposed Project would assist the State of California in achieving or exceeding its RPS and GHG emissions reduction objectives by developing and constructing a new California BESS to store renewable energy, which would also help the state in achieving or exceeding its energy storage mandates. As an energy storage facility, the Project would be consistent with the Clean Air Plan Energy Control Measure EN1, *Decarbonize Electricity Production*, which supports local renewable energy programs and strives to maximize the amount of renewable energy produced and used for electricity in the Bay Area (BAAQMD 2017). The Project would not conflict or obstruct with a state or local plan for renewable energy or energy efficiency.

Mitigation: None required.

4.6.6 PG&E Tesla Substation Improvements and Gen-tie

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a

belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

Thus, the improvements would not be wasteful or cause unnecessary usage of energy. Additionally, the PG&E improvements would not conflict with any plans or policies for renewable energy or energy efficiency. Therefore, the improvements would have no impact on energy usage. No mitigation would be required.

4.6.7 Cumulative Impacts

There would be no impact with respect to conflicts with or obstructions to a state or local plan for renewable energy or energy efficiency. Therefore, the Project would not cause or contribute to any potential significant cumulative impact related to these conflicts.

The Project would use energy resources during construction, O&M, and decommissioning; therefore, it could contribute to potential cumulative impacts during any of these phases.

The Project would improve grid reliability that could serve the cumulative demand, such that the Project would not contribute to or worsen an existing significant adverse condition. The Project would assist California utilities in meeting their obligations under state energy storage targets and the CPUC's energy storage program. No significant adverse cumulative effect would result relating to electricity use; instead, a beneficial cumulative impact on energy resources would result.

The geographic context for potential cumulative impacts related to vehicle fuel use is within the Project's construction equipment delivery and average travel radius of up to 34 miles for workers and up to 40 miles for materials, since these are the areas within which energy resources would be demanded and supplied for the Project.

There is no existing significant adverse condition of fuel use (such as a shortage) to which the Project would contribute or worsen. Past, present, and reasonably foreseeable future projects within 34 to 40 miles of the Project site could require gasoline or diesel, but would not combine with the fuel demands of the Project to cause a significant adverse cumulative impact relating to the wasteful, inefficient, or unnecessary consumption or use of fuel. In the event of a future fuel shortage, higher fuel prices would reduce trips that could be termed "wasteful" and would moderate choices regarding vehicles, equipment, and fuel efficiency. The Project's less than significant impact relating to wasteful, inefficient, or unnecessary consumption or use of fuel would not be cumulatively considerable.

4.6.8 References

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4.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

This discussion identifies and evaluates potential impacts related to geology, soils, and paleontological resources in relation to the Griffith Energy Storage Project (Project). The Project site includes the proposed facility and the generation tie (gen-tie) line corridor (including both the Applicant portion and the portion for which Pacific Gas and Electric [PG&E] will be responsible). The discussion below provides a description of the physical and regulatory setting, the criteria used to evaluate significance of impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) received no scoping comments regarding geology, soils, and paleontological resources.

4.7.1 Existing Conditions

4.7.1.1 Regional Geology

The Project site, including the gen-tie corridor, is located on the eastern edge of the Coastal Ranges geomorphic province, not far from the boundary with the Great Valley geomorphic province. The Coastal Ranges province includes a number of named mountain ranges, including the Diablo Range east of the San Francisco Bay Area. The Project site and gen-tie corridor are situated on the eastern flank of the Diablo Range, where the topography is rolling hills and the local relief is just over 170 feet from the highest to lowest point.

The Great Valley geomorphic province is a mostly intact (i.e., with limited deformation in the central areas), asymmetric structural trough that has been filled with two thick sequences of sediment deposits. These deposits range in age from the Quaternary to the Jurassic period (CGS 2002). The two sequences are the older Mesozoic Great Valley Sequence and the younger Cenozoic Great Valley fill. The Diablo Range portion of the Coastal Ranges province extends from the northern boundary of Contra Costa County to Watsonville in the south, a length of over 80 miles. The topographic features have resulted from the long history of plate movement and collision along the Pacific Coast and subsequent folding and faulting (Bartow 1991).

4.7.1.2 Local Geology

The available sources for geologic mapping in the vicinity of the Project location include Dibblee (1980), Wagner et al. (1991), and the general online map provided by the California Geological Survey (CGS) (Jennings et al. 2010). They characterize the local geology as quite complex, resulting from plate movements and mountain building to the west that has resulted in various geologic “assemblages” (large, fault-bounded blocks containing a unique stratigraphic sequence of different rock units). The assemblages are characterized as primarily Tertiary and overlying older sedimentary rocks from the Cretaceous Great Valley sequence. The assemblage identified in the Project area consists of a poorly consolidated silt, sand, and gravel unit (Pliocene age), Neroly Sandstone (a blue sandstone of Miocene age), and Cierbo Sandstone (a light gray to white quartz sandstone of Miocene age). All of these units overlie various siltstones, mudstones, and sandstones (Great Valley members of Cretaceous age).

In the Project site and gen-tie corridor, the most generic mapping (Jennings et al. 2010) shows the Tertiary and Cretaceous rock units covered by more recent Quaternary sediment (see Figure 4.7-1). Table 4.7-1 provides descriptions for all the rock units shown on the map. Of particular importance are the four rock units that are present at or in the vicinity immediately surrounding the Project Site (Q, QPc, M, and Ku). Note the first two of these (Q, QPc) are Quaternary age deposits of unconsolidated or loosely consolidated sediments. The more detailed mapping by Dibblee (1980) and Wagner et al. (1991) provide a better picture of the underlying bedrock geology, which can occur at the surface or under a thin (2- to 6-foot) covering of sediment (Figure 4.7-2).

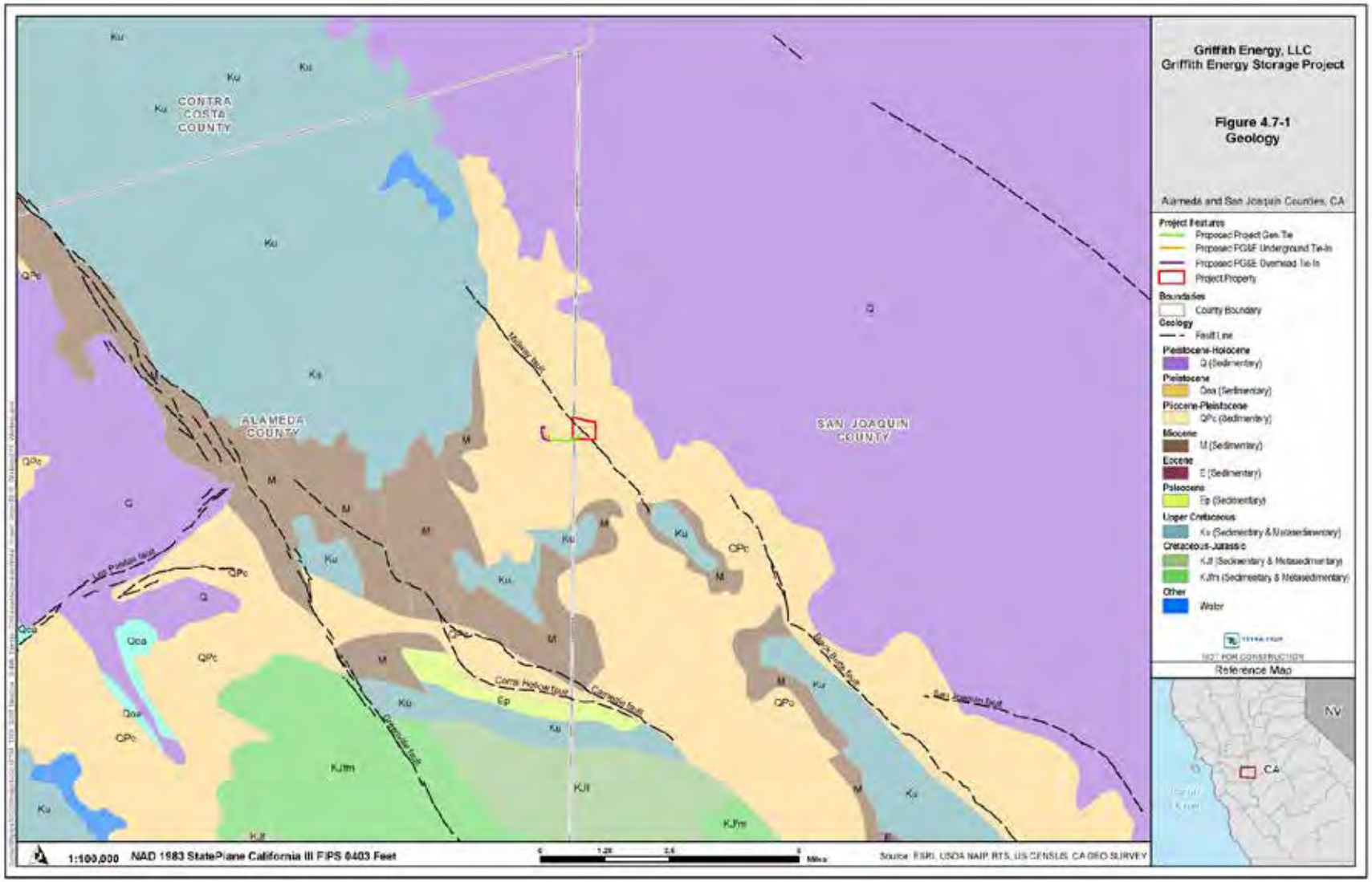


Figure 4.7-1. Geology

Table 4.7-1. Geologic Units in the Vicinity of the Project Site

ID	Age	Description
Quaternary		
Q	Pleistocene-Holocene	Marine and non-marine (continental) sedimentary rocks. Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly non-marine, but includes marine deposits near the coast.
Qoa	Pleistocene	Marine and non-marine (continental) sedimentary rocks. Older alluvium, lake, playa, and terrace deposits.
QPc	Pliocene-Pleistocene	Non-marine (continental) sedimentary rocks. Pliocene and/or Pleistocene sandstone, shale, and gravel deposits; mostly loosely consolidated.
Tertiary		
M	Miocene	Marine sedimentary rocks. Sandstone, shale, siltstone, conglomerate, and breccia; moderately to well consolidated.
E	Eocene	Marine sedimentary rocks. Shale, sandstone, conglomerate, minor limestone; mostly well consolidated.
Ep	Paleocene	Marine sedimentary rocks. Sandstone, shale, and conglomerate; mostly well consolidated.
Mesozoic		
K	Cretaceous	Marine sedimentary and metasedimentary rocks. Sandstone, shale, and conglomerate.
Ku	Upper Cretaceous	Marine sedimentary and metasedimentary rocks. Sandstone, shale, and conglomerate.
Kl	Lower Cretaceous	Marine sedimentary and metasedimentary rocks. Sandstone, shale, and conglomerate.
KJf	Cretaceous-Jurassic	Marine sedimentary and metasedimentary rocks. Franciscan Complex: Cretaceous and Jurassic sandstone with smaller amounts of shale, chert, limestone, and conglomerate. Includes Franciscan mélange, except where separated - see KJfm.
KJfm	Cretaceous-Jurassic	Marine sedimentary and metasedimentary rocks. Mélange of fragmented and sheared Franciscan Complex rocks.
M	Miocene	Marine sedimentary rocks. Sandstone, shale, siltstone, conglomerate, and breccia; moderately to well consolidated.
um	Mesozoic	Plutonic rocks, including metamorphic. Ultramafic rocks, mostly serpentine. Minor peridotite, gabbro, and diabase.

Source: Jennings et al. 2010

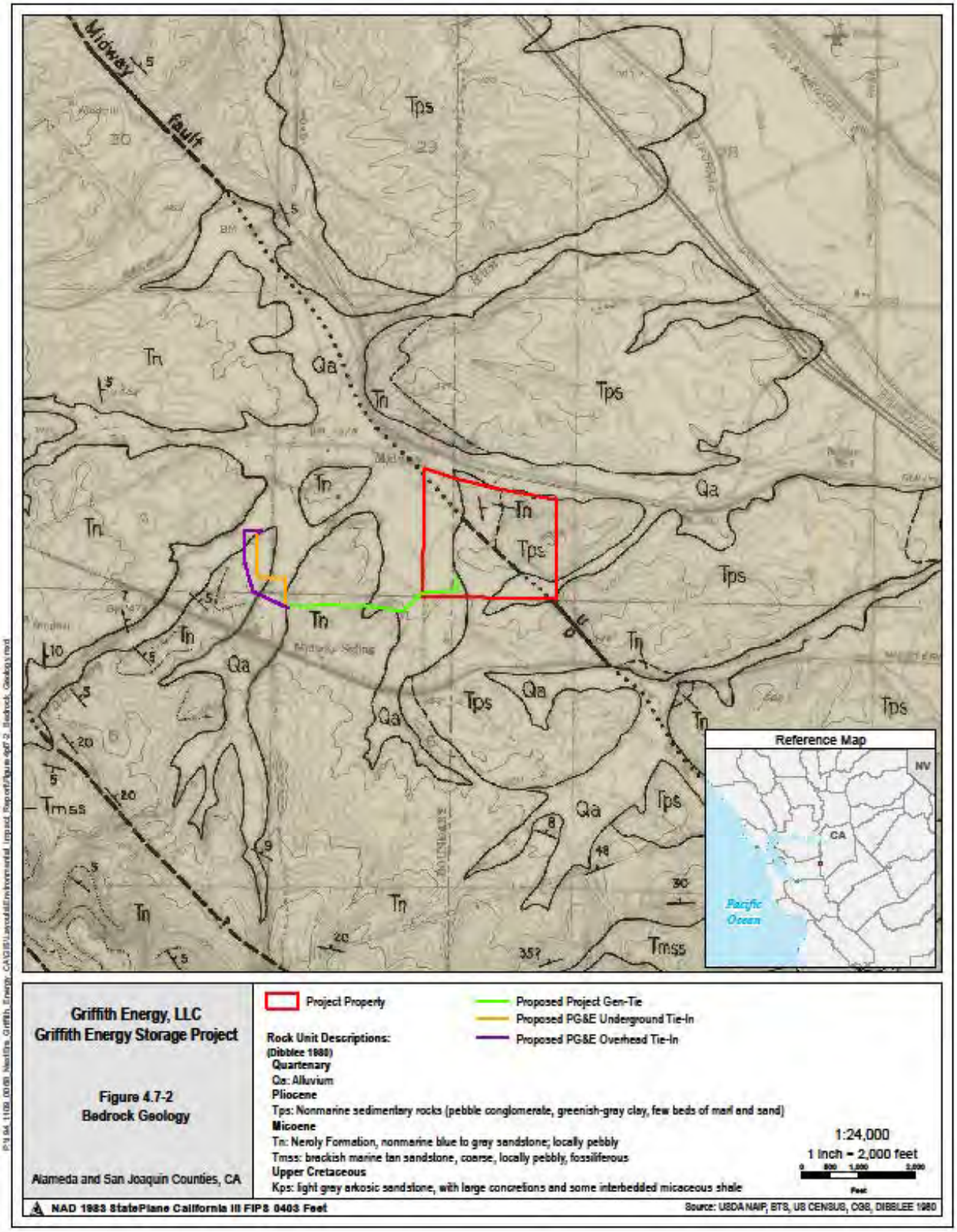


Figure 4.7-2. Bedrock Geology

4.7.1.3 Geologic Hazards

Seismicity

The Alquist-Priolo Earthquake Fault Zoning Act (1972) and the Seismic Hazards Mapping Act (1990) require the State Geologist to delineate regulatory "Zones of Required Investigation" for active faults. It also established a standardized classification of known and mapped faults in California, by their period of activity:

- Historic faults (faults considered to be “active” faults because they have evidence of displacement within the last 200 years);
- Holocene faults (faults which have evidence of displacement greater than 200 years ago but less than 11,700 years);
- Late Quaternary faults (older faults with evidence of displacement between 11,700 years ago and 700,000 years ago); and
- Quaternary faults (oldest faults with undifferentiated age of displacement, but presumably more than 700,000 years ago).

There are no known Historic or “active” faults within the Project site (CGS 2010) or gen-tie corridor. There are two faults in the area (Greenville and Las Positas) that are identified as Historic, and these are Fault Zones of Required Investigation. However, they are located more than 7 miles west of the Project site. There is one Late Quaternary fault (Midway), which actually traverses the northeast quadrant of the Project site. Finally, there are two Quaternary faults, the Black Butte Fault and the Corral Hollow Fault, located about 3 to 4 miles southwest of the Project site. Only the Greenville and Las Positas fault zones are listed as Alquist-Priolo Earthquake Fault Zones, while the Midway, Corral Hollow, and Black Butte faults, because of their age, are not.

Surface Fault Rupture

The Project site and gen-tie corridor do not intersect an established Alquist-Priolo Earthquake Fault Zone, as mapped by the State Geologist (Jennings et al. 2010). The nearest fault that has been designated an Earthquake Fault Zone (i.e., there is evidence of surface rupture sometime in the last 11,700 years) is the Greenville fault zone (over 5 miles west-southwest of the Project site). Although there are other mapped faults in the area (including the Midway fault which traverses the Project site), none of these faults show evidence of movement within the last 11,700 years.

The U.S. Geological Survey and CGS developed a version of the Uniform California Earthquake Rupture Forecast (UCERF3) model to evaluate the likelihood of surface rupture caused by an earthquake (Field et al. 2014). The UCERF3 results are available in a Google Earth file, showing the probability of an earthquake with a magnitude of 6.7 or greater on the Richter scale for specific faults or fault zones. The model results for the Greenville fault zone suggest the probability is between 1 percent and 8 percent of such an earthquake occurring within the next 30 years. The model also provides results for the Great Valley Fault (roughly equivalent with the Black Butte fault), suggesting a probability of less than 1 percent that a magnitude 6.7 or greater will occur within the next 30 years. Therefore, the probability of surface rupture caused by an earthquake near the Project is low.

Seismic Ground Shaking

Ground shaking occurs due to a seismic event and can cause extensive damage to life and property and may affect areas hundreds of miles away from the earthquake's epicenter. The extent of the damage varies by event and is determined by several factors, including (but not limited to) magnitude and depth of the earthquake, distance from the epicenter, duration and intensity of the shaking, underlying soil and rock types, and integrity of structures. The San Francisco Bay Area is seismically active, and moderate to severe ground shaking in the region is possible. However, the UCERF3 model results discussed above suggest that the probability of significant ground shaking caused by an earthquake near the Project site is relatively low.

Liquefaction

Liquefaction occurs during strong seismic shaking in locations with unconsolidated sediments that are saturated with water. This combination of conditions and action can cause the ground to become unstable. During an earthquake, sediments under these conditions can behave like a liquid, potentially causing severe damage to overlying structures. Lateral spreading is a type of landslide that can occur when unconsolidated liquefiable materials break and spread due to the effects of gravity, usually down gentle slopes. Liquefaction-induced lateral spreading is the finite, lateral displacement of gently sloping ground due to pore-pressure buildup or liquefaction in a shallow, underlying deposit during an earthquake. This phenomenon's occurrence depends on many complex factors, including the intensity and duration of ground shaking, the particle-size distribution of the soil, its density, and shallow groundwater presence.

The soil parent material in both the Project site and the gen-tie corridor is unconsolidated alluvium, and the soils are all very fine-grained (clays to clay loams) and generally very cohesive. Therefore, the potential for liquefaction is expected to be low.

Landslides

Landslides occur when rock, soil, and other debris are displaced by gravity. The potential for material to detach and move down slope depends on multiple factors, including the type of soils, soil moisture content, and the steepness of the terrain. The existing land surface at the Project site has rolling hills and moderate topographic relief (approximately 170 feet of elevation difference).

There are no mapped landslides on or around the site or the gen-tie route (DOC 2021). Therefore, landslides in the native materials at the Project site do not normally occur.

Subsidence

Land subsidence is the gradual settling or sudden sinking of the earth's surface due to subsurface movement of earth materials. Compaction of subsurface water-containing geologic layers is the primary cause of land subsidence. Regional ground subsidence typically is caused by compaction of subsurface geology as a result of petroleum or groundwater withdrawal. Subsidence has been documented in some areas of the San Joaquin Valley as well as the Sacramento/San Joaquin Delta. However, there are no areas of subsidence identified in the Diablo Range, including the vicinity of the Project site and gen-tie corridor (USGS 2022).

4.7.1.4 Soils

The Natural Resources Conservation Service (NRCS) describes the Project site "bedrock" (i.e. the soil parent material) as alluvium derived from sedimentary rock, sandstone, shale, and siltstone (NRCS 2022), with the key word being "alluvium." Given this, these soils were presumably developed on unconsolidated Quaternary sediment. Figure 4.7-3 shows the mapped soil units in and around the Project site and gen-tie corridor. Three of these soils are found within the Project site boundaries; their descriptions and approximate aerial extent are provided below.

114 Calla-Carbona Complex, 8 to 30 percent slopes (29.9 percent of the site). This is a roughly equal combination of Calla clay loam and Carbona clay loam. Both soils are considered very deep and well drained. Permeability is noted as slow to moderately slow in both soils, with rapid runoff and a severe water-erosion hazard. Only the Carbona side of the soils in this complex (not the Calla soils) are noted as having a high shrink-swell potential.

115 Calla-Carbona Complex, 30 to 50 percent slopes (33.5 percent of the site). This is the same soil complex as described above, only they are situated on steeper slopes. Therefore, both soils in the complex are deep and well drained. However, because of the steeper slopes, the complex would have more rapid runoff and more severe water-erosion hazard than on shallower slopes. Shrink-swell potential is, again, only noted as high in the Carbona soil (not the Calla soil).

123 Carbona clay loam, 2 to 8 percent slopes (36.6 percent of the site). This soil is a well-drained and very shallow-sloped clay loam. Primarily due to its shallow slopes, this soil has a slow runoff rate and only a slight hazard for water erosion. Finally, the shrink-swell potential of this soil, as for all Carbona soils, is considered to be high.

In addition, three soils identified separately in the Soil Survey for Alameda County are found within the gen-tie corridor boundaries; their descriptions are provided below.

CdB Clear Lake clay (3 to 7 percent slopes) is a moderately well-drained clay with a typical two-horizon profile that extends to a depth of 65 inches. This soil is characterized as having high shrink-swell potential.

LaC Linne clay loam (3 to 15 percent slopes) is a well-drained clay loam with a typical two-horizon profile that extends to a depth of 40 inches. This soil is characterized as having low shrink-swell potential.

RdA Rincon clay loam (0 to 3 percent slopes) is a well-drained clay loam with a soil profile that typically has three horizons and can extend to a depth of 60 inches. This soil is characterized as having high shrink-swell potential.

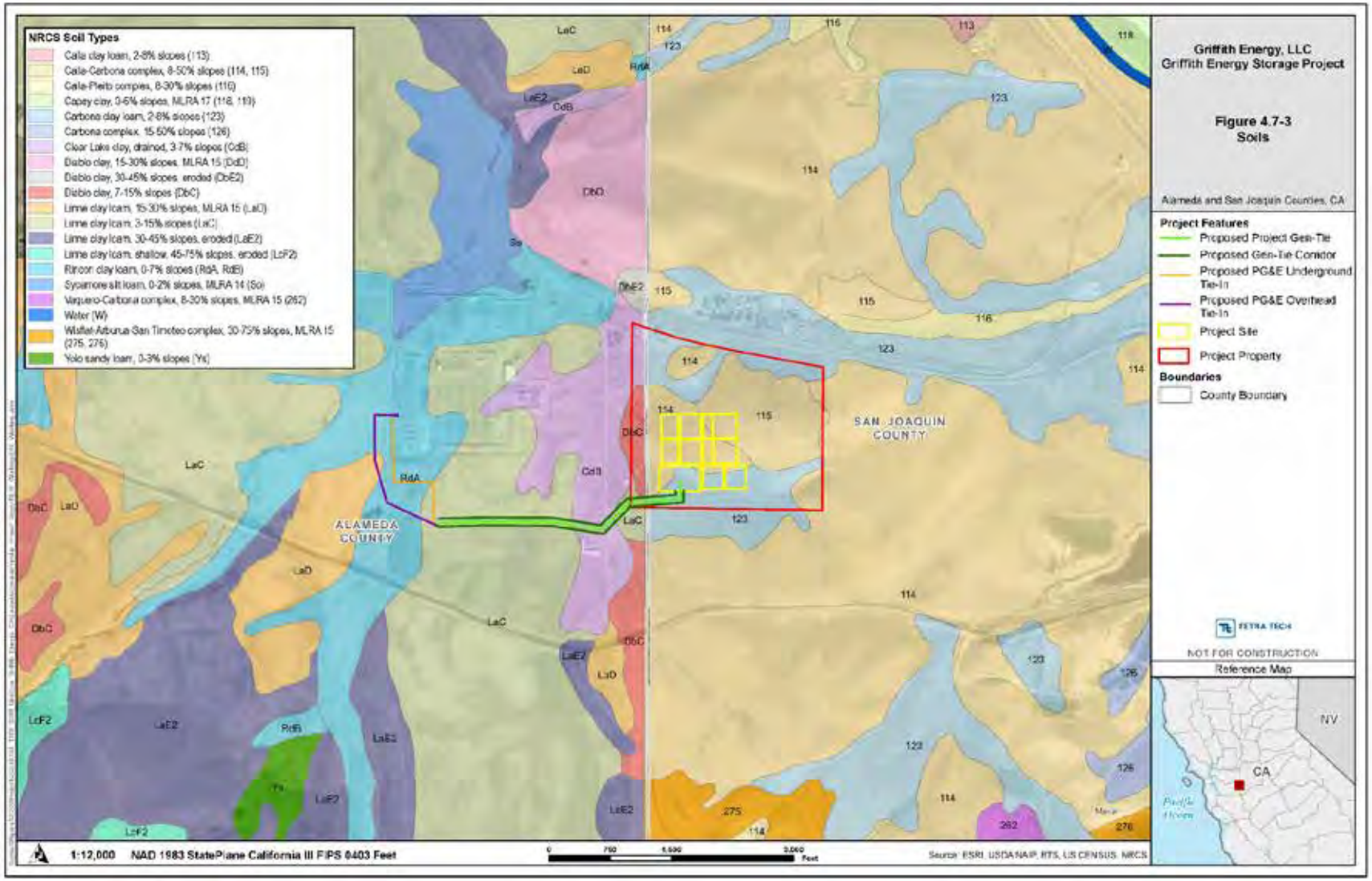


Figure 4.7-3. NRCS Soils Map

4.7.1.5 Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (animals without backbones), and microscopic plants and animals (microfossils), and can include mineralized body parts, body impressions, or footprints and burrows. They are valuable, non-renewable, scientific resources used to document the existence of extinct life forms and to reconstruct the environments in which they lived. Fossils can be used to determine the relative ages of the depositional layers in which they occur and of the geologic events that created those deposits. The age, abundance, and distribution of fossils depend on the geologic formation in which they occur and the topography of the area in which they are exposed. The geologic environments within which plants or animals became fossilized usually were quite different from the present environments in which the geologic formations exist.

A preliminary paleontological review was made of published geologic maps, literature, and aerial imagery relevant to the Project site and gen-tie corridor. In addition, a search was performed by University of California Museum of Paleontology (UCMP) personnel to identify previous fossil finds near the Project area using their fossil locality database (Holroyd 2022). Results of this preliminary review indicate strong potential for fossil discovery on and in the vicinity of the Project site and gen-tie corridor. All of the UCMP discovery localities were along a northwest-to-southeast trending line that parallels the Delta Mendota Canal, California Aqueduct, or Interstate Highway 580. The closest location to the Project site is more than 1 mile to the northeast, but fossils were found in the Neroly Formation at two locations, which is also present on the Project site.

4.7.2 Regulatory Setting

4.7.2.1 Federal

Earthquake Hazards Reduction Act

The U.S. Congress passed the Earthquake Hazards Reduction Act in 1977 to address risks to life and property from future earthquakes through the establishment and maintenance of an earthquake hazards reduction program. The act established the National Earthquake Hazards Reduction Program, which, in November 1990, was amended by the National Earthquake Hazards Reduction Program Act. This Act substantially refined agency responsibilities, program goals, and objectives.

4.7.2.2 State

California Building Code

The California Building Code (CBC) is codified in Title 24 of the CFR, Part 2. The CBC establishes minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. The provisions of the CBC apply to the construction, alteration, movement, replacement, repair, location, maintenance, and demolition of every building or structure, or any appurtenances connected or attached to such buildings or structures throughout California. The CBC would apply to structures proposed for the Project.

Chapter 18 of the CBC covers the requirements of geotechnical investigations, including expansive soils (§1803); excavation, grading, and fills (§1804); load-bearing of soils (§1806); as well as foundations (§1808), shallow foundations (§1809), and deep foundations (§1810). Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also discusses mitigation measures that can be considered for structural design, including ground stabilization, foundation type and depths, structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific, peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

If a project is approved, then the project proponent would prepare a site-specific, design-level geotechnical report with recommendations for final project design. The design-level geotechnical report should incorporate the results and recommendations from the preliminary geotechnical report, add further details as needed to address final project design, and include all relevant mitigation measures identified in the California Environmental Quality Act (CEQA) document, conditions of approval, or other agency requirements.

NPDES Construction General Permit

Project construction would disturb 1 acre or more of land surface and could affect the quality of stormwater discharges into waters of the United States (WOTUS). Therefore, it would be subject to the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). See Section 4.10, *Hydrology and Water Quality*, for additional details.

California Public Utilities Commission General Order 95

General Order 95 of the California Public Utilities Commission applies to construction and reconstruction of overhead and underground electric lines in California, including those proposed as part of the Project. The design of transmission lines must adhere to the National Electric Safety Code. Guidance documents are published by the Institute of Electrical and Electronics Engineers and American Society of Civil Engineers, including ASCE 74, Guidelines for Electrical Transmission Line Structural Loading, which states, “Transmission structures are not typically designed for vibration caused by earthquakes because these loads are less than that of wind/ice combinations.”

4.7.2.3 Local

The Project site falls within the jurisdiction of two counties. The proposed battery energy storage system facility and a portion of the gen-tie line are located within San Joaquin County’s jurisdiction, and thus the land uses on this portion of the Project site are governed by the San Joaquin County General Plan and Zoning Ordinance. The other portion of the proposed gen-tie line, and the point of change of ownership (POCO or tie-in) with the existing PG&E Tesla Substation, however, are located within Alameda County and would be under Alameda County’s jurisdiction.

San Joaquin County General Plan

The San Joaquin County General Plan specifies a number of goals and policies in the Public Health and Safety Element to address concerns related to geology, soils, and paleontology (San Joaquin County 2016). These include the Flood Hazards goal (PHS-2) and the Seismic and Geologic Hazards goal (PHS-3), and the applicable policies associated with each:

Goal PHS-2: *To protect people and property from flood hazards.*

PHS-2.15 - Seismic Impacts to Flood Control Facilities: *The County shall comply with state and federal requirements to improve and maintain flood control facilities to withstand seismic and geologic impacts. (PSP).*

Goal PHS-4: *To protect life and property from seismic and geologic hazards.*

PHS-3.1 - Consider Geologic Hazards for New Development: *The County shall consider the risk to human safety and property from seismic and geologic hazards in designating the location and intensity for new development and the conditions under which that development may occur. (RDR/PSP).*

PHS-3.2 - Location of Sensitive Land Uses: *The County shall not approve any of the following land uses if they are located within one-eighth of a mile of any active fault or on soil that is highly susceptible to liquefaction: facilities necessary for emergency services; major utility lines and facilities; manufacturing plants using or storing hazardous materials; high occupancy structures, such as multifamily residences and large public assembly facilities; and facilities housing dependent populations, such as prisons, schools, and convalescent centers. (RDR).*

PHS-3.3 - Emergency Service Facilities: *The County shall require emergency service facilities to be capable of withstanding earthquakes per the California Building Code, Chapter 16, Volume 2, and remain operational to provide emergency response. (RDR).*

PHS-3.4 - Liquefaction Studies: *The County shall require proposals for new development in areas determined by the County to have high liquefaction potential to include detailed site-specific liquefaction studies. (RDR/PSR).*

PHS-3.5 - Subsidence or Liquefaction: *The County shall require that all proposed structures, utilities, or public facilities within County-recognized areas of near-surface subsidence or liquefaction be located and constructed in a manner that minimizes or eliminates potential damage. (RDR).*

PHS-3.7 - Erosion Control: *The County shall encourage the planting of vegetation to decrease loss of soil by erosion. (RDR/PSR).*

PHS-3.8 - Soil Conservation and Restoration: *The County shall support soil conservation and restoration efforts of the U. S. Soil Conservation Service and the Resource Conservation Districts. (IGC).*

San Joaquin County Code of Ordinances

Title 9, Division 9 (Subdivision Regulations), of the San Joaquin Ordinance Code requires new Major Subdivision projects provide a preliminary geotechnical report (Chapter 9-905.11) to “address geologic hazards.” The geotechnical report must be “prepared by a State-registered geotechnical engineer or State-registered geologist and [be] based upon adequate test borings.”

This report should provide "estimates of expected peak ground accelerations during maximum credible earthquake potentially affecting the site."

Title 9, Division 11 (Infrastructure Standards and Requirements), provides requirements for on-site wastewater disposal facilities, including a sanitation permit (Chapter 9-1110.3 and 9-1110.4) and disposal facility standards (Chapter 9-1110.5).

Title 9, Division 14 (Grading and Excavation Provisions), provides requirements for grading, including obtaining a grading permit (Chapter 9-1405.2), exemptions (Chapter 9-1405.3), and removal of earth materials from the site (Chapter 9-1405.5).

Alameda County General Plan

Policies and implementation programs are provided in the East County Area Plan (a portion of the Alameda County General Plan), as described below (ACCDA 2000):

> ***Policy P309:*** *The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk caused by seismic and geologic activity.*
>
> ***Policy P310:*** *The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.*
>
> ***Policy P311:*** *The County shall ensure that new major public facilities, including emergency response facilities (e.g., hospitals and fire stations), and water storage, wastewater treatment and communications facilities, are sited in areas of low geologic risk.*
>
> ***Policy P312:*** *The County shall ensure that major transportation facilities and pipelines are designed, to the extent feasible, to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term disruption of service.*
>
> ***Policy P313:*** *The County shall require development in hilly areas to minimize potential erosion and disruption of natural slope stability which could result from grading, vegetation removal, irrigation, and drainage.*
>
> ***Policy P314:*** *The County shall prohibit the construction of any structure intended for human occupancy within 50 feet on either side of the Calaveras, Greenville, or Verona earthquake fault zones as defined by the Alquist-Priolo Earthquake Fault Zoning Act.*
>
> ***Policy P315:*** *The County shall require that buildings be designed and constructed to withstand groundshaking forces of a minor earthquake without damage, of a moderate earthquake without structural damage, and of a major earthquake without collapse of the structure. The County shall require that critical facilities and structures (e.g., hospitals, emergency operations centers) be designed and constructed to remain standing and functional following an earthquake.*
>
> ***Implementation Program 111:*** *The County shall delineate areas within East County where the potential for geologic hazards (including seismic hazards, landslides, and liquefaction) warrants preparation of detailed site specific geologic*

hazard assessments. Areas shall be delineated based upon data from published sources and field investigations. Maps shall be maintained and updated as new data become available. These maps shall not be used by the County to determine where hazardous conditions exist, but instead to identify the presence of conditions which warrant further study.

***Implementation Program 112:** The County shall develop detailed guidelines for preparation of site-specific geologic hazard assessments. These guidelines shall be prepared in consultation with the County Building Official, the County Engineer, County Geologist, County Counsel, and the County Risk Manager, and shall ensure that site-specific assessments for development requiring discretionary permits are prepared according to consistent criteria.*

Alameda County Code of Ordinances

Chapter 15.08, *Building Code*, requires new construction projects in areas where seismic and geologic hazards are a concern to submit a geotechnical report before the approval of the foundation will be granted.

Chapter 15.18, *Onsite Wastewater Treatment Systems*, requires that all structures within 200 feet of a public sewer line connect to the public sewer system. Buildings not within 200 feet of a public sewer line (if they plan to build a septic system) must comply with the requirements of this Chapter. A building permit will not be granted until a construction permit has been approved for the septic system. Requirements of the permit include a site evaluation, soil profile and percolation tests, a plan review, and other requirements as directed by the County building department. The soil profile and percolation tests must be performed by a registered professional. The ordinance also requires that the septic system be properly operated and maintained.

Chapter 15.36, *Grading Erosion and Sediment Control*, provides requirements for the control of erosion and sediments during grading and construction activities to safeguard human health and property, protect waterways, and ensure that the graded site is prepared in accordance with the Alameda County General Plan.

4.7.3 Thresholds of Significance

A project is considered to have significant impacts in geology, soils, and paleontological resources if any of the following statements apply:

a) *Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*

   i. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42),*

   ii. *Strong seismic ground shaking,*

   iii. *Seismic-related ground failure, including liquefaction,*

   iv. *Landslides;*

b) *Result in substantial soil erosion or loss of topsoil;*

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

4.7.4 Impacts Analysis

IMPACT 4.7-1: *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides?* **(Less than Significant Impact)**

The Project site and gen-tie corridor do not lie within any mapped earthquake fault zones according to available data. Although the area could be affected by earthquakes or seismic ground shaking, no current data indicate that active (Historic) faults are present within the Project site or gen-tie corridor. The closest earthquake fault is the Midway fault , which bisects the Project site from the northwest to the southeast. However, it is classified as a Late Quaternary fault, with last activity more than 11,700 years ago and less than 700,000 years ago. In addition, the Black Butte fault and the Carnegie-Corral fault zone are located 3 to 4 miles southwest of the Project site. None of these faults/fault zones show signs of recent (Holocene) activity. The Greenville and Las Positas fault zones are the closest active tectonic areas identified as Alquist-Priolo Fault Zones, but they are more than 7 miles west of the Project site.

Further, the Project will not include habitable structures and will only have personnel on-site periodically. Therefore, the facility will not potentially expose people or structures to substantial adverse effects associated with rupture of a known earthquake fault. There would be no impact related to surface fault rupture during the construction, operations, or decommissioning periods of the Project.

Because the Project facilities potentially could be subject to moderate to severe seismic ground shaking due to the proximity to these fault zones, damage could occur and injuries are possible if personnel happen to be on-site at the time of a significant earthquake. Should strong seismic ground shaking occur at or near the Project site, the on-site facilities could be damaged.

However, the Project will be subject to the seismic design criteria of the CBC, which requires that all improvements be constructed to withstand any anticipated ground shaking from regional fault sources and require that the Project owner retain a licensed geotechnical engineer to design the Project components to withstand probable, seismically induced ground shaking. All construction

on-site would adhere to the specifications, procedures, and site conditions contained in the final design plans. Any plans must incorporate seismic recommendations provided by a California-registered, professional geotechnical engineer in accordance with the CBC. The final structural design would be subject to approval and follow-up inspection by the San Joaquin County Building Division. Final design requirements would be provided to the on-site construction supervisor and the County Building Inspector to ensure compliance. Adherence to the applicable CBC requirements and local agency enforcement would ensure that the Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

A corollary concern for moderate to strong seismic ground shaking, caused by an earthquake close enough to the area, is the risk of liquefaction. However, because on-site soils and conditions are not susceptible to liquefaction, this risk is considered low to moderate.

Nevertheless, the Project owner is required to design proposed improvements in accordance with applicable CBC seismic design standards and any recommendations provided by a California-registered, professional geotechnical engineer in a site-specific, geotechnical report. As part of the geotechnical report, consistent with building code seismic design standards, the licensed geotechnical engineer would be required to consider potential liquefaction in the design plans.

Compliance with CBC requirements, including implementation of recommendations provided in the geotechnical report and local agency enforcement, would reduce or avoid impacts related to ground failure, including liquefaction.

Although the Project site has moderate topographic relief, no evidence of landslides has been mapped on an adjacent site (Janky 2022). The State provides landslide mapping (DOC 2021), but it does not cover the Midway Quad. This could be due to a lack of development in the area or the more subdued nature of local topography moving east from the Diablo Range. In addition, the proposed extent and amount of cut and fill required to prepare the site to install the battery energy storage system is significant. The proposed Project design options will require a significant amount of earthwork to create a single terrace on which the batteries would be installed. A relatively balanced cut and fill volume of just over 400,000 cubic yards of material will be handled, and result in several large 2:1 (horizontal to vertical) cut and fill slopes. The maximum depth of cut will be approximately 70 feet and the maximum depth of fill will be about 40 feet. A site-specific geotechnical investigation will provide specifications for treating the cut surfaces to address bedding plane configurations, handle surface drainage, or otherwise stabilize the new surface. Additional specifications will be provided for fill operations to address lift thickness, compaction requirements, and effective drainage given the nature of the soil and bedrock materials to be moved on-site.

However, performing the planned, detailed, site-specific geotechnical investigation will provide the necessary background information to prepare an appropriate design to effectively minimize risks from landslides or potential landslides for the new surface configuration. With appropriate engineering design considerations for stabilizing new cut surfaces and fill volumes on the Project site and in the gen-tie corridor, the risk of landslides on cut and fill surfaces will be minimized.

Construction and Operations

The Project facilities and gen-tie are not located within an earthquake fault zone established by the State of California under Alquist-Priolo Earthquake Fault Zoning Act. The older Midway fault (last movement over 11,7000 years ago) crosses the Project site, but is not considered active. A couple of other older faults are mapped in the Project area, but the closest, the Alquist-Priolo fault zone (Greenville), is more than 5 miles to the west. Considering the distance to the nearest active fault and the low probability of fault movement on the older faults, ground rupture would not be anticipated at the Project site should the area experience an earthquake. Additionally, ground failure is not anticipated due to the distance to active faults. Liquefaction is not anticipated because soil and groundwater conditions at the Project site are not conducive to such activity. Finally, relief is limited on the Project site and there is no on-site evidence of mass earth movement, so landslides are considered unlikely.

Therefore, impacts related to rupture along a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure (such as liquefaction or landslide) would be less than significant and no mitigation measures would be required.

Mitigation: None required.

IMPACT 4.7-2: *Would the project result in substantial soil erosion or loss of topsoil?* **(Less than Significant Impact with Mitigation Incorporated)**

Construction

Although the proposed Project site includes moderate relief across the site, the facility layout is being targeted for the southern part of the site, and current design calls for a single terrace to minimize cut and fill at the site. Project construction would result in ground surface disturbance during site clearance, excavation, and grading that could create the potential for soil erosion and loss of topsoil. Currently, the topsoil in the Project area is used for low-intensity cattle pasture and is not a significant natural resource. The Project would be designed and constructed in accordance with state and local guidelines regarding erosion control and management. **Mitigation Measure GEO-1** would require a Stormwater Pollution Prevention Plan (SWPPP) as part of Project execution.

The Construction General Permit was developed to ensure that stormwater is managed to protect water quality and must include erosion control measures for the construction period as well as the postconstruction period. The Construction General Permit requires preparation and implementation of a SWPPP that identifies BMPs to control stormwater from construction work sites and to prevent off-site transport of disturbed soils. The BMPs may include, but are not limited to, physical barriers to prevent erosion and sedimentation; limitations on work periods during storm events; protection of stockpiled materials; and other measures identified by a qualified SWPPP preparer that would substantially reduce or prevent erosion from occurring during construction. **Mitigation Measure GEO-1** (Stormwater Pollution Prevention Plan) would reduce impacts to less than significant.

Operations

The necessary, specific, and long-term erosion control design features to be included in the Project have not been finalized at this time. However, such features would be designed and

constructed in accordance both with San Joaquin County and Alameda County requirements, including the Building Code. In addition, the Project will comply with applicable stormwater and erosion control regulatory requirements and plans as part of Project operations. In addition, no large-scale, ground-disturbing activities are expected to occur during operations.

Decommissioning

The amount of soil disturbance used during decommissioning would be similar, though probably less than that created during Project construction. This activity would increase the risk of erosion or sediment transport. Without appropriate stormwater control measures, the potential impact could be significant. However, as decommissioning would also disturb more than 1 acre, it would be required (under the Construction General Permit) to prepare and implement a SWPPP with BMPs, similar to the SWPPP that would be implemented during construction.

Mitigation Measure GEO-1 (Stormwater Pollution Prevention Plan) would reduce impacts to less than significant.

Mitigation: GEO-1.

IMPACT 4.7-3: *Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?* **(Less than Significant Impact)**

Construction

The Project facilities are situated near other infrastructure (substation and wind turbines) and based on visual inspection, there is no indication that the ground in the Project vicinity is inherently unstable (Janky 2022). The components to be installed for the Project are relatively common and, from a geology and soils perspective, are minimally invasive. Therefore, the Project's construction is not expected to generate new natural geologic hazards, such as landslides, lateral spreading, subsidence, liquefaction, or collapse, or result in significant impacts on the geology and soils of the Project area.

Temporary excavations may be needed during construction that could potentially cave, resulting in on- or off-site ground failure. Foundation excavations to be included with the Project are anticipated to be on the order of 10 feet deep below existing grades. In addition, trenches of similar depth may be needed associated with gen-tie installation. Cut and fill activities needed to prepare terrace surfaces for battery storage units, could result in cuts of up to 70 feet deep and fills of depths up to 40 feet.

Although soil conditions may be encountered during drilling for footings that could result in caving, the use of common construction techniques can prevent caving and protect construction and adjacent areas. During drilling, such techniques can include installing manufactured casing to support borehole walls or using viscous, nonhazardous, and biodegradable fluids during drilling to support the borehole walls. Shoring can be used to stabilize trench excavations. The soils present may mandate various types/styles of bracing or excavation support. Although the excavation depth and configuration generally drive any requirement for temporary over-excavation, or permanent slope protection. All prudent and required precautions, consistent with

the Alameda County and San Joaquin County Building Codes and following the recommendations from the site-specific geotechnical report, will be incorporated into the Project design plans.

Having site-specific geotechnical information on the Project site and using normal and common construction techniques would minimize potential impacts from landslides on-site or to adjacent properties. As such, impacts associated with on- or off-site ground failure during construction would be less than significant and mitigation would not be required.

Operations

Expansive soils are clay rich soils that swell and shrink with wetting and drying. The shrink-swell capacity of expansive soils can result in differential movement below or adjacent to a structure, causing distress to the structure. The clay rich Carbona soils present in the Project area, which account for about two-thirds of the Project site, and the Clear Lake clay and Rincon clay loam found in the gen-tie corridor, have been characterized with high shrink-swell potential. The Calla soil of the Calla-Carbona Complex and the Linne clay loam are considered to have only moderate shrink-swell potential. Bedrock units also can exhibit expansive properties due to their clay content; this includes the Neroly Formation claystone beds present at the site. Therefore, operation of the Project would potentially subject people and structures to the effects of expansive soils, which could result in damage to structures.

However, structures to be installed as part of the Project should be designed and constructed in accordance with the County Building Codes, which are based on CBC standards (the Uniform Building Code is no longer applicable) specific to expansive soils. These required design standards would provide site preparation techniques to remediate expansive soil and require structures that could tolerate the effects of expansive soil. Addressing expansive soil conditions could include soil removal and replacement, chemical treatment, or structural enhancements. Therefore, operational impacts related to expansive soils are expected to be less than significant and additional mitigation measures would not be required.

The soils in the Project area may be prone to collapse or settlement, which can result in differential movement beneath foundations, potentially causing distress to above-grade and at-grade structures. As such, operation of the above- and at-grade structures associated with the Project would potentially subject people and structures to the effects of ground settlement, which could result in damage to structures.

Detrimental ground settlement from new structures or earth loads is typically alleviated by removal and replacement of the settlement/collapse-prone soils. Also, implementation of ground improvement methods and structural support systems would minimize the potential for impacts related to collapse or settlement. The Project would be designed in accordance with the Alameda County and San Joaquin County Building Codes, which mandate that design reports be developed based on site-specific geotechnical investigation. The recommendations provided with such an investigation will be addressed during the design stage of the Project. The final design will specifically address any detrimental ground conditions that could be impacted by the new structures and loads. Therefore, impacts related to settlement or collapsible soil would be less than significant and mitigation measures would not be required.

Although regional subsidence has been noted in California due to the withdrawal of groundwater and hydrocarbons from the subsurface, the Project site is not in an area of subsidence that has been noted as "historical and current" (USGS 2022). Therefore, potential impacts related to regional subsidence would be a less than significant hazard to the Project during operation and mitigation measures would not be required.

Mitigation: None required.

IMPACT 4.7-4: *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?* **(Less than Significant Impact)**

Construction and Operations

Expansive soils are clay rich soils that swell and shrink with wetting and drying. The shrink-swell capacity of expansive soils can result in differential movement below or adjacent to a structure, resulting in distress. As noted earlier, clay rich soils are present in the Project area (primarily the Carbona soils). In addition, bedrock units also can exhibit expansive properties due to their clay content; this includes the Neroly Formation claystone beds present at the site. Therefore, operation of the Project could potentially subject people and structures to the effects of expansive soils, which could result in damage to structures.

However, all structures and facilities erected as part of the Project must be designed and constructed in accordance with either the San Joaquin County Building Code or the Alameda County Building Code, which are based on CBC standards (the Uniform Building Code is no longer applicable) specific to expansive soils. Following these design standards would yield structures that could tolerate the effects of expansive soil or, if necessary, the expansive soils would be remediated. Expansive soil remediation could include soil removal and replacement, chemical treatment, or structural enhancements. Therefore, operational impacts related to expansive soils would be less than significant and mitigation measures would not be required.

Mitigation: None required.

IMPACT 4.7-5: *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?* **(Less than Significant Impact)**

Construction

The Project would use portable toilets on-site during construction, as well as during the operations period. Sanitary waste is expected to average up to 30 gallons per day. Waste disposal would occur at a permitted off-site facility equipped to handle sanitary waste. Thus, a septic tank system would not be required on the Project site.

Operations

The Project will be unmanned and will not include domestic sanitation facilities; thus, no wastewater will be produced or discharged. Therefore, the use of septic tanks or alternative wastewater systems is not anticipated for the Project. As a result, there are no operational impacts involving the adequacy of soils to support septic tanks or alternative waste disposal systems.

Mitigation: None required.

IMPACT 4.7-6: *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?* **(Less than Significant Impact with Mitigation Incorporated)**

Operations and Decommissioning

The Project area is on the Central Valley geomorphic province border, characterized by young, unconsolidated sediments with low potential for containing fossils. Nevertheless, a total of 16 sites where fossils have been found previously were identified in the UCMP database at locations between 1 and 3 miles from the site.

The bedrock geologic units mapped within the Project site include the Miocene age Neroly Formation (Tn) and Pliocene age nonmarine sedimentary rocks (Tps), along with Holocene age unconsolidated alluvium. Both older units have potential for containing fossils, as demonstrated by the discoveries identified in the UCMP database search. In addition, the significant depths of excavation (in places over 70 feet) needed to achieve the final grade will increase the opportunity of encountering the older rock units lying under the younger sediments. Other excavations to install foundations or underground cables may reach depths of up to 10 feet below the ground surface after final grade is achieved. However, since both the older geologic units (Tn and Tps) have similar likelihood of encountering fossils with ground-disturbing activities, a potentially significant impact could result if paleontological resources are encountered and inadvertently destroyed during ground-disturbing activities. By implementing **Mitigation Measures GEO-2** (Worker Education) and **GEO-3** (Contingency Plan for Unanticipated Finds), such potential impacts would be reduced to less than significant.

Mitigation: GEO-2 and GEO-3.

4.7.5 Mitigation Measures

The following mitigation measures are recommended as a precaution to reduce significant impacts to geological and paleontological resources.

GEO-1: Stormwater Pollution Prevention Plan: The construction contractor shall incorporate best management practices (BMP) consistent with the NPDES General Construction Permit Program and shall prepare a Stormwater Pollution Prevention Plan (SWPPP) prior to construction and decommissioning. The plan shall be prepared by a Qualified SWPPP Developer (QSD) and submitted for review and approval by San Joaquin County, as the lead agency. The SWPPP would apply to the entire Project, including portions in Alameda County and San Joaquin County. The SWPPP BMPs shall include, but not be limited to, the following:

- Scheduling to avoid construction during rain events to the maximum extent possible;
- Preservation of existing vegetation and topography to the maximum extent practicable;
- Stabilized construction entrances and exits;
- Erosion control, such as mulching, temporary drains and cullies, sandbag barrier, geotextiles and mats, silt fences, brush or rock filters, earth dikes, straw bale barriers, and sediment traps;
- Sediment control;

- Waste management;
- Good housekeeping; and
- Post-construction site stabilization.

Prior to initial construction mobilization, preconstruction surveys shall be performed and sediment and erosion controls shall be installed in accordance with the approved SWPPP.

GEO-2: Paleontological Worker Education and Awareness Program (WEAP): Before starting construction activities, on-site personnel should be trained in basic recognition of fossils and appropriate procedures to notify management to engage a qualified paleontological specialist in the event that fossils are discovered during construction activities (an unanticipated find).

GEO-3: Unanticipated Find Contingency: A qualified paleontological specialist (paleo specialist), meeting the Secretary of the Interior's Professional Qualification Standards for the Society of Vertebrate Paleontology, shall be retained by the Project Owner on an on-call status. The paleo specialist must be approved by both San Joaquin County and Alameda County prior to any on-site activity. The paleo specialist will be brought on-site to evaluate the significance of any unanticipated discovery of paleontological resources (an unanticipated find) and determine if additional study is warranted. If the significance of the find under CEQA or California Public Resources Code, Section 21082, does not warrant such study, the qualified paleontologist may decide to record the find and allow work to continue. If the discovery proves significant under CEQA, preparation of a paleontological treatment, testing, or data recovery plan (Paleo Plan) may be required at the discretion of the paleontological specialist. Any Paleo Plan that is prepared will be submitted for approval, to the appropriate agency within San Joaquin County or Alameda County, depending upon the location of the find.

4.7.6 PG&E Tesla Substation Improvements and Gen-Tie

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the POCO to its substation. Two options are available for the gen-tie line from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

The construction activities associated with the PG&E infrastructure would be required to comply with and adhere to the same design criteria included in the CBC as the rest of the Project components. Construction would be required to comply with requirements of the Construction General Permit, similar to the Project components evaluated above, including implementation of BMPs during construction activities. Subsurface excavation required for the PG&E infrastructure is not anticipated to occur at depths below 10 feet below ground surface. Nonetheless, because

fossils could be discovered up to 10 feet, the implementation of mitigation for unanticipated fossil discovery would reduce the potential significance of any unanticipated fossil discoveries to a less-than-significant level.

Through the implementation of **Mitigation Measures GEO-1** through **GEO-3,** these improvements would not have a substantial adverse effect on any geology, soils, or paleontological resources, and no additional mitigation measures would be required.

4.7.7 Cumulative Impacts

Impacts related to geology, soils, and seismicity tend to be site-specific and depend on the local geology and soil conditions. For these reasons, the geographic scope for potential cumulative impacts consists of the Project site and adjacent areas. One cumulative project, as identified in Table 2-3 in Chapter 2, *Project Description*, is adjacent to the Project. Additionally, the Project would be designed and constructed in accordance with the most current building code requirements, and the potential for the Project to exacerbate seismic hazards would be less than significant. State and local building regulations and standards have been established to address and reduce the potential for projects to cause or exacerbate seismic hazard impacts. All projects would be required to comply with applicable provisions of these laws and regulations. Compliance with these requirements would limit the potential for impacts to a less than significant level. The purpose of the CBC (and related local ordinances) is to regulate and control the design, construction, quality of materials, use or occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Based on compliance with these requirements, the incremental impacts of the Project combined with impacts of other projects in the area would not combine to cause a significant cumulative impact related to seismic hazards.

Other individual projects and this Project are required to comply with existing codes, standards, and permitting requirements (e.g., preparation of a SWPPP under the state Construction General Permit) to reduce erosion impacts. Potential Project-related impacts to soil erosion and loss of topsoil would be reduced through the implementation of the BMPs identified in the SWPPP, as required by **Mitigation Measure GEO-1**. Requirements in the state Construction General Permit are designed to reduce adverse cumulative effects of construction-phase erosion. Individual projects' compliance with stormwater control requirements would reduce the overall cumulative impact to a less-than-significant level.

The aerial extent of cumulative impacts to paleontological resources includes the Project site and adjacent areas where Pleistocene-age deposits could be disturbed. If there were paleontological resources that extended across areas of ground disturbance of the proposed Project and cumulative projects, the projects could result in the loss of paleontological resources, a potentially significant impact. However, with implementation of **Mitigation Measures GEO-2** and **GEO-3**, the proposed Project would have a less-than-significant impact relating to the potential loss of paleontological resources in the event of inadvertent discovery during construction. This less-than-significant impact would not be cumulatively considerable because work would be halted immediately in the event of a find, thereby minimizing the potential impact.

4.7.8 References

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4.8 GREENHOUSE GAS EMISSIONS

This section identifies and evaluates issues related to greenhouse gas (GHG) emissions that could occur as a result of implementation of the proposed Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. In addition, a Project-specific GHG emissions evaluation was completed as part of the Air Quality, and Greenhouse Gas Technical Report for the Project. San Joaquin County (County) did not receive any scoping comments related to GHG emissions.

4.8.1 Existing Conditions

4.8.1.1 The Greenhouse Effect

The past 8 years have been the warmest years since modern recordkeeping began in 1880. The years 2016 and 2020 are tied for the warmest year on record. The earth's global average surface temperature in 2021 tied with 2018 as the sixth warmest year on record, according to the National Aeronautics and Space Administration (NASA 2021).

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A GHG is any gas in the atmosphere that absorbs infrared radiation. As solar radiation enters the earth's atmosphere, a portion of the radiation is absorbed by the earth's surface and a portion is reflected back through the atmosphere into space. The absorbed radiation is eventually emitted from the earth into the atmosphere as infrared radiation. Most solar radiation passes through GHGs; infrared radiation is selectively absorbed or "trapped" by GHGs as heat and then reradiated back toward the earth's surface, warming the lower atmosphere and the earth's surface. This phenomenon, known as the "greenhouse effect," is beneficial for maintaining a habitable climate on the earth. As the atmospheric concentrations of GHGs rise, however, the average temperature of the lower atmosphere gradually increases, thereby increasing the potential for indirect effects, such as a decrease in precipitation as snow, a rise in sea level, and changes to plant and animal species and habitat.

Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years) and persist in the atmosphere long enough to be dispersed globally. Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, scientific evidence reveals that more carbon dioxide (CO_2) is emitted into the atmosphere then is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions remains stored in the atmosphere. The quantity of GHGs that it takes to ultimately result in climate change is not known precisely, although scientific evidence strongly indicates no single project would be expected to contribute measurably to a noticeable incremental change in the global average temperature.

4.8.1.2 Greenhouse Gases

GHGs are emitted by natural processes and human activities. Natural GHG sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus;

evaporation from oceans; and volcanic outgassing. Human activities known to emit GHGs include fuel combustion, industrial manufacturing, utilities, transportation, residential, and agricultural activities. The primary GHGs that enter the atmosphere because of human activities are CO_2, methane (CH_4), nitrous oxide (N_2O), and fluorinated carbons (hydrofluorocarbons [HFC], perfluorocarbons [PFCs], and sulfur hexafluoride [SF_6]).

CO_2 is an odorless, colorless gas with both natural and anthropogenic sources. CO_2 is the most important and common anthropogenic GHG. Examples of natural sources are respiration of bacteria, plants, and animals, evaporation from oceans, and decomposition of organic matter. Human activities that emit CO_2 include burning coal, oil, natural gas, and wood. Prior to the Industrial Revolution, CO_2 levels remained at approximately 280 parts per million for close to 6,000 years of human civilization. Since then, humans have generated an estimated 1.5 trillion tons of CO_2 pollution, much of which will continue to warm the atmosphere for thousands of years (NOAA 2022).

CH_4 is a flammable gas that is the main component of natural gas. When burned in the presence of oxygen, CO_2 and water are released. There are no direct health effects from exposure to CH_4. Sources of CH_4 include decay or organic material, natural gas fields, cattle, and landfills.

N_2O is a colorless gas that can cause euphoria, dizziness, and slight hallucinations when exposed to higher concentrations. Sources include agricultural sources (e.g., microbial processes in soil and water, fertilizer) and industrial processes (e.g., fossil fuel-fired power plants, vehicle emissions, nylon production).

Fluorinated Gases are synthetic and emitted from a variety of industrial processes:

- **HFCs** are human-made chemicals used as a substitute for chlorofluorocarbons (CFC) for automobile air conditioners and refrigerants. Because hydrofluorocarbons destroy stratospheric ozone, their production was stopped as required by the 1989 Montreal Protocol.
- **PFCs** are very stable and do not break down through the chemical processes in the lower atmosphere and have long lifetimes (between 10,000 and 50,000 years). The two main sources of PFCs are primarily aluminum production and semiconductor manufacturing.
- **SF_6** is an inorganic, colorless, odorless, nontoxic, nonflammable gas used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

4.8.1.3 Global Warming Potential

The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2, which is used as a reference gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of CO_2. Therefore, GWP-weighted emissions are measured in metric tons (MT) of carbon dioxide equivalent (CO_{2e}). The GWP for CH_4 is approximately 25 times more powerful than CO_2, and N_2O is approximately 298 times more powerful than CO_2 in its ability to trap heat in the atmosphere (CO_2 has a GWP of 1). SF_6 has a GWP of 22,800. CO_{2e} is a quantity that

enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_{2e}. These GWPs have been adopted by the U.S. Environmental Protection Agency (USEPA) into 40 Code of Federal Regulations (CFR) 98, *Mandatory Greenhouse Gas Reporting*.

Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's Second Assessment Report (SAR). In 2007, the IPCC updated the GWP values based on the latest science at the time in its Fourth Assessment Report (AR4; IPCC 2007). The updated GWPs in the IPCC AR4 are used in recent GHG emissions inventories. In 2013, the IPCC again updated the GWP values based on the latest science in its Fifth Assessment Report (AR5) (IPCC 2013). However, United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines for national inventories require the use of GWP values from the AR4. To comply with international reporting standards under the UNFCCC, official emission estimates for California and the U.S. are reported using AR4 GWP values, and statewide and national GHG inventories have not yet updated their GWP values to the AR5 values. By applying the GWP ratios, Project-related CO_{2e} emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO_2 over a 100-year period is used as a baseline. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 4.8-1.

Table 4.8-1. Global Warming Potentials and Atmospheric Lifetimes

Greenhouse Gas[1/,2-/]	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO_2)	50 to 200	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298
HFC-324a	14	1,430
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Source: IPCC 2007
HFC – hydrofluorocarbon; PFC – perfluorocarbon

4.8.2 Regulatory Setting

4.8.2.1 Federal

The U.S. Supreme Court ruled on April 2, 2007, that CO_2 is an air pollutant as defined under the Clean Air Act (CAA), and that the USEPA has the authority to regulate emissions of GHGs. Responding to the mounting issue of climate change, the USEPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the USEPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the U.S. (40 CFR 98). In general, this national reporting requirement will provide the USEPA with accurate and timely GHG emissions data from facilities that emit 25,000 MT or more of CO_2 per year. These publicly available data allow the reporters to track their own emissions, compare them to similar facilities, and help identify cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers report

at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

Endangerment and Cause or Contribute Findings for GHGs under the CAA

On December 7, 2009, the USEPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the Administrator (of the USEPA) should regulate and develop standards for "emission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six key GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the health and welfare of current and future generations. The second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and, therefore, the threat of climate change.

The Administrator found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are most likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wildfires, droughts, sea level rise, and higher intensity storms) are a threat to public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The Administrator also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. The USEPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements, but rather allow the USEPA to define the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the U.S. Department of Transportation (DOT).

Various subsequent federal rulemakings limit GHG emissions from fossil fuel-fired power plants through the USEPA's major stationary source permitting program and through the USEPA's New Source Performance Standards. These rulemakings have been subject to court challenges and political manipulation, such that applicants for air permits are required to evaluate the current status of the regulatory requirements. These GHG rules do not apply to the activities associated with the Project.

4.8.2.2 State

While climate change has been a concern since at least 1988, the efforts devoted to GHG emissions reduction and climate change policy have increased dramatically in recent years. In 2002, California passed Assembly Bill (AB) 1493, which requires the California Air Resources Board (CARB) to develop and implement regulations to reduce automobile and light truck GHG emissions beginning with the 2009 model year. In June 2005, Executive Order S-3-05 was signed to reduce California's GHG emissions to: (1) 2000 levels by the year 2010; (2) 1990 levels by the

year 2020; and (3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32, the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that the CARB create a plan (Scoping Plan), which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." CARB's 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan, CARB 2022) was prepared to address climate legislation passed since the last scoping plan, which was prepared in 2017. The Scoping Plan addresses AB 1279, SB 905, SB 1065, SB 1075, and other legislation and executive orders addressing GHG reductions in various manufacturing sectors and managing natural lands. SB 32 codifies the emissions reduction goal of 40 percent below 1990 levels by 2030.

In 2022, California passed AB 1279 (California Crisis Act), which introduced a statewide policy to "achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter, and to ensure that by 2045, statewide anthropogenic greenhouse gas emissions are reduced to at least 85% below the 1990 levels". The bill would require the state board to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

AB 32 requires the state to create an opportunity for interested parties to comment on the scoping plan by conducting public workshops. It is required to conduct a portion of these workshops in regions with low- income communities, and minority populations. SB 1020 (2022) would instead include "federal extreme nonattainment areas that have communities with minority populations, communities with low-income populations, or both" as regions for these workshops. Additionally, this bill would "accelerate the timeline required to have 100 percent renewable energy and zero carbon energy procured to serve state agencies from the original target year of 2045 to 2035".

SB 905 requires the state board, along with appropriate state and local agencies to "adopt regulations for a unified permit application for the construction and operation of carbon dioxide capture, removal, or sequestration projects" by January 1. 2025.The state board is required to develop a public database to track such projects.

SB 1075 requires the state board to specify information relative to the deployment, development, and use of hydrogen as part of the evaluation posted to the state board's internet website by June 1, 2024. Additionally, the Energy Commission is expected "to study and model potential growth for hydrogen and its role in decarbonizing" as part of the 2023 and 2025 editions of the integrated energy policy report.

SB 1206 mandates a stepped sales prohibition on newly produced high GWP HFCs to transition California's economy toward recycled and reclaimed HFCs for servicing existing HFC-based equipment. Additionally, SB 1206 also requires CARB to develop regulations to increase the adoption of very low-, i.e., GWP < 10, and no-GWP technologies in sectors that currently rely on higher-GWP HFCs.

In 2002, SB 1078 established a Renewables Portfolio Standard (RPS), which required an annual increase in renewable generation by the utilities with a goal of 20 percent by 2010. SB X1-2

expanded the RPS by establishing a renewable energy target of 20 percent of the total electricity sold to retail customers in California per year by 2013, and 33 percent by 2020 and subsequent years. SB 350 further expanded the RPS by establishing a goal of 50 percent of the total electricity sold to retail customers in California per year by 2030. SB 100 mandates that the CPUC, California Energy Commission, and CARB plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. The statute requires these agencies to issue a joint policy report on SB 100 every four years. The first of these reports was issued in 2021. This Scoping Plan reflects the SB 100 Core Scenario resource mix with a few minor updates. This bill also updates the state's RPS to include the following interim targets:

- 44 percent of retail sales procured from eligible renewable sources by December 31, 2024
- 52 percent of retail sales procured from eligible renewable sources by December 31, 2027
- 60 percent of retail sales procured from eligible renewable sources by December 31, 2030

SB 97 acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. CEQA requires that lead agencies consider the reasonably foreseeable, adverse environmental effects of projects they are considering for approval. GHG emissions can affect the environment adversely because they contribute, cumulatively, to global climate change. Thus, GHG emissions and impacts require consideration in CEQA documents.

4.8.2.3 Local Regulations and Plans

San Joaquin Valley Air Pollution Control District

In 2009, the San Joaquin Valley Air Pollution Control District (SJVAPCD) Governing Board adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009a). The SJVAPCD found the effects of project-specific emissions to be cumulative and, without mitigation, their incremental contribution to global climate change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their GHG emissions, whether through project design elements or mitigation.

For development projects, best performance standards (BPS) would include project design elements, land use decisions, and technologies that reduce GHG emissions. While the SJVAPCD has adopted BPS for several types of stationary sources (e.g., boilers), it has not developed BPS for land development projects. Projects implementing any combination of BPS, and/or demonstrating a total 29 percent reduction in GHG emissions from business-as-usual, would be determined to have a less than significant individual and cumulative impact on global climate change (SJVAPCD 2015).

California Air Pollution Control Officers Association Guidance

The California Air Pollution Control Officers Association (CAPCOA) recommended an interim 900 MT CO_{2e} screening level as a theoretical approach to identify projects that require further analysis and potential mitigation (CAPCOA 2008). Following CAPCOA's analysis of development applications in various cities, it was determined that the threshold of 900 MT CO_{2e} per year would achieve the objective of 90 percent capture and ensure that new development projects would

keep the state on track to meet its AB 32 goals. While AB 32 aimed to reduce emissions to 1990 levels by year 2020, SB 32 was later passed and aimed to .further reduce emissions to 40 percent below 1990 levels by 2030. A new threshold has not been determined but is expected to decrease over time in order to reduce project GHG emissions to meet SB 32 targets beyond 2020. The SJVAPCD supports the use of the interim threshold established by CAPCOA when adopted thresholds are not applicable (SJVAPCD 2009b).

San Joaquin Council of Governments

SB 375 requires metropolitan planning organizations to prepare a Sustainable Community Strategy (SCS) in their Regional Transportation Plan (RTP). The types and quantity of emissions produced in the San Joaquin Council of Governments (SJCOG) region vary among jurisdictional boundaries. However, for most jurisdictions, transportation and energy consumption are responsible for the majority of GHG emissions. The SJCOG adopted the 2018 RTP/SCS (SJCOG 2018) in June 2018. The RTP/SCS is a long-range comprehensive plan for the region's multimodal transportation system. CARB provided GHG reduction targets for the 2018 RTP/SCS, setting the targets at a 5 percent per capita reduction by 2020 and 10 percent per capita reduction by 2035 from year 2005 levels. According to the Programmatic Draft Environmental Impact Report (SJCOG 2022), the 2018 RTP/SCS met those targets. On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. SJCOG was assigned a 16 percent reduction of GHG emissions from per capita passenger vehicles by 2035, relative to 2005 emission levels. The SJCOG Board voted to adopt the 2022 RTP/SCS at their meeting on August 25, 2022. (SJCOG 2022). The 2022 RTP/SCS will be implemented to result in a net decrease in overall transportation-related GHG emissions in the SJCOG region.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) provides direction and recommendations for the analysis of GHG impacts of a project and approach to mitigation measures in its CEQA Guidelines (BAAQMD 2017). The guidance provided in the handbook was used to prepare this analysis. In addition, the 2017 Clean Air Plan, Spare the Air Cool the Climate defines a control strategy that the BAAQMD and its partners will implement to reduce greenhouse gas emissions to protect the climate (BAAQMD 2017). In April 2022, BAAQMD proposed CEQA thresholds of significance for climate impacts from land use projects and plans and published a justification report (BAAQMD 2022). CEQA requires agencies in California to analyze such impacts by evaluating whether a proposed project would make a "cumulatively considerable" contribution to the significant cumulative impact on climate change.

The new thresholds were developed in response to new state GHG targets and BAAQMD scoping targets. These thresholds are intended to assist public agencies in determining whether proposed projects would make a cumulatively considerable contribution to global climate change, as required under CEQA. The proposed thresholds focus on design elements for land use and transportation aspects of development projects. If a project meets these elements, it is considered to contribute to what is necessary to contribute its portion of what is necessary to achieve California's long-term climate goals The Project will be required to be consistent with a local GHG reduction strategy that meets the criteria under CEQA guidelines Section 15183.5(b). The Almeda

County Community Climate Action Plan (CCAP) encourages energy efficiency and renewable energy. The Project will help the county meet its renewable energy goals.

Association of Bay Area Governments and Metropolitan Transportation Commission

As required by the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) developed a Regional Transportation Plan / Sustainable Community Strategy as a component of Plan Bay Area 2040 (MTC and ABAG 2017). In October 2021, the *Plan Bay Area 2050* and Final EIR were adopted (MTC and ABAG 2021). *Plan Bay Area 2050* focuses on climate change and strategies for resilience against hazards such as sea-level rise and wildfires. *Plan Bay Area 2050* includes an implementation plan detailing specific actions to be taken in the next 5 years.

Plan Bay Area 2050 provides a blueprint for how the Bay Area can accommodate future growth while achieving regional GHG emissions reduction targets established by the CARB pursuant to SB 375.

Alameda County General Plan

Alameda County adopted the CCAP to reduce GHG emissions. This plan was approved and adopted as an Element of the Alameda County General Plan by the Alameda County Board of Supervisors on February 4, 2014. Full implementation of the strategies in the CCAP would allow the County to reduce GHG emissions to 80 percent below 1990 levels by 2050 (Alameda County 2014). The plan describes implementation steps in six action areas (land use, transportation, energy, water, waste, and green infrastructure) to achieve the county's GHG reduction targets. The Project offers support for CAP particularly in the Building Energy Action Area's following measure:

- E-4: Identify and develop financing programs that encourage energy efficiency and renewable energy.

4.8.3 Methodology

As described above, the SJVAPCD has adopted its *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* (SJVAPCD 2009a). A GHG analysis is required to be included in CEQA documents for all non-exempt projects. The SJVACPD supports the use of the interim thresholds as established by CAPCOA when adopted thresholds are not applicable. While a new threshold has not been established to meet SB 32 targets beyond 2020, CAPCOA proposes that projects amortize construction emissions over the 30-year lifetime of any given project. Project construction emissions can be amortized by calculating total construction period emissions and dividing by the 30-year lifetime of the project.

For this Project, the major source of GHGs is the combustion of fuel in off-road construction equipment, vehicles used to haul equipment and materials, and vehicles used by workers commuting to and from the site. Operational GHG emissions would result from employee vehicle trips made to and from the site, energy usage, and from the on-site emergency generator for testing and maintenance. The California Emissions Estimator Model (CalEEMod) was used to

estimate the GHG emissions during construction and operation of the proposed Project. Total construction emissions from the Project were annualized over a Project life of 30 years to derive amortized annual emissions and combined with the Project's annual operational emissions derived from CalEEMod for comparison with CAPCOA's threshold.

Project emissions of CO_2, CH_4, and N_2O were multiplied with their respective global warming potentials of 1, 25, and 298 and summed together to estimate CO_{2e} emissions. Additionally, Project GHG emissions would include fugitive emissions of SF_6 from high-voltage circuit breakers at the onsite substation. The SF_6 GWP is equivalent to 22,800 times that of CO_2. CO_{2e} emissions resulting from SF_6 gas leakage at the Project were estimated for the two high-voltage circuit breakers, each with a capacity of up to 160 pounds of SF_6 for a total of up to 320 pounds, assuming a maximum leak rate of 0.5 percent per year. The R-134A GWP is 1,430 times that of CO_2. The Project will have approximately 500 battery storage units with a leak rate of approximately 0.035 pounds of R-134A per unit.

4.8.4 Thresholds of Significance

Under CEQA, a project would have a significant impact to GHG emissions if it would:

a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or*

b) *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

In the *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* and the policy *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (SJVAPCD 2009a), BPS are used to assess significance of project-specific GHG emissions on global climate change during the environmental review process. However, the SJVAPCD's adopted BPS are specifically directed at reducing GHG emissions from stationary sources; therefore, the adopted BPS would not generally be applicable to the Project as the Project would not be a stationary source of emissions. The SJVAPCD guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project-related impacts on global climate change. The SJVAPCD supports the use of the interim thresholds as established by CAPCOA when adopted thresholds are not applicable. A new threshold has not been established to meet SB 32 targets beyond 2020.

4.8.5 Impacts Analysis

IMPACT 4.8-1: *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?* **(Less Than Significant Impact)**; and

IMPACT 4.8-2: *Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?* **(No Impact)**

Construction Emissions

Construction of the Project would increase GHG generation, which can contribute to global climate change. This analysis is provided in response to recent heightened interest in the subject

of global climate change and, specifically, in the California legislature's passage and the Governor's signing of AB 32, which is intended to control and reduce the emission of global warming gases in California; and SB 97, which directs the Office of Planning and Research and the California Resources Agency to develop CEQA Guidelines on how local agencies should analyze and, if necessary, mitigate for GHG emissions.

Construction emissions would be associated with vehicle engine exhaust from construction equipment and vehicles, vendor trips, construction worker commuting trips, and the stationary generators to be used during construction. The Project's temporary construction emissions for GHGs were estimated using CalEEMod and are presented in Table 4.8-2. The short-term construction CO_{2e} emissions will not exceed the annual GHG threshold. The complete CalEEMod output is provided in Appendix D.

Table 4.8-2. Estimated Annual Construction Greenhouse Gas Emissions

Total Project Emissions	CO_2	CH_4	N_2O	CO_{2e}
	Emissions (metric tons) per Year			
Construction GHG Emissions	2,307	0.43	0.05	--
Global Warming Equivalence Factor	1	25	298	--
Equivalent CO_{2e} Emissions[1/]	2,307	11	15	2,333
Total Construction GHG (CO_{2e}) Amortized Emissions over 30 Years				*78*

1/ Equivalent CO_{2e} Emissions = Construction GHG Emissions x Global Warming Equivalent Factor

Operational Emissions

Operation of the Project would generate GHG emissions through motor vehicle trips to and from the Project site, occasional use of heavy duty trucks, landscaping, waste generation, water use, and potential leakage from gas-insulated circuit breakers (area source). CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in the Air Quality and Greenhouse Gas Report provided as Appendix D of this EIR. Additionally, GHG emissions associated with SF_6-insulated circuit breakers at the onsite substation were calculated based on up to 320 pounds of SF_6 contained in equipment, an annual leak rate of 0.5 percent, and a GWP of 22,800. The R-134A GWP is 1,430 times that of CO_2. The Project will have approximately 500 battery storage units with a leak rate of approximately 0.035 pounds of R-134A per unit.

The estimated operational GHG emissions from area sources, energy usage, motor vehicles, and emergency generator are shown in Table 4.8-3.

Table 4.8-3. Estimated Annual Operational Greenhouse Gas Emissions

Annual	CO_2	CH_4	N_2O	SF_6	R-134A	CO_{2e}
	Emissions (Metric Tons) per Year					
Operational GHG Emissions	13.6	0.2	0	0.000726	0.008	
Global Warming Equivalence Factor	1	25	298	22,800	1,430	--
Equivalent CO_{2e} Emissions[1/]	13.6	4.6	0	16.6	11.44	46
Total Operational GHG Emissions + Amortized Construction GHG Emissions						*124*

1/ Equivalent CO_{2e} Emissions = Construction GHG Emissions x Global Warming Equivalent Factor

As shown in Table 4.8-3, estimated annual Project-operational GHG emissions would be approximately 46 MT CO_{2e} per year as a result of Project operation. Estimated annual operational emissions and amortized construction emissions would be approximately 124 MT CO_{2e} per year. As shown, the total annual emissions would be well below the previous GHG screening level of 900 MT CO_{2e} per year and at levels conducive to meeting the targets of SB 32 by 2030. Because the Project's GHG emissions would not result in a cumulatively considerable contribution, the Project would result in a less than significant cumulative impact in terms of climate change.

The Project would keep with renewable energy targets under the Scoping Plan, SB X1-2, and SB 350 by providing a source of renewable energy to achieve the RPS of 33 percent by the end of 2020 and 50 percent by the end of 2030. While GHG would be generated from construction and occasional operations and maintenance activities, the Project would result in a net reduction in GHGs from battery storage that would potentially replace energy generated by fossil fuels. The Project would assist in the attainment of the state's goals by using a renewable source of energy that could displace electricity generated by fossil-fuel-fired power plants and, therefore, would comply with the goals and objectives of the state.

CARB's 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan; CARB 2022) was prepared to address climate legislation passed since the last scoping plan, which was prepared in 2017. The Scoping Plan addresses AB 1279, SB 905, SB 1065, SB 1075, and other legislation and executive orders addressing GHG reductions in various manufacturing sectors and managing natural lands.

The Scoping Plan lays out a roadmap for achieving carbon neutrality in California by 2045 or sooner. This 2022 plan addresses recent legislation and extends and expands upon earlier CARB plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. The carbon neutrality goal is new in the 2022 plan and proposes both emissions reductions as well as capture and storage. Much of the state's success to date in reducing GHGs is due to decarbonization of the electricity sector as a result of the Renewable Portfolio Standards, SB 100 implementation, and the Cap-and-Trade Program (CARB 2022). Clean energy generation and storage are a part of the 2022 Plan. According to the Scoping Plan, the estimated resources needed to meet future energy demand is approximately 72 gigawatts of utility solar and 37 gigawatts of battery storage by 2045. The Scoping Plan also acknowledges that the number of both solar and battery storage projects over the period 2022-2035 will need to increase from the current proposed projects.

Under the SJVAPCD's CEQA thresholds 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. The GHG emission goals in the SJCOG RTP/SCS are based on demographic data trends and projections that include household, employment, and total population statistics. The Project is anticipated to have one to two personnel traveling to the facility on a weekly basis starting in 2025. On intermittent occasions, workers may be required for repairs or replacement of equipment and other specialized maintenance. However, due to the self-operating nature of the facility, such actions would occur infrequently. The additional jobs estimated by the Project would be well within the annual growth projection for the SJCOG 2018 RTP/SCS. Therefore, the Project would be consistent with the

SJCOG 2018 RTP/SCS and would not conflict with an applicable plan and the Project would have a less than significant impact.

Mitigation: None required.

4.8.6 Pacific Gas and Electric Tesla Substation Improvements

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

These improvements are included in the analysis above, such that they would not be significant to the environment, nor would the improvements affect any plan, policy, or regulation regarding the reduction of GHG emissions.

Accordingly, the PG&E Tesla Substation improvements and construction of the gen-tie line from the POCO to its substation would have no impact on significance criteria 4.8-1 and 4.8-2. No mitigation measures would be required.

4.8.7 Cumulative Impacts

Impacts from GHG emissions are inherently cumulative, that is, significant and adverse. Accordingly, the significance of GHG emissions in this analysis is determined based on whether such emissions would have a cumulatively considerable impact on global climate change. Although the geographic scope of cumulative impacts related to GHG emissions is global, this analysis focuses on the Project's direct and/or indirect generation or offset of GHG emissions on the region and the state. CAPCOA considers GHG impacts to be exclusively cumulative impacts in that no single project could, by itself, result in a substantial change in climate (CAPCOA 2008). Therefore, the evaluation of cumulative GHG impacts presented above evaluated whether the Project would make a considerable contribution to cumulative climate change effects. The Project would result in a net reduction in GHG emissions from power generation and would not conflict with the state's GHG reduction goals. Therefore, the Project-specific incremental impact on GHG emissions would not be cumulatively considerable.

4.8.8 References

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4.9 HAZARDS AND HAZARDOUS MATERIALS

This section identifies and evaluates issues related to hazards and hazardous materials in the context of the Project. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received scoping comments relating to wildfire from the Tracy Rural County Fire Protection District, and those comments have been incorporated into this Draft Environmental Impact Report (EIR).

4.9.1 Existing Conditions

A hazardous material is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (Health and Safety Code Section 25501(o)). The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it has one or more of the following characteristics:

- Toxicity (i.e., causes adverse human health effects);
- Ignitability (i.e., has the ability to burn);
- Corrosivity (i.e., causes severe burns or damage to materials); or
- Reactivity (i.e., causes explosions or generates toxic gases).

In some cases, past industrial or commercial activities on a site have resulted in spills or leaks of hazardous materials or wastes to the subsurface, resulting in soil and/or groundwater contamination. Depending on the type and concentrations of contamination, potential exposure can threaten public health if released from the soil, groundwater, or into the air. The four primary exposure pathways through which an individual can be exposed to a hazardous material or waste are inhalation, ingestion, bodily contact, and injection. Exposure can result from an accidental release of hazardous materials during transport, storage, or handling. Disturbance of contaminated subsurface soil during construction can also cause exposure to workers, the public, or the environment through excavating, stockpiling, handling, or transport of such soils.

The Project site is located in rural, agricultural areas of San Joaquin County and Alameda County, in the northwestern San Joaquin Valley. Hazardous waste handlers and generators in San Joaquin County and Alameda County include industries, businesses, public and private institutions, and residences. Agricultural land use can also involve the storage and handling of hazardous materials and wastes (e.g., application of pesticides and the storage and use of fuels). Gasoline stations and other facilities that use or store fuels, solvents, chemicals, or other hazardous materials represent other potential sources of hazardous materials in rural areas. The presence of these potential sources of hazardous materials, if encountered, can cause exposures that may result in adverse environmental and health effects depending on the extent of exposure.

4.9.1.1 Soil and Groundwater Contamination

In California, regulatory databases listing hazardous materials sites provided by numerous federal, state, and local agencies are consolidated in the "Cortese List" pursuant to Government Code Section 65962.5, effective in 1992. However, subsequent changes in web-based information availability since that time have made a consolidation of this list no longer necessary, and the databases are maintained on an individual basis by the following responsible agencies:

- List of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database;
- List of Leaking Underground Storage Tank Sites by County and Fiscal Year from the State Water Resources Control Board (SWRCB) GeoTracker database;
- List of solid waste disposal sites identified by the SWRCB with waste constituents above hazardous waste levels outside the waste management unit;
- List of "active" Cease and Desist Orders and Cleanup and Abatement Orders from the SWRCB; and
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by the DTSC and listed on its EnviroStor database.

The five databases cited above identify sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The DTSC EnviroStor database includes federal and state response sites; voluntary, school, and military cleanups and corrective actions; and permitted sites. The SWRCB GeoTracker database includes leaking underground storage tanks (LUST), permitted underground storage tanks (UST), U.S. Department of Defense sites, and Cleanup Program sites. The reporting and statuses of these sites change as identification, monitoring, and cleanup of hazardous materials sites progress. Typically, a listed site is no longer considered to be of concern once it has been demonstrated that existing site uses, combined with the levels of identified contamination present, are determined not to be a significant risk to human health or the environment and the case is closed by the overseeing agency.

According to a review of the GeoTracker database, the Project site is not included as an active LUST site or a Cleanup Program site. There are two LUST sites within 1 mile of the Project site, one located approximately 0.25 mile west of the Project site and one located approximately 0.9 mile northeast of the Project site. Both sites are listed as "Completed–Case Closed." There are also two Cleanup Program sites located approximately 0.8 mile and 1.1 miles north of the Project site. Both sites are also listed as "Completed–Case Closed." The closest open case is a LUST Cleanup site located approximately 2.3 miles northwest of the Project site (SWRCB 2022). The Project site is not expected to have been adversely affected by migration of hazardous materials through groundwater from this site.

According to a review of the EnviroStor database, the Project site is not located on any federal or state response site; voluntary, school, and military cleanup and corrective action site; or permitted site. The closest EnviroStor site or facility to the Project site as listed in this database is an active federal Superfund site located approximately 3.5 miles to the south (DTSC 2022).

4.9.2 Regulatory Setting

4.9.2.1 Federal

This section describes the regulatory oversight of hazardous materials storage and handling, emergency response, site investigation and cleanup, and worker safety. In addition, regulations regarding fire hazards and local plans and policies are discussed.

Hazardous Materials Management

The primary federal agencies with responsibility for hazardous materials management include the U.S. Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), and U.S. Department of Transportation (DOT). State and local agencies often have either parallel or more stringent regulations than these federal agencies. In most cases, state law mirrors or overlaps federal law, and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated.

Hazardous Materials Transportation

The DOT regulates hazardous materials transportation on all interstate roads pursuant to its authority under the Hazardous Materials Transportation Uniform Safety Act (49 United States Code [U.S.C.] Section 5101 et seq.). The purpose of the act is to “protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce” (49 U.S.C. Section 5101). Within California, the state agencies with primary responsibility for enforcing federal and state regulations and for responding to transportation emergencies are the California Highway Patrol and California Department of Transportation. Together, federal and state agencies determine driver training requirements, load labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

Clean Air Act

Regulations under the Clean Air Act are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store minimum quantities (called “threshold quantities”) or greater of listed regulated substances to develop a Risk Management Plan, including hazard assessments and response programs to prevent accidental releases of listed chemicals.

Comprehensive Environmental Response and Liability Act and Superfund Amendments and Reauthorization Act

The Superfund Amendments and Reauthorization Act (SARA) amends the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and governs hazardous substances. The applicable part of SARA for the Project is Title III, otherwise known as the Emergency Planning and Community Right-to-know Act of 1986 (EPCRA). EPCRA establishes requirements for federal, state, and local governments, as well as Native American tribes and industry members regarding emergency planning and reporting on hazardous and toxic chemicals. Key sections of the law include:

Section 304: Requires immediate notification to the local emergency planning committee (LEPC) and the state emergency response commission (SERC) when a hazardous material is released in excess of its reportable quantity (RQ). If a CERCLA-listed hazardous substance RQ is released, notification must also be given to the National Response Center in Washington, D.C. (RQs are listed in 40 CFR Part 302, Table 302.4). These notifications are in addition to notifications given to the local emergency response team or fire personnel.

Section 311: Requires that either material safety data sheets (MSDSs) for all hazardous materials or a list of all hazardous materials be submitted to the SERC, LEPC, and local fire department.

Toxic Substances Control Act and Resource Conservation and Recovery Act

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA was amended in 1984 by the Hazardous and Solid Waste Amendments, which affirmed and extended the “cradle to grave” system of regulating hazardous wastes.

Occupational Safety

The federal OSHA is the agency responsible for assuring worker safety in the handling and use of chemicals in the workplace. The federal regulations pertaining to worker safety are contained in Title 29 of the Code of Federal Regulations (CFR), as authorized in the Occupational Safety and Health Act of 1970. They provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. At sites known or suspected to have soil or groundwater contamination, construction workers must receive training in hazardous materials operations and a site health and safety plan must be prepared. The health and safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

North American Electric Reliability Corporation Standards

The North American Electric Reliability Corporation (NERC) is a nonprofit corporation comprising six regional reliability councils. The overarching goal of the NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC 2022). To improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, the NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kilovolts and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region.

The transmission vegetation management program, which became effective on April 7, 2006, establishes requirements of the formal transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway. The clearances

identified must be no less than those set forth in the Institute of Electrical and Electronics Engineers Standards Association (IEEE) Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) (IEEE 2003), which establishes minimum vegetation-to-conductor clearances to maintain electrical integrity of the electrical system.

4.9.2.2 State

In January 1996, the California Environmental Protection Agency (Cal EPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program, Health and Safety Code Section 25404 et seq.). The program has six elements: hazardous waste generators and hazardous waste onsite treatment; USTs; aboveground storage tanks (AST); hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The program is implemented at the local level. The Certified Unified Program Agency (CUPA) is the local agency responsible for the implementation of the Unified Program. In San Joaquin County, the San Joaquin County Environmental Health Department is the designated CUPA for all businesses (San Joaquin County 2022). In Alameda County, the Alameda County Department of Environmental Health is the designated CUPA (Alameda County 2023).

Hazardous Materials Management

The California Hazardous Materials Release Response Plans and Inventory Law (Business Plan Act, Health and Safety Code Section 25500 et seq.) requires any business that handles hazardous materials at or above specified thresholds to prepare a hazardous materials business plan (HMBP). The thresholds include any site that stores hazardous materials in excess of 55 gallons (liquids), 500 pounds (solids), or 200 cubic feet for a compressed gas. The HMBP much include the following:

- Details, including floor plans, of the facility and business conducted at the site;
- An inventory of hazardous materials that are handled or stored onsite;
- An emergency response plan; and
- A safety and emergency response training program for new employees with annual refresher courses.

The primary purpose of the HMBP requirement is to provide basic information needed by first responders to prevent or mitigate damage to the public health and safety and to the environment from a release or threatened release of a hazardous material (Cal OES 2017). The HMBP requirement could apply, for example, to the handling of mineral oil, which is a highly refined hydrocarbon-based oil used as an insulation medium and coolant in transformers and other electrical equipment.

Hazardous Waste Handling

The DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment.

Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely.

Individual states may implement their own hazardous waste programs in lieu of the RCRA, as long as the state program is at least as stringent as federal RCRA requirements. In California, the DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. The California Hazardous Waste Control Law is codified at Health and Safety Code Section 25100 et seq.

Occupational Safety

The California Department of Industrial Relations Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the CFR.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. The hazard communication program also requires that safety data sheets (SDS) be available to employees, and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (i.e., escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

Other State Regulations

The CCR contains additional requirements that would apply to the Project, including:

1. 8 CCR Section 2700 et seq., *High Voltage Electrical Safety Orders*, which establish essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.
2. 14 CCR Sections 1250–1258, *Fire Prevention Standards for Electric Utilities*, which provide specific exemptions from electric pole and tower firebreak and electric conductor clearance standards and specify when and where standards apply. They establish minimum clearance requirements for flammable vegetation and materials surrounding structures.
3. 22 CCR Section 66273, *Standards for Universal Waste Management*, which regulates the management of universal wastes. These wastes are not fully regulated as hazardous waste to encourage their recycling. Batteries, electronic devices, mercury containing equipment, lamps, cathode ray tubes and tube glass, and aerosol cans are considered

universal wastes in California. A person or business who generates universal waste is required to follow the Management Requirements for Universal Waste Handlers (22 CCR Sections 66273.30–66273.39), which include storage, spill protection, and disposal rules designed to minimize risk of harm to public health and the environment.

National Pollutant Discharge Elimination System Construction General Permit

The Regional Water Quality Control Board administers the stormwater permitting program in the Central Valley Region pursuant to authority delegated under the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) program. Construction activities disturbing 1 acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (Construction General Permit) and must apply for Construction General Permit coverage. Additional details of the Construction General Permit are provided in Sections 4.7, *Geology, Soils, and Paleontological Resources,* and 4.10, *Hydrology and Water Quality*.

California Fire Code

The California Fire Code is contained within Title 24, Chapter 9, of the CCR. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property. Section 608 of the International Fire Code (IFC) has been adopted by the State of California to minimize risk of fire from stationary battery storage systems and to contain fire in the event of such an incident. Compliance with Article 480 of the Electrical Code, which identifies insulation and venting requirements for stationary storage batteries, further reduces potential fire risk.

Chapter 12 of the 2022 California Fire Code includes requirements for battery energy storage systems (BESS) greater than 20 kilowatt-hours, which includes the proposed energy storage facilities. Chapter 12 includes requirements for vehicle impact protection, location, spacing between batteries, egress, security, seismic and structural design, and fire suppression systems. Chapter 12 also sets maximum allowable battery quantities and specific battery type requirements for battery technologies, including lead acid, nickel cadmium, lithium, sodium, etc. Design and installation requirements are also outlined in Chapter 12.

California Public Resources Code

The Public Resources Code includes fire safety regulations that apply to State Responsibility Areas (SRA) during the time of year designated as having hazardous fire conditions (i.e., "fire season"). During the fire hazard season, these regulations require the use of spark arrestors on equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided onsite for various types of work in fire-prone areas.

Public Resources Code Section 4291 provides that a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining brush- or grass-covered lands

or land that is covered with flammable material shall at all times maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line.

Public Resources Code Sections 4292 and 4293 require that any person who owns, controls, operates, or maintains any electrical transmission or distribution line shall maintain a firebreak clearing around and adjacent to any pole, tower, and conductor that carries electric current as specified in the section.

California Strategic Fire Plan

The 2018–2023 Strategic Plan is the most recent statewide plan for the adaptive management of wildfire (CAL FIRE 2019). The central goals critical to reducing and preventing the impacts of fire revolve around both suppression efforts, natural resource management, and fire prevention efforts. The key goals of the Fire Plan include the following:

1. Improve our core capabilities;
2. Enhance internal operations;
3. Ensure health and safety; and
4. Build an engaged, motivated, innovative workforce.

The Fire Plan does not contain any specific requirements or regulations. Rather, the plan details the goals and objectives, sets the course for the department, and will guide Budget Change Proposals (BCP) and management direction (CAL FIRE 2019).

Health and Safety Code Section 41700

This statute states:

> *no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.*

Emergency Response

The California Governor's Office of Emergency Services (Cal OES) developed the State of California Emergency Plan (Cal OES 2017) to coordinate federal, state, local, and private agency emergency service providers' response to natural or human-caused emergencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the Cal OES, which coordinates the responses of other agencies.

State Responsibility Area

In designated SRAs, the State is financially responsible for the suppression and prevention of wildfires (Public Resources Code Section 4102). Its designated SRAs consist of more than 31 million acres. The California Department of Forestry and Fire Protection (CAL FIRE) maintains a statewide map of fire hazard severity zones (FHSZ) and responsibility areas. The entire Project

site is located in an SRA and High FHSZ, as is the area surrounding the Project site (CAL FIRE 2022).

4.9.2.3 Local

San Joaquin County General Plan

The Public Health and Safety (PHS) Element of the San Joaquin County General Plan outlines the County's planning strategies regarding emergency management and response, fire hazards, flood hazards, seismic and geological hazards, airport hazards, hazardous materials, and noise. The following list consists of goals and policies of the Health and Safety Element relevant to Hazards and Hazardous Materials (San Joaquin County 2016):

> ***Policy PHS-1.10: Emergency Vehicles Access****. The County shall require all new developments to provide, and existing developments to maintain, adequate primary and alternative access for emergency vehicles.*
>
> ***Goal PHS-4:*** *To minimize the risk of wildland and urban fire hazards.*
>
> ***Policy PHS-4.3: Fire Prevention Measures****. The County shall implement State recommendations for fire prevention in Fire Hazard Severity Zones and require new and/or existing development to provide clearance around structures, use fire-resistant ground cover, build with fire-resistant roofing materials, participate in fuel load reduction, and take other appropriate measures.*
>
> ***Policy PHS-4.5: Vegetation and Fuel Management.*** *The County shall require new development in high fire-hazard areas to have fire-resistant vegetation, cleared fire breaks separating communities or clusters of structures from native vegetation, or a long-term comprehensive vegetation and fuel management program consistent with State codes 4290 and 4291 for wildland fire interface and vegetation management.*
>
> ***Goal PHS-7:*** *To protect County residents, visitors, and property from hazardous materials and wastes.*
>
> ***Policy PHS-7.1: Minimize Hazardous Materials and Wastes.*** *The County shall discourage the use of hazardous materials and the creation of hazardous wastes.*
>
> ***Policy PHS-7.2: Avoid Contamination of Resources.*** *The County shall strive to ensure that hazardous materials and wastes do not contaminate air, water, or soil resources.*
>
> ***Policy PHS-7.3: Control Hazardous Materials.*** *The County shall require the use, storage, and disposal of hazardous materials and wastes to comply with local, State, and Federal safety standards.*
>
> ***Policy PHS-7.5: Locate Hazardous Materials Away from Populated Areas.*** *To the extent feasible, the County shall require proposed activities and land uses that use, store, or dispose of hazardous materials or wastes to be located away from existing and planned populated areas.*
>
> ***Policy PHS-7.6: Require Hazardous Materials Management Plans.*** *The County shall require businesses that use or store materials and wastes on-site to prepare Hazardous Materials Management Plans (Business Plans) that map and inventory all hazardous materials and contain contingency plans for accidents, designate an individual or*

individuals as emergency coordinator(s), and ensure that all employees understand the potential for accidents and the appropriate response. Plans must follow the requirements for Federal, State, and/or local defined special flood hazard areas.

Policy PHS-7.8: Consistency with Hazardous Waste Management Plan. *The County shall require all new development to be consistent with the County Hazardous Waste Management Plan (CHWMP). Any proposed hazardous waste facility, or expansion of an existing hazardous waste facility, shall be consistent with the CHWMP.*

Policy PHS-7.9: Require Disclosure of Hazardous Materials and Waste. *The County shall require public disclosure of hazardous materials and wastes for existing and proposed businesses.*

Goal PHS-8: *To promote the safe operation of public and private airports and protect the safety of County residents.*

Policy PHS-8.1: Land Use Compatibility. *The County shall prohibit land uses within unincorporated areas that interfere with the safe operation of aircraft or that would expose people to hazards from the operation of aircraft.*

Policy PHS-8.6: Transmission Tower and Lines. *The County shall not approve any radio, television, power, or related transmission towers and lines that may conflict with aircraft operations.*

San Joaquin County Local Hazard Mitigation Plan

In September 2022, the San Joaquin County Office of Emergency Services launched an effort to reassess risks posed by natural and human-caused disasters and identify ways to reduce those risks and began updating the previously Federal Emergency Management Agency (FEMA)-approved 2018 Local Hazard Mitigation Plan (LHMP). The LHMP intends to provide strategies for the County and other local jurisdictions to identify and implement mitigation actions for reducing damages from various natural and technological disasters. The LHMP outlines a process for assessing and analyzing those hazards to which San Joaquin County is most vulnerable. The process can improve the County's resilience by performing a hazard risk assessment, using available tools to complete a capabilities assessment, and then identifying mitigation actions for these hazards. The LHMP analyzes the risk posed to people and property by earthquakes, landslides, floods, wildfires, drought, severe weather, and other hazards, such as climate change, and considers mitigation actions that the County could implement before such events. The goal is to reduce the risk to life and safety and the risk of property damage and service disruption caused by these natural hazards. The LHMP establishes prioritized mitigation goals and adopts a 5-year implementation timeline, which the County would seek to implement, subject to funding and resource limitations (San Joaquin County 2023).

Alameda County East Area Plan

The purpose of the ECAP is to present a clear statement of the County's intent concerning future development and resource conservation within East County. The goals and policies in the ECAP are intended to inform decisionmakers, the general public, public agencies, and those doing business in the County of the County's position on land use-related issues and to provide guidance for day-to-day decision-making. The programs that follow the policies identify a set of specific actions the County will undertake to achieve the goals and policies of the plan.

The Land Use and Environmental Health and Safety Elements of the ECAP contains goals and policies related to hazards and the proposed Project that are not related to wildfire (Alameda County 2000):

Land Use

> ***Goal:*** *To minimize the risks to lives and property due to environmental hazards.*
>
> ***Policy 135:*** *The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.*

Environmental Health and Safety

> ***Goal:*** *To minimize the risks to lives and property due to fire hazards.*
>
> ***Policy 319:*** *The County shall adhere to the provisions of the Alameda County Fire Protection Master Plan and Fire Hazard Mitigation Plan.*
>
> ***Policy 320:*** *The County shall consider, in reviewing development projects and subdivision of agricultural lands, the severity of natural fire hazards, potential damage from wildland and structural fires, the adequacy of fire protection services, road access, and the availability of an adequate water supply and pressure.*
>
> ***Policy 323:*** *The County shall refer development applications to the County Fire Patrol, or local fire district, for review and recommendation.*

Alameda County Local Hazard Mitigation Plan

The Alameda County LHMP was last updated in 2021 and adopted by the County Board of Supervisors and approved by FEMA in March 2022. The purpose of this plan, a requirement of FEMA, is to identify the natural hazards in our area, determine how they will impact our community, and develop strategies to lessen the effect of those hazards and create a more disaster-resilient Alameda County. The plan includes a discussion of Climate Change Adaptation and will also maximize the Community Rating System (CRS) credit for County residents under the auspices of the National Flood Insurance Program (NFIP) (Alameda County 2022).

4.9.3 Thresholds of Significance

A project would result in significant impacts to hazards and hazardous materials if it would:

a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;*
b) *Create a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment;*
c) *Emit hazardous emissions or handle hazardous materials or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;*

d) Be located on a site that is included on a list of hazardous materials site compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;

e) Result in a safety hazard or excessive noise for people residing or working in the project area, for a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport;

f) Impair implementation of or physically interfere with an adopted emergency plan; or

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

4.9.4 Impacts Analysis

IMPACT 4.9-1*: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?* **(Less than Significant Impact)**

Construction

Project construction would last approximately 15 months, with activities including grading, site preparation, fencing, installation of a substation pad and electrical equipment, and construction of a gen-tie line from the Project substation to the PG&E Tesla Substation immediately to the west. The Project would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transport Uniform Safety Act. Most of the waste generated during construction would be nonhazardous and consist primarily of cardboard, wood pallets, wire, scrap metal, common trash, and wood wire spools. Most construction waste would be disposed of at a nonhazardous landfill or at a recycling facility whenever feasible. Construction materials would be handled in accordance with the California Green Building Standards Code (CCR 2019), which establishes standards for construction and demolition waste management, and recycling or salvage of a minimum of 65 percent of nonhazardous construction and demolition waste. Non-recyclable construction waste would be placed into commercial trash dumpsters located onsite. Dumpsters would be collected as needed by a commercial service and delivered to a landfill. Construction would generate an average of approximately 5 cubic yards of nonhazardous solid waste per week over the period of construction. Sanitary waste would be managed using portable toilets and hauled for offsite disposal.

During construction of the Project, diesel and gasoline fuels and other hazardous materials, such as oils, solvents, hydraulic fluids, and paints commonly associated with construction equipment, may be stored onsite. These materials would be stored and handled in a manner to prevent accidental release (i.e., consistent with the hazardous materials handling best management practices (BMP) and other measures contained within the required Stormwater Pollution Prevention Plan [SWPPP]), which would require them to be stored within locked aboveground containers with secondary containment. Further discussion of BMP requirements is provided in Sections 4.7, *Geology, Soils, and Paleontological Resources*, and 4.10, *Hydrology and Water Quality*. SDS for all applicable materials present at the site would be made readily available to onsite personnel.

Batteries will be delivered to the Project site in DOT-certified vehicles and in compliance with all applicable requirements of the DOT, California Highway Patrol, and California Department of

Motor Vehicles. Lithium-ion batteries are classified as a Class 9 hazardous material, and therefore must meet DOT Hazardous Material Regulations (49 CFR 171-180). In addition, under UN3536 "Lithium batteries installed in cargo transport units" (United Nations 2019), the batteries must be securely attached to the interior structure of the cargo unit (e.g., Conex-type shipping container), the batteries must pass UN38.3 tests that prevent overcharge and over discharge between batteries, and no additional hazardous cargo is allowed that is not directly related to the transport of the batteries. UN38.3 compliance allows certification for safe transport by air, land, or sea. According to the study "Comparative Risks of Hazardous Materials and Non-hazardous Materials Truck Shipment Accidents/Incidents" by Battelle (2001), the hazardous material accident/incident rate per mile (road miles only) for all Class 9 hazardous materials is 1.09 in 1 million. This statistic includes en route incidents, and includes all Class 9 hazardous materials, of which lithium-ion batteries make up only a portion. This indicates the worst-case probability of an accident occurring during lithium battery transportation to the Project site would be approximately 1 accident per 1 million miles traveled. There will be a one-time transport of batteries to the Project site, then very infrequent transport of batteries for the lifetime of the Project. Thus, the infrequent shipping, containerized shipping, low probability of accident/incident, and multiple regulations that control the shipping of lithium-ion batteries would make impacts associated with routine transport and foreseeable upset or accidents involving the release of hazardous materials less than significant.

With these protections in place, Project construction would have a less than significant impact due to creation of a potential significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Operation

Project operations and maintenance (O&M) activities may involve the transportation, use, or temporary storage of a variety of hazardous materials, such as batteries, hydraulic fluid, diesel fuel, insulation oil for the transformers, grease, lubricants, paints, solvents, and adhesives. The Project substation would include transformers, breakers, switches, meters, and related equipment.

O&M activities associated with a battery energy storage facility are relatively limited when compared to other industrial land uses. During operation, the Project would require one or two workers in a light utility truck to visit the facility on a weekly basis. O&M staff would visit the site for switching and other operation activities. Maintenance trucks would be used to perform routine maintenance, including, but not limited to, equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Long-term maintenance and equipment replacement would be scheduled in accordance with manufacturer recommendations to ensure equipment integrity is maintained. Typically, one major maintenance inspection would take place annually.

The Project would generate a small amount of waste during operation, such as broken or rusted metal, defective or malfunctioning equipment, electrical materials, empty containers, other miscellaneous solid waste, and typical refuse from the O&M staff. Additionally, limited amounts of hazardous materials would be stored or used onsite during Project operation, including diesel fuel, gasoline, and motor oil for vehicles; mineral oil to be sealed within the transformers; and lead-acid-based or lithium-ion-based batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during operation of the Project. The Project

would be in compliance with California Health and Safety Code Section 25505(a) and with San Joaquin County Environmental Health Department regulations. Further, the Project would be required to prepare an HMBP per San Joaquin County's Hazardous Materials Business Plan Guidelines. Any hazardous materials that would be stored onsite would be contained in designated areas in accordance with an HMBP. Adherence to the HMBP, as required by the California Hazardous Materials Release Response Plans and Inventory law (Health and Safety Code Section 25500 et seq.), would ensure that all handling, storage, and disposal of hazardous materials would be conducted in accordance with proven practices to minimize exposure to workers or the public. The HMBP includes regular site inspections, a chemical inventory of materials stored onsite, preparation of an employee training plan, and preparation of an emergency response/contingency plan. All workers who will be a part of the transportation process undergo training for the proper handling and assembly of Project components, including battery units. Additional details regarding the emergency response plan are provided in Chapter 2, *Project Description*. The site would also be fenced to prevent public access to hazardous materials.

Lithium-ion batteries would likely be used for the proposed energy storage system and would be contained within steel enclosures. Transformers would contain dielectric insulating fluid in the form of vegetable or mineral oil and would be not routinely be handled by O&M staff. Dust palliatives and herbicides may be transported to the Project site if they are used during operations to control vegetation. These materials would be stored in appropriate containers to prevent accidental release. Equipment containing hazardous materials would be equipped with spill containment areas and battery storage would be in accordance with OSHA requirements, such as inclusion of heating, ventilation, air conditioning, fire protection systems, and spill response supplies. All components would have a comprehensive Spill Prevention, Control, and Countermeasure (SPCC) Plan, in accordance with all applicable federal, state, and local regulations. Therefore, the preparation and implementation of an SPCC Plan, which would describe proper handling, storage, transport, and disposal techniques and methods to be used to avoid spills and minimize impacts in the event of a spill, would further reduce impacts related to hazards to a less than significant level.

Closure, Decommissioning, and Site Restoration

During the Project decommissioning and site restoration process, all aboveground and below ground equipment above 3 feet below grade would be removed, including steel poles and foundations, electrical wiring and batteries, equipment on the inverter pads, transformer pads, substation pad, and other associated equipment. Equipment at 3 feet or more below grade would remain, such as any below ground portion of the gen-tie line, if the option is chosen to place the gen-tie line below ground. Equipment would be de-energized (i.e., safely disconnected from the power supply) prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment offsite. Batteries may be considered hazardous waste in California when they are discarded, whether or not they are rechargeable. Accordingly, the battery modules included in the BESS would eventually be disposed of in accordance with the applicable hazardous waste requirements. All remaining oil and lubricants removed from equipment would be transferred to an appropriate container and disposed of in accordance with the manufacturers' specifications and consistent with applicable regulatory requirements.

Once the BESS has been removed, all other associated site infrastructure would be removed, including fences, concrete pads that may support the inverters, transformers and related equipment, and underground conduit/electrical wiring. All materials would be recycled to the extent feasible. The area would be thoroughly cleaned, and all debris removed. Therefore, decommissioning and disposal of Project components, including the batteries, would have a less than significant impact related to the routine transport, storage, and disposal of hazardous materials.

Mitigation: None required.

IMPACT 4.9-2: *Would the project create a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?* **(Less than Significant Impact)**

Construction

Potential impacts that may result from upset or accidents during construction of the Project include the accidental release of materials, such as hydraulic fluid, fuel, insulation oil, grease, lubricants, paints, solvents, and adhesives. Generally, the quantities of these hazardous materials would be relatively limited and handled in accordance with manufacturer's guidelines. In addition, implementation of the BMPs required by the NPDES Construction General Permit would include containment and spill response measures, which would reduce the potential impact from upset and accident conditions to a less than significant level.

Additionally, there are no active LUST or Cleanup Program sites documented on the Project site or in the vicinity, such that encountering aboveground and/or subsurface contamination is not anticipated during construction. The closest open case is a LUST Cleanup site located approximately 2.3 miles northwest of the Project site (SWRCB 2022). Therefore, risk of upset and accident conditions would be unlikely, and the impacts would be less than significant.

Operation

O&M of the battery energy storage facility would generate little hazardous waste. Electrical equipment used by the Project, such as inverters and each enclosed transformer at the substation, would include an insulating fluid, such as vegetable or mineral oil, but upsets or accidents would be controlled via the secondary containment provided in accordance with applicable federal, state, and local laws and regulations. The insulating oil contained in each transformer does not normally require replacement, minimizing the potential for upsets or accidents involving its use. Further, Health and Safety Code Section 25500 et seq. requires the preparation of hazardous materials release response plans, such as an HMBP, under specified circumstances.

The Project would likely use lithium-ion batteries, which contain flammable and corrosive liquid materials. The potential for hazardous materials to be released during an accidental breakage of the batteries does exist. However, batteries would be housed in multiple self-contained storage system enclosures, as well as the battery storage system controller. The energy storage system controller is a multi-level control system designed to provide a hierarchical system of controls for the battery modules, PCS, medium voltage system, and up to the point of change of ownership (POCO) with the electrical grid. The controllers ensure that the energy storage system effectively

responds to grid emergency conditions and provides a secondary safety system designed to safely shut down the facility. All batteries would be contained within specifications that follow applicable federal state and local requirements, including the inclusion of appropriate ventilation, acid resistant materials, and presence of spill protection supplies.

Combustible vegetation or agricultural products on and around the Project Boundary would not be routinely handled by O&M staff, but managed by the Project owner or its affiliates during operation. Removal and/or maintenance of vegetation may require the use of herbicides. If not handled properly; use of these products could create a hazard to the public (e.g., construction workers, maintenance employees, and nearby residences). However, application would be limited, application would be in accordance with federal, state, and County regulations, and any herbicides would be applied by a state-licensed pesticide applicator. This Applicant-proposed activity and adherence to regulatory requirements would reduce impacts related to use of herbicides to a less than significant level.

The Project would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. Adherence to regulations and Applicant-proposed protocols during the storage, transportation, and usage of any hazardous materials would minimize and avoid the potential for significant upset and accident condition impacts.

Closure, Decommissioning, and Site Restoration

The closure, decommissioning, and site restoration process is summarized under Impact 4.9-1 above. Many components of the BESS are recyclable. Project components would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable laws. See Section 4.17, *Utilities and Service Systems*, for information about landfill capacity. The disposal of batteries may be considered hazardous waste and will be disposed of in accordance with the applicable hazardous waste requirements. Metal, scrap equipment, and parts that do not have free-flowing oil can be sent for salvage. Equipment containing any free-flowing oil would be managed as waste and would require evaluation. Oil and lubricants removed from equipment would be managed as used oil, which is a hazardous waste in California.

Ultimately, impacts related to reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment would be less than significant during construction, operation, and eventual decommissioning of the Project.

Mitigation: None required.

IMPACT 4.9-3: *Would the project emit hazardous emissions or handle hazardous materials or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?* **(No Impact)**

The nearest school, Peter Honsen Elementary School, is located approximately 3.25 miles north of the Project site. The Project is not located within 0.25 mile of an existing or proposed school; as such, there would be no impact.

Mitigation: None required.

IMPACT 4.9-4: *Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?* **(No Impact)**

The Project is not located on a site included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. As described in Section 4.9.1.1 above, there are two LUST sites within 1 mile of the Project site; however, both sites are listed as "Completed–Case Closed." There are also two Cleanup Program sites located approximately 0.8 mile and 1.1 miles north of the Project site. Both sites are also listed as "Completed–Case Closed." The closest open case in the GeoTracker database is a LUST Cleanup site located approximately 2.3 miles northwest of the Project site. However, the Project site is not located on a site included in the GeoTracker database.

The Project site is not located on a site included in the EnviroStor database. The closest EnviroStor site or facility to the Project site as listed in this database is an active federal Superfund site located approximately 3.5 miles to the south (DTSC 2022).

Accordingly, the Project site is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As a result, there would be no impact.

Mitigation: None required.

IMPACT 4.9-5: *For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?* **(No Impact)**

The closest airport to the Project site is the Tracy Municipal Airport, located approximately 6 miles southeast of the Project site. The Project is not located within any airport land use plan, including for Tracy Municipal Airport. Therefore, the Project is not part of any airport land use plan and would not interfere with airport operations or result in a safety hazard for people residing or working in the area.

Mitigation: None required.

IMPACT 4.9-6: *Would the project impair implementation of or physically interfere with an adopted emergency plan?* **(No Impact)**

The Project would not impair implementation of or physically interfere with the San Joaquin County LHMP coordinated by the San Joaquin County Office of Emergency Services, nor with the Alameda County LHMP coordinated by the Alameda County Office of Emergency Services, for the portion of the gen-tie line to be constructed by the Applicant from the battery energy storage facility to the POCO, which is located within Alameda County. The Project site is located in a sparsely populated rural area. The Project would not alter or impair any of the existing road networks and would require relatively low staffing for O&M activities. As a result, the Project would not impair implementation of or physically interfere with any adopted emergency response plan or emergency evacuation plan. No impact would occur.

Mitigation: None required.

IMPACT 4.9-7: *Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?* **(Less than Significant Impact)**

The Project is located in a High FHSZ within the SRA (CAL FIRE 2022). The nearest Very High FHSZ is located approximately 3.5 miles southwest of the Project site. The nearest residences are located approximately 0.2 mile (approximately 1,000 feet) north of the Project site on the other side of West Patterson Pass and 0.2 mile (approximately 1,000 feet) southwest of the Project site at the southern terminus of Midway Road. Primary fire services for the BESS would be provided by South San Joaquin County Fire Authority (SJC Fire) in San Joaquin County. The Alameda County Fire Department (ACFD) would provide fire services to the portion of the gen-tie line corridor in Alameda County and the PG&E Tesla Substation. CAL FIRE would also provide secondary fire services to the entire Project site, as the site is located entirely within the SRA.

The Project would be designed in compliance with federal, state, and local worker safety and fire protection codes and regulations, which would minimize the potential for the occurrence of fire. Project maintenance and operation may introduce potential ignition sources, such as transformers, inverters, electric transmission line (including the gen-tie line), substations, maintenance vehicles, gas/electric-powered machinery, and batteries. However, the potential fire risk is low for these Project components. All battery components for the BESS would be installed on concrete pads and contained within an enclosure to minimize the potential for sparks or ignition. Fire detection measures would be incorporated in the Project design in accordance with National Fire Protection Association safety standards.

During Project construction and decommissioning, the primary fire hazards would be heat or sparks from vehicles and construction equipment. These hazards could potentially ignite dry vegetation at the Project site, especially during the warmer, dry months between June and October. Additionally, construction activities, such as welding and grinding, could generate sparks that would increase the likelihood of ignition. Thus, depending on the time of year and location of construction activities at the Project site, there could be a temporary increase in exacerbated fire risk in the area due to these other factors. However, Cal/OSHA Title 8 Regulations include Subchapter 4, *Construction Safety Orders,* Article 36, *Fire Protection and Prevention*, which contains standard practices to minimize the potential for fires during construction. The Project would adhere to all applicable fire protection and prevention measures to limit the potential for fires during construction and decommissioning.

The Project will also comply with applicable local and state fire code requirements, standards from Underwriters Laboratories (UL; safety organization), and the National Fire Protection Association (NFPA). Specifically, the Project's fire protection design will comply with California Fire Code Section 1207, *Electrical Energy Storage Systems*, which adopts the NFPA's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). The selected battery technology for the Project will also comply with UL 9540A testing. UL 9540A testing is performed by the battery manufacturer/vendor to prevent thermal runaway and mitigate fire risk. Some of the measures to mitigate fire risk include heating, ventilation, air conditioning, sprinkler system, early smoke detection, alarms, and remote monitoring. The latest UL 9540A testing criteria for battery units, such as those proposed for the Project, specifically test for the potential for thermal runaway to prevent a thermal runaway event. The latest technology in battery storage has established a design such that, in the unlikely event a combustion episode occurs, the combustion would be contained to a single battery container and not result in thermal runaway that could

affect neighboring units. The fire protection and prevention technology employed in battery storage units based on battery models available on the current market is specifically designed to prevent a combustion event, and then subsequently put through UL 9540A testing to confirm a combustion event that could result in a fire hazard would not occur. In fact, a recent study conducted by the Fire Protection Research Foundation titled “Hazard Assessment of Lithium-ion Battery Energy Storage Systems” tested an older model of battery in an attempt to intentionally cause a thermal runaway event to determine the potential for thermal runaway (NFPA 2016). The attempt failed, demonstrating the fire prevention integrity of such units to prevent combustion and thermal runaway from occurring (NFPA 2016).

Compliance with these standards and certification includes a Battery Management System (BMS) design that detects high temperatures at the battery cell or battery module level and automatically shuts down the battery rack. Furthermore, installation of battery units would follow manufacturer specifications for the spacing of batteries and clearance distances to further prevent a thermal runaway event. Each unit would also be equipped with thermal management systems for thermal management of the batteries. Power to the thermal management system and lighting would be provided through a connection to the onsite station service transformer with connection lines installed above and/or below ground. Cabinets housing batteries are designed with adequate ventilation and will also be equipped with carbon monoxide (CO) detection that would alert the remote monitoring facility that the sensor has been activated.

Combustible vegetation or agricultural products on and around the Project Boundary would be actively managed by the Project owner or its affiliates during both the construction and decommissioning phases of the Project to minimize fire risk. Combustible products would be either limited in height or removed. Additionally, the Project would include firebreaks around the Project Boundary in the form of access roads subject to County standards. The gen-tie line and tie-in to the existing PG&E Tesla Substation would also be required to comply with transmission vegetation management standards established by NERC.

Although the closest people or structures are residences located approximately 0.2 mile (approximately 1,000 feet) north of the Project site on the other side of West Patterson Pass and 0.2 mile (approximately 1,000 feet) southwest of the Project site at the southern terminus of Midway Road, the proposed Project is not expected to expose these residences, or any other people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Impacts would be less than significant.

Mitigation: None required.

4.9.5 PG&E Tesla Substation Improvements and Gen-tie

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the POCO to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

As a result of these substation improvements and PG&E construction of the gen-tie line from the POCO to its substation, it is anticipated that there would be minimal impacts related to hazardous materials. Construction impacts would be similar to those of the battery energy storage facility and would be regulated by state requirements and BMPs contained in the SWPPP, as previously discussed. Operation and decommissioning impacts would also be similar to those of the battery energy storage facility, which would be less than significant. The PG&E Tesla Substation and proposed gen-tie line are similarly not within 0.25 mile of a school or within an airport land use plan, such that substation improvements and PG&E construction of its portion of the gen-tie line would result in no impacts to schools or airports. These substation improvements and construction of the gen-tie line from the POCO to the substation would be under the jurisdiction of Alameda County and would not conflict with the Alameda County LHMP. Finally, these substation improvements and construction of the gen-tie line from the POCO to the substation would also be designed in compliance with federal, state, and local worker safety and fire protection codes and regulations and are not anticipated to expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Therefore, the PG&E Tesla Substation improvements and construction of the gen-tie line from the POCO to its substation would have no significant impact on significance criteria 4.9-1 through 4.9-7. No mitigation measures would be required.

4.9.6 Cumulative Impacts

Construction, operation, maintenance, and decommissioning of the Project, in combination with the incremental impacts of other projects, would not cause or contribute to any significant cumulative impacts relating to hazards and hazardous materials. As discussed above, the Project would result in less than significant impacts related to the potential to encounter hazardous materials, accidents, or upset conditions during the routine use of hazardous materials or release hazardous materials into the environment that could cause harmful exposures.

Releases of hazardous materials or wastes are site specific, and BESS projects generally do not cumulatively contribute to the impacts of other projects because of the relatively low quantities used and stored at these facilities, the relatively low staffing and minimal O&M activities required during operation, and the nature and characteristics of the emissions. An accident involving a hazardous material release during project construction or operation are location specific and limited in geographic scope. Therefore, the Project would not cause or contribute to any significant cumulative impacts from accidental releases or discovery of hazardous materials and/or wastes.

Hazardous materials to be used during decommissioning and removal activities are of low toxicity and would consist of fuels, oils, and lubricants. Because these materials are required for operation of construction vehicles and equipment, BMPs would be implemented to reduce the potential for or exposure to accidental spills or fires involving the use of hazardous materials similar to what would be required of other cumulative projects. Impacts from minor spills or drips would be avoided by thoroughly cleaning up minor spills as soon as they occur in accordance with construction requirements to which all cumulative projects adhere. While foreseeable projects

have the potential to cause similar impacts, these projects would comply with applicable regulatory requirements and it is assumed these projects would also implement similar BMPs.

In addition, conformance with existing state and county regulations and implementation of appropriate safety measures during construction of the Project, as well as other cumulative projects, would further reduce the impact to a level that would not cause or contribute to any significant cumulative effects.

The release of hazardous emissions within 0.25 mile of a school could be cumulatively considerable if cumulative projects also release hazardous emissions within the same radius of the same school. However, the Project site is not located within 0.25 mile of a school, such that no cumulative impact would occur.

Similarly, impacts with regard to safety hazards and excessive noise within an airport land use planning area could be compounded by cumulative Projects. However, the Project site is not located within an airport land use plan, such that no cumulative impact would occur.

Impairing implementation of or physically interfering with an adopted emergency plan could be cumulatively considerable if cumulative projects were to impact the same plan or physically alter similar areas, such as the same road network. As the Project was determined to have no impact to adopted emergency plans, no cumulative impacts would occur.

Cumulative impacts with regard to the exposure of people or structures to significant risk of loss, injury, or death involving wildland fires could be compounded, resulting in a cumulative impact if the same people or structures would be affected by the Project and cumulative projects in a manner that would further increase the risk of wildfires beyond that of the Project alone. While construction, operation, and decommissioning of the Project would introduce ignition sources on the Project site, the Project would be designed in compliance with federal, state, and local worker safety and fire protection codes and regulations, which would minimize the potential for the occurrence of fire. The Kola Interconnect Battery Energy Storage Project is the closest cumulative project, located approximately 0.1 mile southwest of the Project site, and would introduce a similar use as the proposed Project. Accordingly, the Project, in conjunction with the Kola Interconnect Battery Energy Storage Project, would cumulatively increase the risk of exposing people or structures in the area (including the residences west and north of the Project site) to wildfire risks, beyond that of the Project alone. However, cumulative projects, including the Kola Interconnect Battery Energy Storage Project, would also be required to comply with federal, state, and local worker safety and fire protection codes and regulations to minimize the potential for the occurrence of fires. Upon compliance with applicable federal, state, and local fire protection regulations, the potential for the Project and cumulative projects to expose people or structures to wildland fires would be reduced to the point where impacts would not be cumulatively considerable.

4.9.7 References

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4.10 HYDROLOGY AND WATER QUALITY

This section identifies and evaluates issues related to hydrology and water quality in the context of the Griffith Energy Storage Project (Project). The Project site includes the proposed facility and the generation tie (gen-tie) line corridor (including both the Applicant portion and the portion for which Pacific Gas and Electric [PG&E] will be responsible). The discussion below includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment for hydrology and water quality issues. The County received comments from the Central Valley Regional Water Quality Control Board and Federal Emergency Management Agency (FEMA) during the scoping period (the comment letter is included in Appendix A) and those comments have been incorporated into this section.

4.10.1 Existing Conditions

The Project facility is to be located in western San Joaquin County along the border with Alameda County. The gen-tie line corridor extends into Alameda County from the proposed facility. This location is in the foothills near the junction of the northwestern San Joaquin Valley and the Sacramento-San Joaquin Delta.

4.10.1.1 Regional Setting and Climate

The Project lies on the eastern flank of the Diablo Range of the Coastal Ranges Geomorphic Province and is very close to the adjoining Central Valley Geomorphic Province. The topography of the area is rolling hills that generally slope east toward the San Joaquin Valley. However, there is a prominent topographic high point (greater than 500 feet in elevation) on the eastern third of the Project site, midway between the north and south site boundaries. Two other lesser high points are located in the southwestern quadrant of the Project (426 feet in elevation) and in the northwestern quadrant (380 feet in elevation).

The climate in the Project vicinity is Mediterranean, with wet winters and hot, dry summers. Climate data from the Tracy, California, weather station is representative of the local climate. The average maximum temperature varies from a winter low of 56 degrees Fahrenheit (°F) in January to a summer high of 93 degrees Fahrenheit in July. The average minimum temperature ranges from a winter low value of 37°F in January to a summer high value of 56°F in August. Rain-producing storms that occur over the Project site generally come from the west, deriving their moisture from the Pacific Ocean, before passing over the San Francisco Bay and the Diablo Range. Precipitation averages at locations west of the Diablo Range tend to be greater than those to the east. Thus, average annual precipitation in Berkeley (27 inches), Oakland (24 inches), and Walnut Creek (25 inches) are greater than Livermore (15 inches) or Tracy (13 inches), with the Project site located between the latter two locations (WorldClimate 2022).

4.10.1.2 Surface Water Hydrology

The Project site is located within the sixth-level U.S. Geological Survey hydrologic unit identified as the Lower Old River sub-watershed (Hydrologic Unit Code [HUC] 180400030605), which is also within the San Joaquin River Basin. This sub-watershed covers an area of 1,232 square miles. The local drainage area, which contains the Project site, is relatively small, and consists of three unnamed channels that are tributary to the Sacramento-San Joaquin Delta. The Delta is a

topographic low point in the Central Valley where flow from the Sacramento River and San Joaquin River converge before draining into San Francisco Bay through the Suisun and San Pablo Bays. The nearest named streams, which also drain to the Delta, are Patterson Run to the north and Corral Hollow Creek to the south (see Figure 4.10-1).

The local drainage area includes a main channel, a primary tributary, and a secondary tributary that combine to encompass the Project site (see Figure 4.10-2). The main channel watershed receives runoff from the Tesla Substation, a small part of the gen-tie line and some of the proposed facility, as well as flows from the channels conveying water from the primary and secondary tributaries. The primary tributary watershed includes most of the gen-tie line and some of the facility footprint. The secondary tributary receives runoff from the remainder of the facility footprint. There is a short section of the Pacific Gas and Electric (PG&E) gen-tie line that falls just outside of the local drainage area, with drainage to Patterson Run.

The proposed facility is located on a topographic high point with drainage heading in three different directions. On the west side of the Project site, surface runoff heads west or northwest to the primary tributary watershed, which is an ephemeral channel that cuts across the northwest corner of the Project site. Most of the southern portion of the Project site drains to the much smaller secondary tributary watershed, from which the drainage course leaves the Project site in the southeast corner. Runoff from the remaining area of the Project site flows toward the north or northeast and ultimately reaches the main drainage, which is separate from the main channel of the larger watershed, downstream from (north of) the Project area (see Figure 4.10-2).

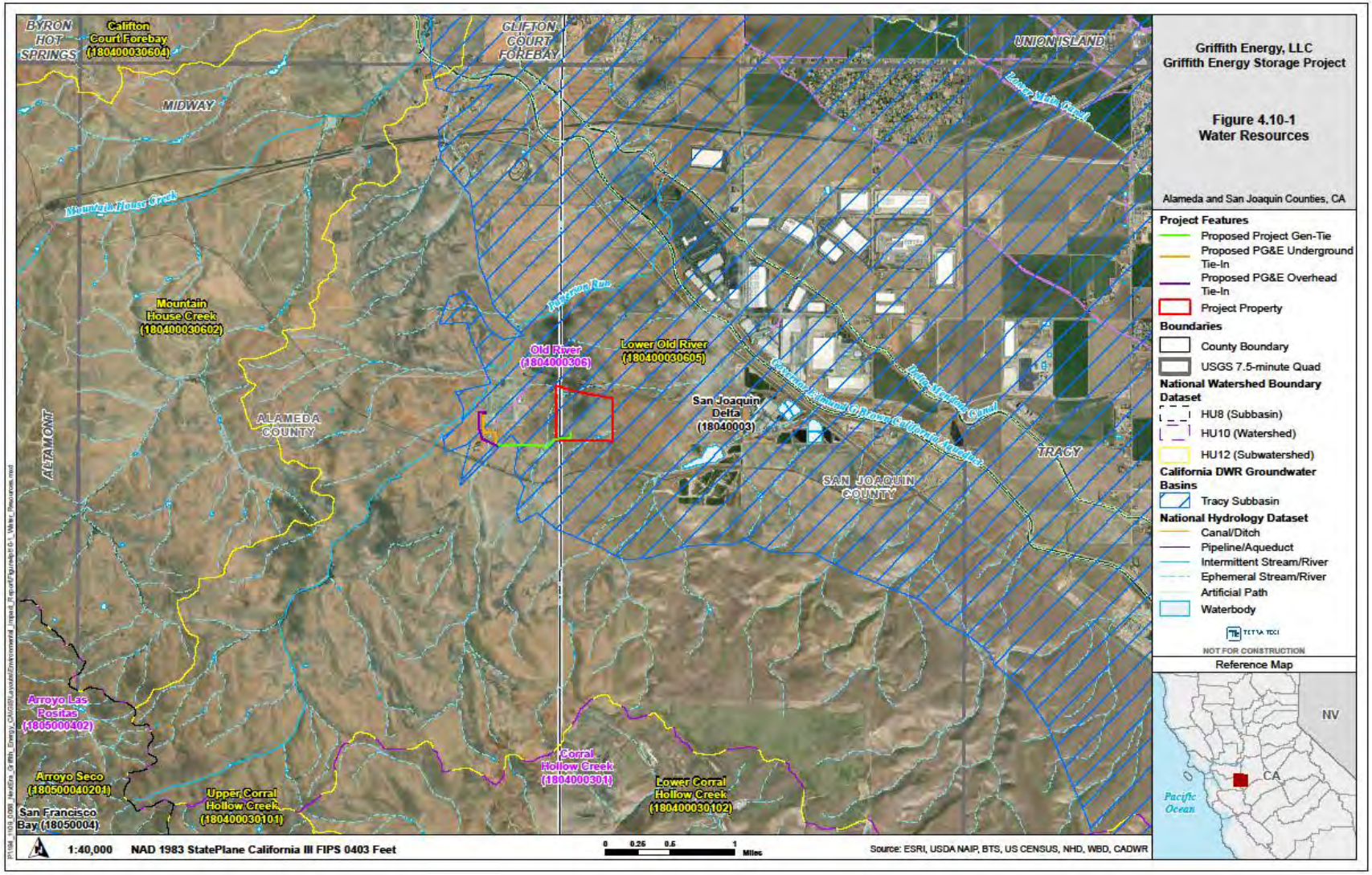


Figure 4.10-1. Water Resources

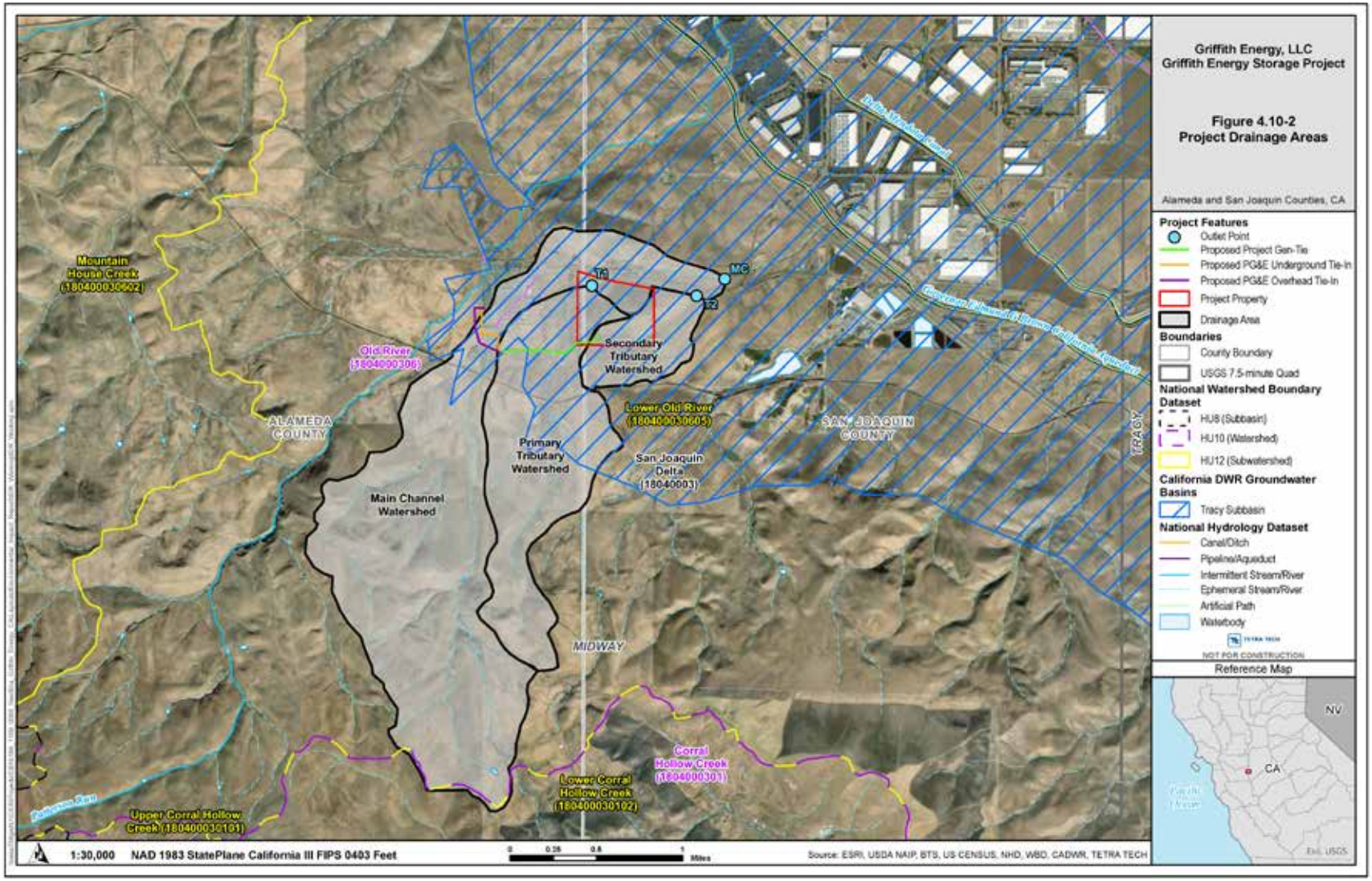


Figure 4.10-2. Project Drainage Areas

4.10.1.3 Groundwater

The Project site is just inside the western boundary of the Tracy Subbasin (05-022.15), which is within the larger San Joaquin Valley Groundwater Basin (05-022). The Tracy Subbasin covers an area of 539 square miles and spans parts of Alameda, Contra Costa, and San Joaquin Counties. Four active domestic water wells are located on parcels owned by the current Project landowner (DWR 2006). Existing water supply infrastructure at the 106-acre Project site includes one on-site groundwater well and the other three wells on the landowner's property are outside of the Project site. No wells occur with the 32-acre area that would be developed as part of the Project. Southwest of the Project site there are three existing wells, including a domestic water well and a cattle well, both of which are actively used, and one additional cattle well that is inactive (Ilkhanipour and McManus 2022).

A total of 238,429 acres of the Tracy Subbasin fall under a groundwater sustainability plan that covers approximately 1,958 domestic production wells, 373 agricultural production wells, and 74 municipal production wells. The groundwater storage volume in the Tracy Subbasin was estimated to be less than 100,000 acre-feet (af) in 2015 (GEI Consultants 2021). However, groundwater provides only about 3 percent of the water supply used in the general area.

4.10.1.4 Flooding

FEMA is responsible for mapping areas subject to flooding during a 100-year flood event (i.e., 1 percent chance of occurring in a given year). The Flood Insurance Rate Maps produced by FEMA for San Joaquin County, and for the adjacent portion of Alameda County, show that the Project site does not lie within a 100-year flood zone or any other special flood hazard zone. It is located within Zone X, an area of minimal flood hazard risk (FEMA 2009, 2022).

4.10.1.5 Dam Inundation Zones

The watershed containing the Project site is very small, and there are no dams of any size upstream from the Project site. There are a couple of small ponds identified in the upper reaches of the main channel, located in Alameda County (USGS 1980). However, these ponds are very small and do not contain the volume of water that would pose a threat downstream. As a result, the Project site is not in a dam-breach inundation zone.

4.10.2 Regulatory Setting

4.10.2.1 Federal

Federal Clean Water Act

Basin Plan – Beneficial Use and Water Quality Objectives (Clean Water Act Section 303)

The Project site is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (Region 5). Region 5 is tasked with implementing the adopted Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins through planning, permitting, and enforcement of established water quality objectives. In accordance with state policy for water quality control, Region 5 employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan identifies beneficial uses for the key surface water drainages throughout its jurisdiction. The Project site is within the

Northwest Side major area of the San Joaquin River Basin. There are no designated "Minor Subareas" for the watershed in which the Project Site is located; thus, beneficial uses have not been assigned for any local waterbodies. However, the known uses of surface water and groundwater near the Project site include agricultural uses, municipal water uses, and domestic water uses. No habitat (fish or wildlife), spawning, or recreation use designations have been applied, as no perennial waterbodies exist near the Project site.

National Pollutant Discharge Elimination System Program Clean Water Act Section 402

Under Clean Water Act (CWA) Section 402, the National Pollutant Discharge Elimination System (NPDES) stormwater permitting program controls water pollution by regulating point sources of pollution to waters of the United States (WOTUS). The Regional Water Quality Control Boards (RWQCB), Central Valley Region, administers the NPDES program in the Project site area. Alameda County issues grading permits in conjunction with the Central Valley RWQCB.

Because the Project would result in the disturbance of 1.0 acre or more of soil with the potential to discharge to WOTUS, it would be subject to the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), commonly referred to as the "Construction General Permit." The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing, grading, and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific best management practices (BMP) designed to prevent sediment and other pollutants from contacting stormwater as well as from moving offsite into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by preventing the offsite migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program and a chemical monitoring program for non-visible pollutants. Post-construction requirements necessitate that construction sites be restored to pre-Project hydrological conditions to ensure that the physical and biological integrity of aquatic ecosystems are sustained in their existing condition.

In addition to stormwater discharges, the Construction General Permit also covers other non-stormwater discharges, including irrigation of vegetative erosion control measures, water to control dust, uncontaminated groundwater from dewatering, and other discharges not subject to a separate general NPDES permit adopted by the RWQCB. The discharge of non-stormwater is authorized under the following conditions:

- The discharge does not cause or contribute to a violation of any water quality standard;
- The discharge does not violate any other provision of the Construction General Permit;
- The discharge is not prohibited by the applicable Basin Plan;
- The discharger has included and implemented specific BMPs required by the Construction General Permit to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment;

- The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;
- The discharge is monitored and meets the applicable numeric action levels; and
- The discharger reports the sampling information in the SWPPP Annual Report.

Federal Emergency Management Agency

FEMA determines flood elevations and floodplain boundaries and distributes the flood insurance rate maps used in the National Flood Insurance Program. These maps identify the locations of special flood hazard areas, including 100-year floodplains (i.e., areas that would have a 1 percent annual chance of flooding).

Federal regulations governing development in a floodplain are set forth in Title 44, Part 60, of the Code of Federal Regulations. Those regulations enable FEMA to require municipalities participating in the National Flood Insurance Program to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

4.10.2.2 State

California Fish and Game Code Section 1602

The California Fish and Game Code, specifically under Section 1602, protects the natural flow, bed, channel, and bank of any river, stream, or lake under the jurisdiction of the California Department of Fish and Wildlife (CDFW). CDFW jurisdiction over lakes and streams encompasses the top of bank or edge of riparian vegetation (as determined by the edge of a "dripline"), whichever is farther (CDFW 1994). Applicants must submit a notification of lake or streambed alteration to the CDFW for any projects affecting the bed, bank, or flow of water considered to be under CDFW jurisdiction. The CDFW may issue a Lake and Streambed Alteration Agreement if it determines that the activity may substantially adversely affect fish and wildlife resources.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act gives the State Water Resources Control Board authority over waters of the State and water quality. The RWQCBs have local and regional authority. The area of the Project site is under the jurisdiction of the Central Valley RWQCB. The Central Valley RWQCB prepares and periodically updates the Basin Plan. Pursuant to the CWA NPDES program, the Porter-Cologne Water Quality Control Act also delegates the authority to the RWQCBs to issue NPDES permits. If a proposed project or portion of a proposed project does not require a federal permit but does involve dredge or fill activities that may result in a discharge to waters of the State, the RWQCB has the option to regulate the dredge and fill activity under its state authority in the form of Waste Discharge Requirements.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 (Water Code Section 10723) provides a framework for sustainable management of groundwater resources. In groundwater basins designated by the Department of Water Resources as medium and high priority, local public agencies and locally controlled groundwater sustainability agencies are required to develop and implement groundwater sustainability plans (GSP) or alternatives to GSPs. The Tracy Subbasin

Groundwater Sustainability Plan was developed for multiple Groundwater Sustainability Agencies (GSA) (GEI Consultants 2021).

4.10.2.3 Local

As noted earlier, the part of the Project site that will contain the proposed facility is located in San Joaquin County. However, most of the gen-tie line corridor and a small portion along the western edge of the Project site are in Alameda County. Therefore, regulations relating to hydrology and water quality from both counties are presented here.

San Joaquin County

Water supply and quality issues are covered in the San Joaquin County General Plan under the Public Facilities and Services Element (also known as Infrastructure and Services [IS]) and the Natural and Cultural Resources (NCR) Element. Applicable goals and their associated policies are provided below (San Joaquin County 2016):

> ***Goal IS-4:*** *To ensure reliable supplies of water for unincorporated areas to meet the needs of existing and future residents and businesses, while promoting water conservation and the use of sustainable water supply sources.*
>
> ***IS-4.1 – Water Agency Support:*** *The County shall support efforts of local water agencies, special district, and water conservation districts to ensure that adequate high-quality water supplies are available to support existing and future residents and businesses. (IGC)*
>
> ***IS-4.3 – Water Supply Availability:*** *The County shall consider the availability of a long-term, reliable potable water supply as a primary factor in the planning of areas for new growth and development. (RDR/PSP)*
>
> ***IS-4.5 – Drought Response:*** *The County shall encourage all local water agencies to develop and maintain drought contingency and emergency services plans, emergency inter-ties, mutual aid agreements, and related measures to ensure adequate water service during drought or other emergency water shortages. (PSP/IGC)*
>
> ***IS-4.8 – Water Conservation Measures:*** *The County shall require existing and new development to incorporate all feasible water conservation measures to reduce the need for water system improvements. (RDR)*
>
> ***IS-4.9 – Groundwater Management:*** *The County shall continue to support cooperative, regional groundwater management planning by local water agencies, water users, and other affected parties to ensure a sustainable, adequate, safe, and economically viable groundwater supply for existing and future uses within the County. (IGC)*
>
> ***IS-4.12 – Water Supply Planning:*** *The County shall encourage local water agencies to develop plans for responding to droughts and the effects of global climate change, including contingency plans, water resource sharing to improve overall water supply reliability, and the allocation of water supply to priority users. (PSP/IGC)*
>
> ***IS-4.18 – Graywater and Rainwater Systems:*** *The County shall encourage homeowners, businesses, and developers to install graywater systems and rainwater harvest systems, consistent with local and State guidelines, regulations, and standards, in order to reduce consumption of potable water. (RDR/PSP)*

IS-4.19 – Water Efficient Landscaping: *The County shall encourage water efficient landscaping and use of native, drought-tolerant plants consistent with the Model Landscape Ordinance. (RDR)*

Goal IS-7: *To manage stormwater from existing and future development using methods that reduce potential flooding, maintain natural water quality, enhance percolation for groundwater recharge, and provide opportunities for reuse.*

IS-7.1 – Adequate Stormwater Facilities: *The County shall require that stormwater drainage facilities are properly designed, sited, constructed, and maintained to efficiently capture and dispose of runoff and minimize impacts to water quality. (RDR)*

IS-7.2 – Stormwater Drainage System Standards: *The County shall require the minimum standards for stormwater drainage system improvements provided in Table IS-3 for the approval of tentative maps and zone reclassifications. (RDR)*

Goal NRC-3: *To ensure the quality of water for municipal and industrial uses, agriculture, recreation, and fish and wildlife.*

NRC-3.1 – Preserve Groundwater Recharge Areas: *The County shall strive to ensure that substantial groundwater recharge areas are maintained as open space. (PSP)*

NRC-3.2 – Groundwater Recharge Projects: *The County shall encourage the development of groundwater recharge projects of all scales within the County and cities to increase groundwater supplies. (PSP)*

NRC-3.3 – Multi-Jurisdictional Groundwater Management Evaluation: *The County shall support multi-jurisdictional groundwater management that involves adjacent groundwater basins. (IGC)*

NRC-3.4 – Eliminate Pollution: *The County shall support efforts to eliminate sources of pollution and clean up the County's waterways and groundwater. (PSP)*

NRC-3.5 – Low Impact Development: *The County shall require new development to minimize or eliminate stormwater quality and hydro-modification impacts through site design, source controls, runoff reduction measures, best management practices (BMPs), and Low Impact Development (LID). (RDR)*

NRC-3.6 – Prohibit Discharge of Sewage Sludge: *The County shall prohibit the discharge of sewage sludge or septage to surface waters or surface water drainage sources, including wetlands and waterways. (RDR)*

NRC-3.7 – Septic Tank Regulation: *The County shall enforce its septic tank and onsite system regulations consistent with Central Valley Regional Water Quality Control Board policy that recognizes the County as the responsible agency to protect the water quality of surface water and groundwater. (RDR)*

NRC-3.8 – Support Sufficient River Flows: *The County support properly timed flows of sufficient quality in local waterways necessary to sustain healthy fisheries. (PSP)*

NRC-3.9 – Require Water Projects to Mitigate Impacts: *The County shall require water projects to incorporate safeguards for fish and wildlife and mitigate erosion and seepage to adjacent lands. (RDR)*

NRC-3.10 – Coordination for Waterway Protection: *The County shall coordinate with city, State, and Federal agencies to implement policies regarding protection and enhancement of waterways and levees. (IGC)*

Alameda County

A specific area plan has been prepared by Alameda County for the eastern portion of the county where the Project site is located. The East County Area Plan (ECAP) provides watershed and water quality goals and supporting policies and programs to achieve those goals for surface and groundwater (ACCDA 2000). The watershed goal and associated policies and programs focus on encouraging public agencies to explore outdoor recreational opportunities. These are not specifically relevant to this Project. The water quality goal and its associated policy and programs are relevant to this Project.

Water Quality Goal: To protect and enhance surface and groundwater quality.

Policy 306: The County shall protect surface and groundwater resources by:

- Preserving areas with prime percolation capabilities and minimizing placement of potential sources of pollution in such areas;
- Minimizing sedimentation and erosion through control of grading, quarrying, cutting of trees, removal of vegetation, placement of roads and bridges, use of off-road vehicles, and animal-related disturbance of the soil;
- Not allowing the development of septic systems, automobile dismantlers, waste disposal facilities, industries utilizing toxic chemicals, and other potentially polluting substances in creekside, reservoir, or high groundwater table areas when polluting substances could come in contact with flood waters, permanently or seasonally high groundwaters, flowing stream or creek waters, or reservoir waters; and
- Avoiding establishment of excessive concentrations of septic systems over large land areas.

Implementation Program 108: The County shall implement all federal, state and locally imposed statutes, regulations, and orders that apply to storm water quality. Examples of these include, but are not limited to:

- National Pollutant Discharge Elimination System (NPDES) stormwater permit issued by the California RWQCB, Central Valley Region, to the Alameda County Urban Runoff Clean Water Program and amendments thereto;
- State of California NPDES General Permit for Storm Water Discharges (General Industrial Permit, General Construction Permit) and amendments thereto;
- Coastal Zone Management Act;
- Coastal Zone Act Reauthorization Amendments;
- Water Quality Control Plan (Basin Plan) for the California RWQCB, Central Valley Region and amendments thereto (California RWQCB 2019); and
- Letters issued by the RWQCB under the California Porter-Cologne Water Quality Act.

Implementation Program 109: The County shall endeavor to minimize herbicide use by public agencies by reviewing existing use and applying integrated pest management principles, such as mowing and mulching, in addition to eliminating or scaling back the need for vegetation control in the design phase of a project.

Implementation Program 110: The County shall conform with Alameda County Flood Control and Water Conservation District's (Zone 7) Wastewater Management Plan and the Basin Plan for the Central Valley Region (Sacramento River Basin and the San Joaquin River Bay Basin).

The Alameda County Municipal Code, Chapter 15.36 (*Grading Erosion and Sediment*), regulates work on private property in the unincorporated areas of the County. Among its purposes are to 1) safeguard life, limb, health, property, and public welfare; 2) protect creeks, watercourses, and other drainage facilities from illicit discharges of surface runoff generated in or draining through the permit work area; and 3) ensure that the construction and eventual use of a graded site is in accordance with the County general plan and all applicable County ordinances.

The Alameda County Flood Control and Water Conservation District (District) addresses flood protection for Alameda County residents and businesses. The District implements and maintains flood control projects that can include natural creeks, artificial channels, levees, pump stations, dams, and reservoirs. The County's *Hydrology & Hydraulics Manual* serves as a guide for minimum design requirements and provides guidance for hydrologic and hydraulic assessments for all of Alameda County (District 2016). The District is also charged with administering the Clean Water Program for unincorporated areas of Alameda County, the 14 cities of Alameda County, the District, and the Zone 7 Water Agency. The District provides administrative and contracting services for the Alameda Countywide Clean Water Program to help comply with federal and state requirements to improve water quality and better manage urban stormwater and runoff.

4.10.3 Thresholds of Significance

A project would result in significant impacts to hydrology and water quality resources if it would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would:

i) Result in substantial erosion or siltation on- or off-site

ii) Substantially increase the rate or amount of surface run off in a manner which would result in flooding on- or off-site

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff

iv) Impede or redirect flood flows

d) Occur in a flood hazard, tsunami, or seiche zones, risk release of pollutants due to the project inundation; Or

e) Conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan

4.10.4 Impact Analysis

IMPACT 4.10-1: *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?* **(Less than Significant with Mitigation Incorporated)**

Construction

Parts of the Project site will require a considerable volume of earthwork. However, these activities would occur in remote portions of two watersheds, and runoff management would be limited to the areas of disturbance. Concerns for water "run-on" from a larger watershed are not applicable to this Project site.

Construction would involve the use of bulldozers, graders, semi-trucks, and various other types of heavy equipment for vegetation removal, grubbing, grading, and installation of roads and other facilities. Construction activities would involve significant changes to onsite topography, and such activities could potentially loosen existing surface soils and sediments, increasing the possibility that erosion might occur during storm events. Water used for dust suppression also has the potential to generate runoff that could transport sediments and dissolved solids. The use of construction equipment onsite may involve the accidental release of fuel, oils, brake dust, lubricants, antifreeze, and other potentially hazardous substances at the Project construction site. These water quality pollutants could be delivered to surface waterbodies during storm events, and/or be infiltrated into groundwater and the underlying aquifer, resulting in the degradation of water quality.

As a result of these concerns, the Project would be subject to compliance with the Construction General Permit, as described in **Mitigation Measure GEO-1**. The Construction General Permit would include development and implementation of a SWPPP. The objectives of a SWPPP are to identify pollutant sources that may be delivered offsite (in the form of runoff) and affect the quality of stormwater discharge; to implement site controls and practices to reduce stormwater pollution; and to protect water quality of receiving waters. The SWPPP would include site-specific BMPs to minimize erosion onsite and reduce or otherwise prevent conditions of erosion and stormwater runoff.

As described in Section 4.9, *Hazards and Hazardous Materials*, diesel and gasoline fuels and other hazardous materials, such as oils, solvents, hydraulic fluids, and paints commonly associated with construction equipment, would be stored and handled in a manner to prevent accidental release (i.e., consistent with the hazardous materials handling BMPs, Spill Prevention, Control, and Countermeasure (SPCC) Plan, and other measures contained within the required SWPPP).

By complying with General Construction Permit implementation requirements, which would include the preparation and deployment of a SWPPP, SPCC Plan, and associated BMPs, the impact on water quality during construction would be temporary and less than significant.

Operations

After the Project construction is completed and final stormwater management facilities are in place, control of runoff will maintain or improve the runoff conditions currently found at the site prior to construction. The average water use during operations and maintenance (O&M) of the battery energy storage system (BESS) facility would be minimal, estimated at close to zero acre-

feet per year (AFY). The relatively low amount of water used during this phase would be insufficient to generate significant runoff.

As noted earlier in Section 4.9, *Hazards and Hazardous Materials*, the California Hazardous Materials Release Response Plans and Inventory Law requires any business handling hazardous materials at or above specified thresholds to prepare a Hazardous Materials Business Plan (HMBP). The thresholds include any site that stores hazardous materials in excess of 55 gallons (liquids), 500 pounds (solids), or 200 cubic feet for compressed gas. Any hazardous materials exceeding the established thresholds that would be stored onsite would be contained in designated areas in accordance with an HMBP, which would ensure that all handling, storage, and disposal of hazardous materials would be conducted in accordance with proven practices to prevent accidental release.

For these reasons, the impacts on water quality during O&M would be temporary and less than significant.

Decommissioning

After the useful life of the Project is completed, decommissioning of the site would result in similar potential impacts as those described for construction, including the potential for erosion, sedimentation, and the release of pollutants. Activities anticipated during decommissioning also would be required to comply with the same applicable federal, state, and local water quality regulations. Ground disturbing activities during decommissioning would require coverage under the Construction General Permit, including the preparation and implementation of a SWPPP. Stormwater management measures would be required to be identified and implemented that would effectively control erosion and sedimentation and other construction-related pollutants during decommissioning. Therefore, the potential impact of Project decommissioning activities on water quality would be temporary and less than significant.

Overall, the Project's impacts on water quality standards or waste discharge requirements would be temporary and less than significant.

Mitigation: GEO-1.

IMPACT 4.10-2: *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?* **(Less than Significant)**

The existing land use of the Project site is cattle grazing, and the disturbed Project area is approximately 32 acres, of which approximately 18.8 acres would be permanently disturbed with impervious surfaces. There are no public water systems or providers serving the Project area, with water supply provided by onsite wells. The existing vegetation onsite consumes water through evapotranspiration. Estimates for evapotranspiration from forage grass in the California Delta region range from 1 millimeter per day to 6 millimeters per day depending on the month (Medellín-Azuara et al. 2018). Using an average value of 3 millimeters per day over the 18.8 acres that would be permanently disturbed with impervious surfaces, the estimated evapotranspiration from the permanently disturbed portion of the Project site would be approximately 0.23 af per day, or approximately 83 AFY.

Construction and Decommissioning

The BESS facility requires a small amount of water for construction and decommissioning, and a negligible amount for operational use (estimated at close to zero AFY). Therefore, most if not all of the water demand will occur during construction and decommissioning, when water will be used for dust control during both construction and decommissioning and to help condition the soil for compaction during construction (adequate moisture levels are required for proper compaction under any foundations). During the construction phase, it is estimated the Project will require approximately 30.7 af of non-potable water over a construction period of 15 months, including 3 months of commissioning. Project decommissioning would also require approximately 30.7 af of non-potable water, similar to construction. Additionally, some of the natural vegetation will be cleared for the PV solar facility, which actually may result in a higher water retention during construction than under the current vegetation and its associated evapotranspiration.

Operations

To operate the facility, no measurable amounts of water will be used. The onsite, building-type facilities will be the BESS enclosures. These will be monitored remotely, allow limited human access, and do not provide interior human workspace for long-duration activities (simply for maintenance and repair work). Thus, there will be no need for an onsite water system to supply water on demand. Workers will access the facility for only periodic inspection and maintenance, and will bring their own drinking water. Portable toilets will not be permanently deployed onsite, but only used if needed for specific operations.

Installation of the BESS units, access roads, switchyard, and parking areas would create new areas of impervious (or nearly impervious) surfaces on the 106-acre property of which the Project will be built (all of which are currently considered to be pervious lands). The exact value of new impervious surface area has not yet been estimated, but for the purpose of this evaluation will be conservatively assumed to be 18.8 acres. In that case, the change in impervious area represents a loss of about 18 percent of the area available for groundwater recharge on the Project property. However, compared to the surface area of the Tracy Subbasin, the loss of 18.8 acres represents a change of only 0.01 percent of the total basin area. How much of that subbasin area is currently impervious is not known. However, the impervious acreage of this Project is expected to represent a trivial percentage of the currently impervious area within the entire subbasin.

As noted above, the water required for the construction period (approximately 30.7 af) is lower than an estimate of the amount of water currently transpired by the existing vegetation (approximately 147 AFY). After construction, Project water consumption would be reduced even further (close to zero AFY), as the operational water use is dramatically lower than the construction water use and evapotranspiration would be less than under current conditions.

The reduction in water consumption at the Project site through conversion of land use will provide a benefit to the subbasin. Therefore, the Tracy Subbasin will not be negatively impacted with the construction and operation of the PV solar facility.

Mitigation: None required.

IMPACT 4.10-3: *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would:*

i) Result in substantial erosion or siltation on- or off-site?

ii) Substantially increase the rate or amount of surface run off in a manner which would result in flooding on- or off-site?

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

iv) Impede or redirect flood flows? **(Less than Significant with Mitigation Incorporated)**

The Project site straddles the drainage divide for three small watershed areas and contains ephemeral drainage courses, none of which could be considered a perennial or even an intermittent stream. There is a very short segment of the PG&E part of the gen-tie line that falls outside of this local drainage area and within the adjacent Patterson Run watershed. All of these drainage areas are within the Lower Old River hydrologic unit; and their drainage courses do not have any FEMA-identified flood zones. There will be up to 32 acres of surface disturbance during construction and a potential increase of 18.8 acres of impervious surface across the Project site after construction (including foundations and other paved surfaces).

Construction

The portions of the Project site to be disturbed by construction will flatten an area of rolling hills and produce a stable platform for placing battery storage units and a Project substation. Project grading will create a large area with little to no slope, surrounded by smaller areas of cut or fill surfaces with 2:1 (horizontal to vertical) slopes. This design will reduce the potential for any concentrated runoff to occur. Construction will involve the use of bulldozers, graders, semi-trucks, and various other types of heavy equipment for vegetation removal, grubbing, grading, and installation of roads and other facilities. These construction activities will disturb the ground surface and involve minor changes to onsite topography, increasing the potential for erosion during storm events. Water used for dust suppression also has the potential to generate runoff that could transport sediments and dissolved solids. No increase in surface runoff potential is expected to be caused by construction activities, and there are no stormwater management facilities on the Project site or in proximity downstream.

The Project would be subject to compliance with the NPDES Construction General Permit, as required by **Mitigation Measure GEO-1,** as well as with **Mitigation Measure HYDRO-1** (Hydrology and Hydraulics Study). The Construction General Permit would include development and implementation of a SWPPP. The objectives of a SWPPP are to identify pollutant sources that may be delivered offsite (in the form of runoff and associated sediment load) and affect the quality of stormwater discharge; to implement site controls and practices to reduce stormwater pollution; and to protect water quality of receiving waters. The SWPPP would include site-specific BMPs to minimize erosion onsite and reduce or otherwise prevent conditions of erosion and stormwater runoff. The Hydrology and Hydraulics Study would provide for the development of adequate data and an appropriate Project drainage plan to protect against upland and channel erosion. PG&E will develop a specific SWPPP for the short segment of the gen-tie line that extends outside of the local drainage area.

Activities during construction would not substantially alter the existing drainage patterns at the Project site. Construction activities could increase the potential for erosion and sediment transport

within and away from the Project site, and this in turn could introduce contaminants and other pollution into surrounding waterways. However, compliance with the NPDES Construction General Permit and associated SWPPP and BMPs would reduce the potential for these impacts to occur.

The Project site is not in a mapped flood zone, which further reduces the potential for impacts from flooding, or impeding or redirecting flood flows at the Project site. Adherence to the discussed federal and state laws would ensure the impacts are temporary and less than significant.

Operations

All of the earthwork occurs during the construction phase, so operating and maintaining Project facilities would not include any additional activities that could alter the existing drainage patterns at the Project site. The Project configuration would not create situations in which surface materials would be subject to erosion and subsequent sediment transport. A potential increase in impervious surface area of 18.8 acres represents a 2.4 percent change within the Project drainage area. The small size of the drainage areas on the Project site and the lack of identified flood zones eliminates the potential for impeding or exacerbating flooding. As a result, O&M of the Project are not expected to create any of the following conditions:

- Cause substantial erosion and sedimentation on- or off-site;
- Substantially increase surface runoff resulting in flooding on- or off-site;
- Cause runoff water to exceed stormwater drainage system capacity or increase polluted runoff; or
- Change flood flows.

Decommissioning

Decommissioning the Project facility would include ground disturbing activities similar to those performed during construction, which may alter the drainage patterns at the Project site. The same requirements of the Construction General Permit and other applicable construction mitigation measures would apply to activities during decommissioning, and adherence to those requirements would reduce any potential impacts. Impacts during O&M and decommissioning would be temporary and less than significant.

Mitigation: GEO-1 and HYDRO-1.

IMPACT 4.10-4: *Is the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to the project inundation?* **(No Impact)**

The Project site is not within a 100-year flood zone nor a dam inundation zone, according to the FEMA Flood Insurance Rate Map (FEMA 2009) and the Alameda County Local Hazard Mitigation Plan (Alameda County 2021). Additionally, the Project site sits above 300 feet of elevation and is separated from the San Pablo Bay (which is the closest estuarine waterbody to the Pacific Ocean) by at least 31 miles of Sacramento River channel stretching up to the Delta, and another 22 miles of overland distance. The closest large body of water is the Clifton Court Forebay, approximately 8 miles to the north and very near sea level elevation itself. Based on these conditions, the Project site is not at risk of inundation by a tsunami or seiche. There also would be no impact regarding the release of pollutants due to Project inundation.

Mitigation: None required.

IMPACT 4.10-5: *Would the project conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan?* **(Less than Significant with Mitigation Incorporated)**

As discussed earlier, the Project would be regulated under the Basin Plan for the Sacramento River Basin and the San Joaquin River Basin (California RWQCB 2019). Neither the nature of the Project nor the type of development proposed would be likely to conflict with this plan or obstruct implementation of any of its provisions. In addition, by adhering to the conditions stipulated by the SWPPP and the NPDES permits for the Project, as required by **Mitigation Measure GEO-1**, water quality impacts would not result in violations to, conflicts with, or obstructions of the Basin Plan. There would be no impact related to this water quality control plan.

Multiple GSAs cooperated in developing the Tracy Subbasin GSP (GEI Consultants 2021). Groundwater is not a significant water supply source in this subbasin, accounting for only approximately 3 percent of the general water supply., In addition, the expected construction and decommissioning water use of approximately 30.7 af per phase represents a trivial amount of the projected available groundwater surplus in the subbasin of 4,800 AFY. In addition, there are alternate sources of construction water available, with surplus water from the City of Tracy. Furthermore, Project water use will be essentially a temporary, one-time water use during construction and almost no water use while the facility is active. The expected water use for annual operations is negligible and would be continuous over an anticipated 35-year Project lifespan. Decommissioning water use is projected to be similar to construction. As a result, the Project would not conflict with or obstruct the existing GSP.

Mitigation: GEO-1.

4.10.5 Mitigation Measures

GEO-1: Stormwater Pollution and Prevention Plan. Please see Section 4.7, *Geology, Soils, and Paleontological Resources,* for this mitigation measure.

HYDRO-1: Hydrology and Hydraulics Study. The Applicant shall engage a qualified practitioner or firm to prepare a comprehensive watershed hydrology evaluation as well as a targeted analysis of hydraulic conditions within specific portions of the drainage conveyances in the Project site drainage area. This evaluation and analysis will address both existing conditions and proposed (i.e., after development) conditions. The results shall provide data of sufficient detail and quality to allow preparation of a Project Site Drainage Plan that will be implemented during construction of the Project and provide extended controls for facility operations. The Site Drainage Plan will include detention ponds to provide adequate control of stormwater runoff and channel armoring to prevent erosion at detention pond outlets and new drainage channels.

4.10.6 Pacific Gas and Electric Tesla Substation

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a

belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

The construction activities associated with the PG&E infrastructure would be required to comply with and adhere to the same design criteria included in the CBC as the rest of the Project components. Construction would also need to comply with requirements of the Construction General Permit, similar to the Project components evaluated above, including implementation of BMPs during construction activities (**Mitigation Measure GEO-1**). Subsurface excavation required for the PG&E infrastructure is not anticipated to occur at depths below 10 feet below ground surface. These improvements would not affect any water quality standards or interfere with groundwater recharge, nor would the improvements increase the risk of pollutant discharge as a result of Project inundation. Additionally, the PG&E improvements would not obstruct the implementation of the Basin Plan or the Tracy Subbasin GSP. Thus, the improvement would have a less than significant impact with implementation of **Mitigation Measure GEO-1**.

4.10.7 Cumulative Impacts

The geographic scope of analysis of cumulative effects includes the Project site, affected waterways, and surrounding watersheds and aquifers potentially impacted by site clearing, construction, O&M, and decommissioning of the Project. The cumulative development for water quality includes all development within the Basin Plan area (the Sacramento River Basin and the San Joaquin River Basin). The cumulative context for groundwater use is the Tracy Subbasin. This analysis considers the incremental effects of the Project to determine whether, when added to the effects of other projects in the cumulative scenario, they would cause or contribute to significant cumulative effects.

There would be no impact with respect to being located in a flood hazard, tsunami, or seiche zone, such that the Project would not cause or contribute to any potential significant cumulative impact regarding these resource areas.

The Project has the potential to contribute runoff and discharges that, in combination with other past, present, and future development in the Basin Plan watersheds, would potentially impact water quality. Likewise, these development activities would have the potential to infiltrate and affect groundwater quality in the basin, such that the Project could contribute to a potentially significant cumulative impact. However, the Project would be required to comply with the current (and any future) Basin Plan, applicable NPDES General Construction Permit requirements and ordinances, and other water quality regulations. These regulatory requirements and the design of the Project would reduce the Project's incremental contribution to the cumulative impact to a less than cumulatively considerable level.

The Project, in combination with other past, present, and future development in the Basin Plan area would require the use of groundwater for construction and decommissioning activities. However, the following considerations would help to ameliorate any potential impacts from groundwater use.

- Construction of the Project would be temporary and short term;
- O&M activities would span the life of the Project, but would require negligible amounts of groundwater; and
- Decommissioning activities would occur after the Project's life expectancy (i.e., 35 years) and also would be temporary and short term.

Groundwater pumping would be regulated by the Basin Plan. In addition, the water required for construction and decommissioning of the Project is a minor use of a resource that provides only a small percentage of the general water use in the subbasin. It should be noted that the current water requirement for natural vegetation in the Project site location exceeds the expected water requirement for the Project over its lifespan. Finally, the Project would not substantially increase impervious surface area and runoff controlled such that it would not be available for local recharge. Therefore, groundwater use and recharge would not be substantially altered by the Project, and the Project would not contribute to cumulatively considerable impacts to groundwater.

4.10.8 References

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4.11 LAND USE AND PLANNING

This section identifies and evaluates issues related to land use and planning in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) received no scoping comments regarding land use and planning.

4.11.1 Existing Conditions

The Project site consists of three parcels of private land: one in San Joaquin County that totals approximately 106 acres and is currently operated as a cattle ranch; and two parcels in Alameda County for the access road and gen-tie line, which are also currently operated as a cattle ranch with other existing transmission infrastructure. To avoid environmental constraints, approximately 32 acres of the 106-acre parcel in San Joaquin County would be used for the Project. The Project site is primarily surrounded by agricultural and undeveloped lands, with limited rural residential to the north, west, and southwest, the Pacific Gas and Electric (PG&E) Tesla Substation to the west, and agricultural land and undeveloped land to the south and east. Agricultural and undeveloped lands also exist to the west and north beyond the PG&E Tesla Substation and rural residences. West Patterson Pass Road runs along the northern boundary of the Project site.

The gen-tie line would run from the southwestern corner of the Project site to the point south of the Tesla Substation, as shown on Figure 2-1 of Chapter 2, *Project Description*. The gen-tie line corridor is assumed to be up to 100 feet in width.

The nearest community to the Project site is the City of Tracy, located approximately 5 miles northeast of the Project site. However, a few residences are located approximately 400 feet north of the Project site, within the jurisdiction of San Joaquin County. Additional rural residences exist west and southwest of the Project site, within the jurisdiction of Alameda County, including two to three residences abutting the western Project site boundary. The battery energy storage system (BESS) portion of the Project site lies within San Joaquin County's jurisdiction and land uses are governed by the San Joaquin County General Plan and Zoning Ordinance. The proposed gen-tie and tie-in to the PG&E Tesla Substation, however, are located within Alameda County and would be under Alameda County's jurisdiction.

4.11.2 Regulatory Setting

4.11.2.1 Federal

No federal regulations pertain to the Project.

4.11.2.2 State

Williamson Act

The Williamson Act (Government Code §51200 et seq.) prevents converting farmland to other uses by offering owners of agricultural land a property tax incentive to maintain their land in agricultural use. It is a state program implemented at the county level that allows agricultural landowners to voluntarily and contractually agree to retain land included in an agricultural

preserve[1] in agricultural or open space uses for a period of at least 10 years and, in return, to pay reduced property taxes. The term of the contract automatically renews each year, such that unless it is specifically nonrenewed or cancelled, the contract always has a 10-year period horizon.

The most common method for withdrawing from a Williamson Act contract is filing a notice of nonrenewal, which can be initiated by either the land use agency or the landowner. Under this process, the contract is ended after a 9-year nonrenewal period, during which taxes gradually increase every year. A Williamson Act contract cancellation is an option under limited circumstances and conditions set forth in Government Code §51280 et seq. In such cases, landowners may petition the board or council of their county or city for cancellation of the Williamson Act contract. The board or council may grant tentative cancellation only if it makes required statutory findings (Government Code §51282(a)). The board or council must consider comments from the director of the Department of Conservation (DOC) before acting on a proposed cancellation if comments are provided. A cancellation becomes final, and a Certificate of Cancellation is issued by the board or council upon the completion of all Conditions of Approval. The entirety of the Project site is included under Williamson Act Contract No. 770255. In accordance with **Mitigation Measure AGR-1**, a Williamson Act Cancellation Petition shall be filed for approval by the San Joaquin County Board of Supervisors, demonstrating consistency with Government Code §51280 et seq, prior to construction.

4.11.2.3 Local

San Joaquin County General Plan

The San Joaquin County General Plan consists of four elements, each separated into topic areas. The Community Development Element contains four subsections: Land Use, Communities, Housing, and Economic Development. The Public Facilities and Services Element contains two subsections: Transportation and Mobility, and Infrastructure and Services. The Public Health and Safety Element contains one subsection: Public Health and Safety. The Resources Element contains two subsections: Natural and Cultural Resources, and The Delta (San Joaquin County 2016).

The Project site is designated in the San Joaquin County General Plan as “General Agriculture,” which

> *provides for large-scale agricultural production and associated processing, sales, and support uses. This designation provides for commercial agricultural operations and associated support uses including crop production, grazing, and livestock raising facilities; agricultural processing facilities; agricultural support and sales; single-family detached dwellings; farm-employee housing and farm labor camps; accessory second units and ancillary residential structures; compatible public, quasi-public, and special uses; and natural open space areas* (San Joaquin County 2016).

[1] An agricultural preserve defines the boundary of an area within which a city or county would be willing to enter into Williamson Act contracts with landowners: The boundary is designated by resolution of the city council or board of supervisors with jurisdiction over the property. Agricultural preserves generally must be at least 100 acres in size.

No overlay designations, master plans, or specific plans described in the San Joaquin County General Plan apply to the Project site. See Figure 4.11-1 for land use designations of both the San Joaquin County and Alameda County General Plans.

The San Joaquin County General Plan includes goals and policies that are relevant to the Project.

Community Development Element – Land Use

> ***Goal LU-7:*** *Provide for the long-term preservation of productive farmland and to accommodate agricultural services and related activities that support the continued viability of the County's agricultural industry.*
>
> > ***Policy LU-7.1: Protect Agricultural Land****. The County shall protect agricultural lands needed for the continuation of viable commercial agricultural production and other agricultural enterprises.*
> >
> > ***Policy LU-7.2: Agricultural Support Uses****. The County shall require new agricultural support development and non-farm activities to be compatible with surrounding agricultural operations. New developments shall be required to demonstrate that they are locating in an agricultural area because of unique site area requirements, operational characteristics, resource orientation, or because it is providing a service to the surrounding agricultural area. The operational characteristics of the use may not have a detrimental impact on the operation or use of surrounding agricultural properties. Developments must be sited to avoid any disruption to the surrounding agricultural operations.*
> >
> > ***Policy LU-7.7: Agricultural Buffers****. The County shall ensure non-agricultural land uses at the edge of agricultural areas incorporate adequate buffers (e.g., fences and setbacks) to limit conflicts with adjoining agricultural operations.*
> >
> > ***Policy LU-7.15: Williamson Act Contracts.*** *The County shall continue to administer the Williamson Act program and shall maintain procedures for Williamson Act contracts consistent with the policies in the General Plan.*

Community Development Element – Economic Development

> ***Policy ED-2.1: General Economic Base Diversification****. The County shall encourage the development of a diversified economic base by continuing to promote agriculture, tourism, and commerce, and by expanding efforts to encourage commercial and industrial development, including the development of energy resources.*
>
> ***Policy ED-2.4: Green Economy.*** *The County shall encourage the development and expansion of industries and businesses that rely on environmentally-sustainable products and services, such as renewable energy, green building, clean transportation, water conservation, waste management and recycling, and sustainable land management.*

Public Facilities and Services Element – Transportation and Mobility

> ***Policy TM-1.11: Transportation System Improvements.*** *The County shall require new development to provide transportation system improvements necessary to serve the development.*

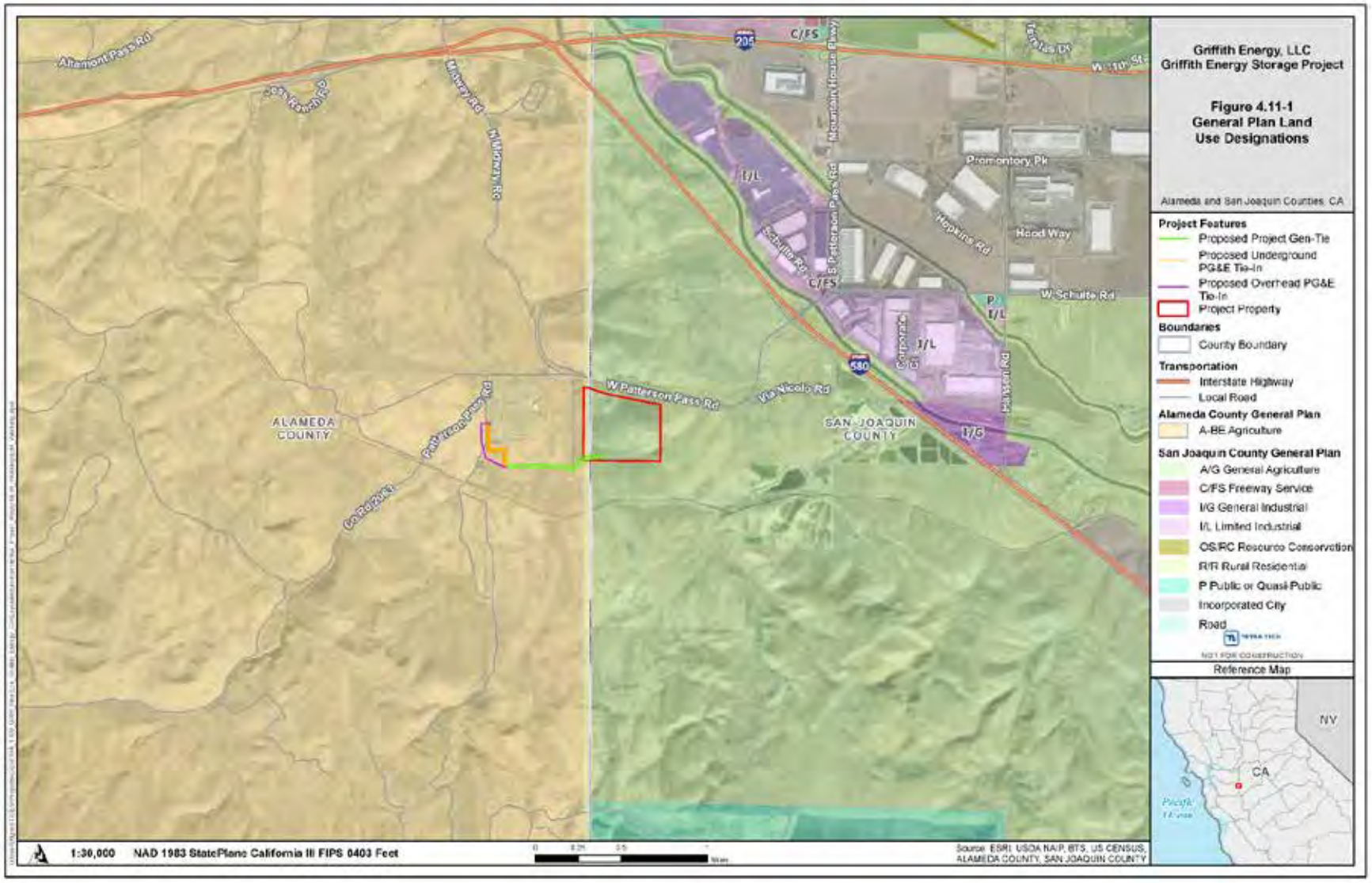


Figure 4.11-1. General Plan Land Use Designations

Policy TM-1.15: Transportation Funding. *The County shall support transportation system improvements by collecting fair share transportation impact fees from new development, supporting ballot measures to maintain existing and/or establish new sales tax revenue for the maintenance and improvement of transportation infrastructure, and applying for Federal and State discretionary transportation funds.*

Public Facilities and Services Element – Infrastructure and Services

Policy IS-1.2: Infrastructure Standards. *The County shall require new developments that include improvements to existing infrastructure or new infrastructure to meet the requirements and standards of the County or other agencies providing services.*

Policy IS-1.8: Infrastructure Financing, Design, and Construction. *The County shall require new development to fund the initial financing, design, and construction of required infrastructure facilities. All financing (including operation and maintenance) and improvement plans shall be subject to County review and approval.*

Policy IS-1.9: Maximize Use of Existing Facilities. *The County shall require new development to be designed and sited to use existing facilities and services to the extent practical and to the extent that such a design and site choice would be consistent with good design principles.*

Policy IS-2.6: New Development Requirements. *The County shall require new development to provide water, sewer, storm water, and/or street lighting service(s), using one of the following methods, subject to County review and approval:*

- *Obtain a will-serve letter from an existing Special District, Community Service District, Mello-Roos Community Facilities District or other non-city public utility agency and obtain LAFCo approval for annexation or out-of-agency service;*
- *Obtain a will-serve letter from a city and obtain LAFCo approval for out-of-agency service;*
- *Fund the formation of a new Community Service District, Mello-Roos Community Facilities District or other non-County public utility agency that would perform ongoing maintenance; or*
- *When approved by the Director of Public Works, fund the formation of a new County Service Area (CSA) that would provide ongoing maintenance services.*

Policy IS-4.8: Water Conservation Measures*. The County shall require existing and new development to incorporate all feasible water conservation measures to reduce the need for water system improvements.*

Policy IS-5.1: Adequate Water Treatment and Distribution Facilities. *The County shall ensure, through the development review process, that adequate water, treatment and distribution facilities are sufficient to serve new development, and are scalable to meet capacity demands when needed. Such needs shall include capacities necessary to comply with water quality and public safety requirements.*

Policy IS-7.1: Adequate Stormwater Facilities. *The County shall require that stormwater drainage facilities are properly designed, sited, constructed, and maintained to efficiently capture and dispose of runoff and minimize impacts to water quality.*

Public Health and Safety Element

Policy PHS-1.10: Emergency Vehicles Access. *The County shall require all new developments to provide, and existing developments to maintain, adequate primary and alternative access for emergency vehicles.*

Goal PHS-3: *To protect life and property from seismic and geologic hazards.*

Policy PHS-3.1: Consider Geologic Hazards for New Development. *The County shall consider the risk to human safety and property from seismic and geologic hazards in designating the location and intensity for new development and the conditions under which that development may occur.*

Policy PHS-3.2: Location of Sensitive Land Uses. *The County shall not approve any of the following land uses if they are located within one-eighth of a mile of any active fault or on soil that is highly susceptible to liquefaction: facilities necessary for emergency services; major utility lines and facilities; manufacturing plants using or storing hazardous materials; high occupancy structures, such as multifamily residences and large public assembly facilities; and facilities housing dependent populations, such as prisons, schools, and convalescent centers.*

Policy PHS-3.4: Liquefaction Studies. *The County shall require proposals for new development in areas determined by the County to have high liquefaction potential to include detailed site-specific liquefaction studies.*

Policy PHS-3.5: Subsidence or Liquefaction. *The County shall require that all proposed structures, utilities, or public facilities within County-recognized areas of near-surface subsidence or liquefaction be located and constructed in a manner that minimizes or eliminates potential damage.*

Goal PHS-4: *To minimize the risk of wildland and urban fire hazards.*

Policy PHS-4.3: Fire Prevention Measures. *The County shall implement State recommendations for fire prevention in Fire Hazard Severity Zones and require new and/or existing development to provide clearance around structures, use fire-resistant ground cover, build with fire-resistant roofing materials, participate in fuel load reduction, and take other appropriate measures.*

Goal PHS-5: *To protect public health, agricultural crops, scenic resources, and the built and natural environments from air pollution.*

Policy PHS-5.6: Toxic Air Contaminants. *The County shall require effective buffers between residential areas and other sensitive receptors and non-residential land uses, such as highways, trucking centers, gasoline dispensing facilities, and dry cleaners, that generate toxic air contaminants.*

Policy PHS-5.7: TAC Exposure Reduction Measures for New Development*. The County shall require new development projects to implement all applicable best management practices that will reduce exposure of sensitive receptors (e.g., hospitals, schools, daycare facilities, elderly housing and convalescent facilities) to toxic air contaminants.*

Policy PHS-5.10: Particulate Emissions from County Roads. *The County shall require PM10 and PM2.5 emission reductions on County-maintained roads to the maximum extent feasible and consistent with State and Federal regulations.*

Policy PHS-5.11: Paving Materials. *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.*

Goal PHS-6*: To reduce greenhouse gas emissions as part of the Statewide effort to combat climate change.*

Policy PHS-6.7: New Development. *The County shall require new development to incorporate all feasible mitigation measures to reduce construction and operational GHG emissions.*

Goal PHS-7*: To protect County residents, visitors, and property from hazardous materials and wastes.*

Policy PHS-7.1: Minimize Hazardous Materials and Wastes. *The County shall discourage the use of hazardous materials and the creation of hazardous wastes.*

Policy PHS-7.2: Avoid Contamination of Resources*. The County shall strive to ensure that hazardous materials and wastes do not contaminate air, water, or soil resources.*

Policy PHS-7.3: Control Hazardous Materials. *The County shall require the use, storage, and disposal of hazardous materials and wastes to comply with local, State, and Federal safety standards.*

Policy PHS-7.5: Locate Hazardous Materials Away from Populated Areas. *To the extent feasible, the County shall require proposed activities and land uses that use, store, or dispose of hazardous materials or wastes to be located away from existing and planned populated areas.*

Policy PHS-7.6: Require Hazardous Materials Management Plans. *The County shall require businesses that use or store materials and wastes on-site to prepare Hazardous Materials Management Plans (Business Plans) that map and inventory all hazardous materials and contain contingency plans for accidents, designate an individual or individuals as emergency coordinator(s), and ensure that all employees understand the potential for accidents and the appropriate response. Plans must follow the requirements for Federal, State, and/or local defined special flood hazard areas.*

Policy PHS-7.8: Consistency with Hazardous Waste Management Plan. *The County shall require all new development to be consistent with the County Hazardous Waste Management Plan (CHWMP). Any proposed hazardous waste facility, or expansion of an existing hazardous waste facility, shall be consistent with the CHWMP.*

Policy PHS-7.9: Require Disclosure of Hazardous Materials and Waste. *The County shall require public disclosure of hazardous materials and wastes for existing and proposed businesses.*

Goal PHS-8: *To promote the safe operation of public and private airports and protect the safety of County residents.*

Policy PHS-8.1: Land Use Compatibility. *The County shall prohibit land uses within unincorporated areas that interfere with the safe operation of aircraft or that would expose people to hazards from the operation of aircraft.*

Policy PHS-8.6: Transmission Tower and Lines. *The County shall not approve any radio, television, power, or related transmission towers and lines that may conflict with aircraft operations.*

Goal PHS-9: *To protect county residents from the harmful and nuisance effects of exposure to excessive noise.*

Policy PHS-9.1: Noise Standards for New Land Uses. *The County shall require new development to comply with the noise standards shown in Tables 9-1 and 9-2 through proper site and building design, such as building orientation, setbacks, barriers, and building construction practices.*

Policy PHS-9.4: Acceptable Vibration Levels. *The County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby vibration-sensitive uses based FTA criteria.*

Resources Element – Natural and Cultural Resources

Goal NCR-3: *To ensure the quality of water for municipal and industrial uses, agriculture, recreation, and fish and wildlife.*

Policy NCR-3.5: Low Impact Development. *The County shall require new development to minimize or eliminate stormwater quality and hydro-modification impacts through site design, source controls, runoff reduction measures, best management practices (BMPs), and Low Impact Development (LID).*

Goal NCR-5: *To increase energy independence through the use of renewable energy sources and improved energy conservation and efficiency.*

Policy NCR-5.1: Nonrenewable Energy and Energy Efficiency. *The County shall support the efforts of residents, businesses, and energy providers to reduce the consumption of nonrenewable energy and shall promote energy providers' programs to increase energy efficiency and implement demand response programs.*

Policy NCR-5.2: Alternative Energy*. The County shall encourage residents, businesses, and energy providers to develop and use alternative, renewable energy sources, including but not limited to, biomass, solar, wind, and geothermal.*

Policy NCR-5.5: Environmental Protection. *The County shall strive to balance the development of energy facilities with environmental protection and the preservation of other natural resources.*

Policy NCR-5.6: Energy Facilities on Prime Farmland. *The County shall discourage the placement of energy facilities on Prime Farmland.*

Goal NCR-6: *To protect San Joaquin County's valuable architectural, historical, archeological, and cultural resources.*

Policy NCR-6.5: Protect Archeological and Historical Resources. *The County shall protect significant archeological and historical resources by requiring an archeological report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archeological artifacts that could be disturbed by project construction.*

Policy NCR-6.6: Tribal Consultation*. The County shall consult with Native American tribes regarding proposed development projects and land use policy changes consistent with the State's Local and Tribal Intergovernmental Consultation requirements.*

Goal NCR-7: *To protect and enhance the unique scenic features of San Joaquin County.*

Policy NCR-7.1: Scenic Roadways. *The County shall protect the visual character of designated scenic roadways.*

Policy NCR-7.2: Views from Public Lands and Roadways. *The County shall ensure that views of waterways, hilltops, and oak groves from public land and public roadways are protected and public access is provided to them whenever possible.*

Policy NCR-7.7: Reducing Light Pollution. *The County shall encourage project designs, lighting configurations, and operational practices that reduce light pollution and preserve views of the night sky.*

San Joaquin County Zoning Ordinance and Municipal Code

Zoning

The portion of the Project site in San Joaquin County is zoned as Agricultural General-160 (AG). Pursuant to San Joaquin County Municipal Ordinance Code Section 9-600.1(a), the AG Zone is established to preserve agricultural lands for the continuation of commercial agricultural enterprises. This zone is intended to implement the General Agriculture land use category of the General Plan. In addition, Division 1, Chapter 9-115, contains the County's Use Classification System, which divides uses into residential and non-residential use types. The Project is considered a non-residential use type, and specifically a Major Utility Service, pursuant to

Division 1, Section 9-115.580. Division 6, Section 9-605.2, of the San Joaquin County Municipal Ordinance Code allows major utilities on AG zoned land through a Site Approval application. The Applicant has applied to the San Joaquin County Community Development Department for a Site Approval to allow for the Project.

Title 6 – Public Welfare; Division 5 – Underground Utilities

Division 5 of the San Joaquin County Municipal Code of Ordinances sets forth regulations for underground utility districts within the County, to enhance public welfare through the removal of poles and overhead wires and to place utilities underground. Per Section 6-5005, this chapter does not apply to poles, overhead wires, and associated overhead structures used for the transmission of electric energy at nominal voltages in excess of 34.5 kilovolts (kV). The proposed gen-tie line would be 230 kV and, therefore, would not require underground installation.

Agriculture Mitigation Ordinance

The County's Agriculture Mitigation Ordinance is defined in Title 9, Division 10, Chapter 9-1080, of the Municipal Ordinance Code. The purpose of the County's Agriculture Mitigation Ordinance is to permanently protect agricultural land in the County by mitigating the loss of agricultural land resulting from:

1) A General Plan Amendment that changes the designation of any land from an agricultural to a non-agricultural use; and
2) A Zoning Reclassification that changes the permitted uses from agriculture to a non-agricultural use, regardless of the General Plan designation.

Mitigation is required in the form of an agricultural conservation easement that protects the same number of acres proposed to be changed to a non-agricultural use, or greater (1:1 ratio). If easement acquisition is determined to be infeasible after a good faith effort, a payment in lieu may be allowed (FIC 2022).

Alameda County East County Area Plan

Alameda County's General Plan consists of several documents, including three area plans which include goals and policies for land use, circulation, open space, conservation, safety, and noise specific to their respective geographic areas. The County's General Plan also consists of countywide elements for Housing, Conservation, Open Space, Noise, Seismic Safety, and Scenic Routes. Area plans address area-specific issues that affect both unincorporated and incorporated areas, but have legal regulatory effect only within currently unincorporated areas. Countywide elements address broader issues on a countywide basis and provide a comprehensive and consistent policy framework for the more specific area plans (Alameda County 2000). The East County Area Plan (ECAP) is a portion of the Alameda County General Plan that is specific to the eastern portion of the County. The purpose of the ECAP is to present a clear statement of Alameda County's intent concerning future development and resource conservation within East County. The goals and policies in the ECAP are intended to inform decision-makers, the general public, public agencies, and those doing business in Alameda County of the County's position on land use-related issues and to provide guidance for day-to-day decision-making. The programs that follow the policies identify a set of specific actions the County will undertake to achieve the goals and policies of the plan.

The proposed gen-tie line lies within an unincorporated area of Alameda County and is subject to the ECAP. The ECAP designates the area where the gen-tie line would be located as LPA, which:

> *provides for a variety of agricultural uses as well as some limited residential and commercial uses, recreational uses, public and quasi-public uses, sold waste landfills and related waste management facilities, quarries, windfarms and related facilities, utility corridors, and similar uses compatible with agriculture.*

The ECAP also designates an Urban Growth Boundary, which divides areas inside the Boundary, next to existing cities, which are generally suitable for urban development, from areas outside the Boundary, suitable for long-term protection of natural resources, agriculture, public health and safety, and buffers between communities (Alameda County 2000). The Project site is located outside of the Urban Growth Boundary. The Alameda County ECAP includes the following goals and policies that are relevant to the Project:

Land Use

> ***Policy 13:*** *The County shall not provide nor authorize public facilities or other infrastructure in excess of that needed for permissible development consistent with the Initiative. This policy shall not bar 1) new, expanded or replacement infrastructure necessary to create adequate service for the East County, 2) maintenance, repair or improvements of public facilities which do not increase capacity, and 3) infrastructure such as pipelines, canals, and power transmission lines which have no excessive growth-inducing effect on the East County area and have permit conditions to ensure that no service can be provided beyond that consistent with development allowed by the Initiative. "Infrastructure" shall include public facilities, community facilities, and all structures and development necessary to the provision of public services and utilities.*
>
> ***Goal:*** *To protect regionally significant open space and agricultural land from development.*
>
> ***Policy 54:*** *The County shall approve only open space, park, recreational, agricultural, limited infrastructure, public facilities (e.g., limited infrastructure, hospitals, research facilities, landfill sites, jails, etc.) and other similar and compatible uses outside the Urban Growth Boundary.*
>
> ***Goal:*** *To maximize long-term productivity of East County's agricultural resources.*
>
> ***Policy 71:*** *The County shall conserve prime soils (Class I and Class II, as defined by the USDA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the Urban Growth Boundary.*
>
> ***Policy 73:*** *The County shall require buffers between those areas designated for agricultural use and new non-agricultural uses within agricultural areas or abutting parcels. The size, configuration and design of buffers shall be determined based on the characteristics of the project site and the intensity of the adjacent agricultural uses, and if applicable, the anticipated timing of future urbanization of adjacent agricultural land where such agricultural land is included in a phased growth plan. The buffer shall be located on*

the parcel for which a permit is sought and shall provide for the protection of the maximum amount of arable, pasture, and grazing land feasible.

Policy 108: *To the extent possible, including by clustering if necessary, structures shall be located on that part of a parcel or on contiguous parcels in common ownership on or subsequent to the date this ordinance becomes effective, where the development is least visible to persons on public roads, trails, parks and other public viewpoints. This policy does not apply to agricultural structures to the extent it is necessary for agricultural purposes that they be located in more visible areas.*

Policy 114: *The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.*

Policy 115: *In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located.*

Policy 116: *To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public view points.*

Policy 117: *The County shall require that where grading is necessary, the off-site visibility of cut and fill slopes and drainage improvements is minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.*

Policy 118: *The County shall require that grading avoid areas containing large stands of mature, healthy vegetation, scenic natural formations, or natural watercourses.*

Policy 119: *The County shall require that access roads be sited and designed to minimize grading.*

Policy 120: *The County shall require that utility lines be placed underground whenever feasible. When located above ground, utility lines and supporting structures shall be sited to minimize their visual impact.*

Goal: *To preserve a variety of plant communities and wildlife habitat.*

Policy 123: *Where site-specific impacts on biological resources resulting from a proposed land use outside the Urban Growth Boundary are identified, the County shall encourage that mitigation is complementary to the goals and objectives of the ECAP. To that end, the*

County shall recommend that mitigation efforts occur in areas designated as "Resource Management" or on lands adjacent to or otherwise contiguous with these lands in order to establish a continuous open space system in East County and to provide for long term protection of biological resources.

Goal: *To minimize the risks to lives and property due to environmental hazards.*

Policy 134: *The County shall not approve new development in areas with potential natural hazards (flooding, geologic, wildland fire, or other environmental hazards) unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis.*

Policy 135: *The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.*

Goal: *To protect cultural resources from development.*

Policy 137: *The County shall require development to be designed to avoid cultural resources or, if avoidance is determined by the County to be infeasible, to include implement appropriate mitigation measures that offset the impacts.*

Goal: *To provide for the development, operation, and expansion of major public facilities and to ensure the compatibility of adjacent land uses.*

Policy 138: *The County shall allow development and expansion of major public facilities (e.g., hospitals, research facilities, landfill sites, jails, etc.) in appropriate locations inside and outside the Urban Growth Boundary consistent with the policies and Land Use Diagram of the East County Area Plan.*

Policy 139: *The County shall ensure that new major public facilities are properly sited to avoid land use conflicts and potential health and safety risks.*

Policy 173: *The County shall discourage the development of uses and structures that are not compatible with wind energy operations within the Wind Resource Area.*

Transportation

Policy 180: *The County shall require that all new development in areas that are unincorporated as of the adoption of the East County Area Plan shall contribute their fair share towards the costs of transportation improvements shown on the Transportation Diagram, subject to confirmation in subsequent traffic studies, as a condition of project approval.*

Policy 215: *The County shall manage development and conservation of land within East County scenic highway corridors to maintain and enhance scenic values.*

Public Services and Facilities

Goal: *To provide infrastructure and services necessary to accommodate East County holding capacities in a logical, cost-effective, and timely manner.*

Policy 218: *The County shall allow development and expansion of public facilities (e.g., parks and recreational facilities; schools; child care facilities; police, fire, and emergency medical facilities; solid waste, water, storm drainage, flood control, subregional facilities; utilities etc.) in appropriate locations inside and outside the Urban Growth Boundary consistent with the policies and Land Use Diagram of the East County Area Plan.*

Goal: *To ensure the prompt and efficient provision of police, fire, and emergency medical facility and service needs.*

Policy 243: *The County shall require new developments to pay their fair share of the costs for providing police, fire, and emergency medical services and facilities.*

Policy 244: *The County shall require that new developments are designed to maximize safety and security and minimize fire hazard risks to life and property.*

Policy 253: *The County shall approve new development only upon verification that an adequate, long-term, sustainable, clearly identified water supply will be provided to serve the development, including in times of drought.*

Policy 254: *The County shall encourage Zone 7 and local water retailers to require new development to pay the full cost of securing, conveying, and storing new sources of water.*

Policy 275: *The County shall condition the approval of new development on verification that adequate wastewater treatment and export and/or reclamation capacity exists to serve the development.*

Goal: *To provide efficient and cost-effective utilities.*

Policy 285: *The County shall facilitate the provision of adequate gas and electric service and facilities to serve existing and future needs while minimizing noise, electromagnetic, and visual impacts on existing and future residents.*

Policy 286: *The County shall work with PG&E to design and locate appropriate expansion of gas and electric systems.*

Policy 287: *The County shall require new developments to locate utility lines underground, whenever feasible.*

Environmental Health and Safety

Policy 294: *The County shall require new development projects to include traffic and air pollutant reduction measures to help attain air quality standards. For non-residential projects, these measures could include Transportation Demand Management programs such as ridesharing and transit promotion; for residential projects, these measures could include site plan features to reduce traffic trip generation such as mixed use development and transit-oriented development.*

Policy 296: *The County shall review the cumulative impact of proposed projects for their potential effect on air quality conditions.*

Goal: *To minimize the risks to lives and property due to seismic and geologic hazards.*

Policy 309: *The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk caused by seismic and geologic activity.*

Policy 310: *The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.*

Policy 311: *The County shall ensure that new major public facilities, including emergency response facilities (e.g., hospitals and fire stations), and water storage, wastewater treatment and communications facilities, are sited in areas of low geologic risk.*

Policy 313: *The County shall require development in hilly areas to minimize potential erosion and disruption of natural slope stability which could result from grading, vegetation removal, irrigation, and drainage.*

Goal: *To minimize the risks to lives and property due to fire hazards.*

Policy 320: *The County shall consider, in reviewing development projects and subdivision of agricultural lands, the severity of natural fire hazards, potential damage from wildland and structural fires, the adequacy of fire protection services, road access, and the availability of an adequate water supply and pressure.*

Alameda County Zoning Ordinance and Municipal Code of Ordinances

Zoning

The portion of the Project site in Alameda County, where the proposed gen-tie transmission line and the proposed tie-in to the existing PG&E Tesla Substation would be located are zoned as Agriculture (A). Pursuant to Section 17.06.010 of the Alameda County Zoning Ordinance, agricultural districts are established to promote implementation of general plan land use proposals for agricultural and other nonurban uses, to conserve and protect existing agricultural uses, and to provide space for and encourage such uses in places where more intensive development is not desirable or necessary for the general welfare. However, Section 17.52.020 of the Alameda County Zoning Ordinance allows for public utility uses (except for buildings, service yards, and storage yards) in any zoning district without limitation as to height provided that plans for such uses be submitted to the Planning Commission for a report and recommendation prior to the acquisition of any site, easement, or right-of-way (ROW). Accordingly, the proposed gen-tie transmission line would be permitted by right within the Alameda County Agriculture zoning district if a Utility Roadway Permit were not required (see below).

Title 12 – Public Roadways and Parks; Chapter 12.08 – Roadway Use Regulations

Chapter 12.08 of the Alameda County Municipal Code of Ordinances sets forth regulations for development within and along public roadways. In accordance with this chapter, all cables, conduits, wires, ducts, converters, antennas, radios, poles, guy wires, pipes, vaults, splice boxes, meter boxes, valves, valve boxes, cabinets, or other owner or utility facilities shall be considered

as encroachments, subject to the permitting requirements of this chapter. Encroachment permits are issued at the discretion of the director, subject to the requirements of this chapter. The Project would be required to apply for a Utility Roadway Permit for development of the proposed gen-tie transmission line, which is intended to authorize public and private utility agencies and companies to encroach upon public roadways. This includes Midway Road, which is parallel to the west Project site boundary. Approval of such an encroachment permit would be a discretionary action, making Alameda County a Responsible Agency for the Project, pursuant to CEQA Section 15381.

Title 13 – Public Services; Chapter 13.16 – Underground Utility Districts

Chapter 13.16 of the Alameda County Municipal Code of Ordinances sets forth regulations for underground utility districts within the County to enhance public welfare through the removal of poles and overhead wires, and to place utility distribution facilities underground, primarily within urbanized areas. Per Section 13.16.030, “utility distribution facilities” do not include wires carrying voltages higher than 35 kV. The proposed gen-tie line would be 230 kV and, therefore, would not require underground installation.

Alameda County Measure D

In November 2000, the Alameda County electorate approved the Save Agriculture and Open Space Lands Initiative (Measure D; effective date, December 22, 2000). The Initiative amended portions of the County General Plan, including the ECAP. The Initiative added policies pertaining specifically to the North Livermore area to allow for more intensive agricultural uses in this area with the goal to permit and encourage cultivated agriculture and to preclude urbanization without unduly impairing the open and natural qualities of the area. The Urban Growth Boundary was also redrawn to remove North Livermore from urban development, and North Livermore, west of Dagnino Road, was delineated as an Intensive Agriculture area. Lands previously designated Urban Reserve were redesignated as LPA, and land use policies for LPA, Resource Management (RM), and Rural Residential (RR) designations are more restrictive. The Initiative restricts areas outside of the urban growth boundary to agricultural, natural resource, and rural areas, and prevents the construction of infrastructure to support any urban development. Measure D also prohibits the County from providing or authorizing expansion of public facilities or other infrastructure that would create more capacity than needed to meet the development allowed by the Initiative. The Initiative does not prohibit public facilities or other infrastructure that have no excessive growth-inducing effect on the East County area and have permit conditions to ensure that no service can be provided beyond that consistent with development allowed by the Initiative (Alameda County 2000).

Alameda County voters also passed an update to Measure D on November 8, 2022, which increased the allowable size of certain agricultural buildings and equestrian arenas within the LPA and RM designations (Alameda County 2022).

4.11.3 Thresholds of Significance

A project would result in significant impacts to land use and planning if it would:

a) Physically divide an established community; or

b) Cause significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

4.11.4 Impact Analysis

IMPACT 4.11-1: *Would the project physically divide an established community?* **(No Impact)**

Typically, the construction of a physical barrier to neighborhood access, or the removal of a means of access, could result in the division of an established community. The Project site is located in a rural area of San Joaquin County and Alameda County, approximately 5 miles southwest of the City of Tracy. There are a few residences located approximately 0.2 miles (approximately 1,000 feet) north of the Project site across West Patterson Pass Road, within San Joaquin County jurisdiction. Additional rural residences exist west and southwest of the Project site, within the jurisdiction of Alameda County, including two to three residences abutting the western Project site boundary. There are no established communities in the general area. Moreover, construction, operation, and decommissioning of the proposed gen-tie would not include any features that would create a physical barrier to access, nor remove means of access to, the adjacent residences. Additionally, the Project would not involve the removal of any existing, publicly used means of access. Therefore, the Project would not physically divide an established community.

Mitigation: None required.

IMPACT 4.11-2: *Would the project cause significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?* **(Less than Significant Impact)**

The following policy consistency analysis is separated by County and Project components. The Project would be primarily located within San Joaquin County, with the exception of the proposed gen-tie transmission line and PG&E Tesla Substation improvements, which would be located in Alameda County. Further, one portion of the gen-tie line, from the Project substation to the point of change of ownership (POCO), would be designed, sited, and constructed by the Applicant; while the other portion of the gen-tie, from the POCO to the Tesla Substation, would be designed, sited, and constructed by PG&E. The Applicant's portion of the gen-tie is analyzed herein under the Alameda County Analysis, while the PG&E portion of the gen-tie and its improvements to the Tesla Substation are discussed in Section 4.11.5 below.

San Joaquin County Analysis

San Joaquin County is processing the Site Approval application for the Project in accordance with the Site Approval described in Chapter 9-818, *Site Approvals*, of the County Municipal Ordinance Code. The Applicant has filed a Site Approval application to construct, operate, maintain, and decommission the battery energy storage facility (including ancillary facilities) within the Project boundary. Compliance with conditions of approval for the Site Approval would ensure that the Project would not conflict with applicable San Joaquin County General Plan, Zoning, or other County land use plans, policies, or regulations that have been adopted for the purpose of avoiding or mitigating environmental effects.

<u>San Joaquin County Zoning and Municipal Code</u>

The Project site is zoned General Agriculture-160 (GA-160). San Joaquin County allows battery energy storage facilities on GA zoned land through the Site Approval process, as described in County Code Division 6, Section 9-605.2. Compliance with conditions of approval for the Site Approval would ensure the Project would not conflict with the underlying GA zone.

With regard to Division 5, *Underground Utilities,* this chapter does not apply to poles, overhead wires, and associated overhead structures used for the transmission of electric energy at nominal voltages in excess of 34.5 kV. The proposed gen-tie line would be 230 kV and, therefore, would not require underground installation.

Finally, the Project would not be subject to the County's Agriculture Mitigation Ordinance as the Project does not include a Zoning Reclassification or General Plan Amendment.

San Joaquin County General Plan

While the Project would include cancellation of the Williamson Act contract on the Project site, the Project would be consistent with the applicable Land Use Policies for agricultural lands (**Policies LU-7.1, LU-7.2, LU-7.7,** and **LU-7.15**) because the Project is not located on Prime Farmland and because, upon decommissioning, the site could again be available for agricultural uses. Although the Project would preclude agricultural uses on the Project site for the lifespan of the Project (expected 35 years), the Project site would not be permanently converted to a non-agricultural use, thus allowing for the long-term protection of agricultural lands pursuant to **Policy LU-7.1**. Additionally, through the Site Approval process, the Project site would maintain the existing agricultural zoning and General Plan land use designation, allowing for future agricultural uses on the site after Project decommissioning. Regarding compatibility with surrounding agricultural uses, the Project would be sited just east of the existing PG&E Tesla Substation, which is a similar electrical utility use in the immediate vicinity. Additionally, pursuant to **Policy LU-7.2**, the proximity to the Tesla Substation is a unique location because it would limit the need for extensive transmission line development to connect to the Project. Further, the Project would not be incompatible with surrounding agricultural operations because similar uses currently exist in the Project vicinity, including the Tesla Substation and proximate transmission lines. Additionally, surrounding agricultural uses primarily include cattle grazing, which would be undisrupted from the Project, as the Project would be fenced off and include relatively low operational maintenance. Construction and decommissioning of the Project would include more equipment and personnel within the Project area. However, both construction and decommissioning would be short-term in nature and would be clearly divided from surrounding agricultural uses. Construction and decommissioning of the Project would not impact surrounding cattle grazing or other agricultural uses. The Project would also incorporate adequate buffers and setbacks from adjacent agricultural properties, as well as the residences west, southwest, and north of the Project site, in accordance with the requirements set forth by the County through the Site Approval application process and pursuant to **Policy LU-7.7**. Refer also to Section 4.2, *Agriculture and Forestry Resources,* of this Draft EIR for additional information pertaining to the Williamson Act contract cancellation and impacts on agricultural uses within and surrounding the Project site. Pursuant to **Policy LU-7.15**, impacts to agricultural resources would be less than significant with implementation of **Mitigation Measure AGR-1**. Thus, the Project would be consistent with these policies of the General Plan.

The Project would also be consistent with the applicable Economic Development Polices (**Policies ED-2.1** and **ED-2.4**) because the Project includes the development of energy resources and supports the continued transition to a "Green Economy," pursuant to **Policy ED-2.4,** by improving the reliability of renewable energy through added battery capacity in the County. Furthermore, General Plan Natural and Cultural Resources **Policies NCR-5.1** and **NCR-5.2** aim to support the continued growth of renewable energy sources in the County, and **Policies NCR-5.5** and **NCR-5.6** aim to balance energy development with environmental protection and

discourage energy facility development on Prime Farmland, respectively. Since the Project would develop an energy storage facility for renewable energy sources that would not be placed on Prime Farmland, the Project would be consistent with these General Plan Resources Element policies. Further, the Project would balance the development with environmental protection through implementation of the mitigation measures identified within this Draft EIR.

Other relevant policies of the Natural and Cultural Resources Element include **Policies NCR-3.5, NCR-6.5, NCR-6.6, NCR-7.1**, **NCR-7.2**, and **NCR-7.7**. In accordance with **Policy NCR-3.5** and as discussed in Sections 4.7, *Geology, Soils, and Paleontological Resources,* and 4.10, *Hydrology and Water Quality,* of this Draft EIR, the Project would implement **Mitigation Measure GEO-1**, requiring the incorporation of BMPs contained in the Stormwater Pollution Prevention Plan (SWPPP) to reduce potential impacts related to stormwater quality and runoff during construction and eventual decommissioning. Additionally, no grading that may obstruct, impede, or interfere with the natural flow of stormwaters would occur. The Project would include swales and armored outlets to direct stormwater, as shown in the preliminary grading and site plan provided as Figure 2-2 of Chapter 2, *Project Description*. Ultimately, as determined by this Draft EIR, geology and soils, and hydrology and water quality impacts would be less than significant with implementation of **Mitigation Measure GEO-1**.

In accordance with **Policies NCR-6.5** and **NCR-6.6**, and as discussed in Sections 4.5, *Cultural Resources,* and 4.16, *Tribal Cultural Resources,* of this Draft EIR, a Cultural Resource Phase I Investigation has been prepared for the Project. Additionally, the County as initiated tribal consultation in accordance with AB 52 requirements. As determined by this Draft EIR, impacts to cultural resources and tribal cultural resources would be mitigated to below a level of significance with implementation of **Mitigation Measures CUL-1** (Cultural Resource Worker Education/Training) and **CUL-2** (Inadvertent Discovery of Archeological Resources During Construction). Therefore, the Project would be consistent with these policies.

In accordance with **Policy NCR-7.1**, the Project would not impact scenic roadways. As discussed in Section 4.1, *Aesthetics,* of this Draft EIR, Corral Hollow Road is identified as the closest local scenic roadway to the Project site; however, the Project site is not visible from this roadway due to terrain and distance. Further, it was determined that the Project would result in no impact to state scenic highways.

As further discussed in Section 4.1, *Aesthetics,* and pursuant to **Policy NCR-7.2,** the Project would be barely visible, if at all, from I-580, and would not block views for the Diablo Range from I-580. Further, views of the Project from Patterson Pass Road and Midway Road would be limited to a short distance due to the surrounding terrain. There are also no views of the Project from the Top of World Scenic Lookout due to the terrain and distance. Ultimately, the Project would not result in a substantial adverse effect on a scenic vista.

Pursuant to **Policy NCR-7.7**, the Project would provide external safety lighting for both normal and emergency conditions at the primary access points, which would be designed to provide the minimum illumination needed to achieve safety and security and would be downward facing and shielded to focus illumination in the immediate area and prevent night sky illumination and light spillover. Lighting would also only switch on when personnel enter the area, either through motion sensors or manual activation via a switch. All lighting associated with the Project would be subject to County approval and compliance with San Joaquin County requirements. Impacts associated with Project lighting were determined to be less than significant.

The Project would be consistent with the applicable policies of the Transportation and Mobility Element as well. Relevant policies in this element include **Policies TM-1.11** and **TM-1.15**. The Project would use existing roadways and would not be required to improve the transportation system. Transportation impacts are also discussed in Section 4.15, *Transportation,* of this Draft EIR. As discussed therein, the Project would have less than significant impacts on the transportation system.

The Project would also be consistent with the applicable General Plan Infrastructure and Services Policies (**Policies IS-1.2, IS-1.8, IS-1.9, IS-2.6, IS-4.8, IS-5.1,** and **IS-7.1**). The Project would use the existing transportation network and does not include any improvements to existing infrastructure, including public roadways in the vicinity. Access to the Project site would be provided from West Patterson Pass Road to Midway Road to a driveway that leads to the Project site. Accordingly, the Project would not conflict with **Policies IS-1.2**, **IS-1.8**, or **IS1.9**.

Further, the Project does not include any habitable structures, such that would require the extension of water or wastewater services to the site. No permanent sanitary facilities would be required. As discussed in Section 4.17, *Utilities and Service Systems,* of this Draft EIR, there is a sufficient water supply to support development of the Project. Finally, as discussed in Section 4.10, *Hydrology and Water Quality,* of this Draft EIR, the Project would be designed to site stormwater drainage facilities in a manner that would efficiently capture and dispose of runoff and minimize impacts to water quality. Accordingly, the Project would be consistent with **Policies IS-2.6**, **IS-4.8**, **IS-5.1**, and **IS-71**.

The Project would be consistent with the applicable policies of the Public Health and Safety Element (**Policies PHS-1.10, PHS-3.1, PHS-3.2, PHS-3.4, PHS-3.5, PHS-4.3, PHS-5.6, PHS-5.7, PHS-5.10, PHS-5.11, PHS-6.7, PHS-7.1, PHS-7.2, PHS-7.3, PHS-7.5, PHS-7.6, PHS-7.8, PHS-7.9, PHS-8.1, PHS-8.6, PHS-9.1,** and **PHS-9.4**). In accordance with **Policy PHS-1.10**, the Project would provide adequate emergency vehicle access to the site and site access would comply with the California Department of Forestry and Fire Protection and/or San Joaquin County Fire Protection District requirements. The Project would also be designed in compliance with federal, state, and local worker safety and fire protection codes and regulations, which would minimize the potential for the occurrence of fire, consistent with **Policy PHS-4.3**. The Project would also incorporate fire protection measures in accordance with the requirements set forth by the County through the Site Approval application process.

In accordance with **Policies PHS-3.1, PHS-3.2, PHS-3.4,** and **PHS-3.5**, geologic hazards have been considered in design of the Project and the potential for such hazards are discussed in Section 4.7, *Geology, Soils, and Paleontological Resources,* of this Draft EIR. As discussed therein, the Project would not be located within one-eighth mile of an active fault, or on soil highly susceptible to liquefaction or subsidence. The Project site is not located in an area determined by the County to have a high liquefaction potential and, therefore, a liquefaction study is not required for the Project. Ultimately, as determined by this Draft EIR, the Project would have less than significant impacts related to geologic hazards, with the exception of impacts related to soil erosion and loss of topsoil, which would be mitigated to a less than significant level with implementation of **Mitigation Measure GEO-1**; and with the exception of impacts to paleontological resources, which would be mitigated to a less than significant level with implementation of **Mitigation Measures GEO-2** and **GEO-3**. Thus, the Project would be consistent with these policies of the General Plan.

In accordance with Policies **PHS-5.6, PHS-5.7, PHS-5.8,** and **PHS-5.11**, and as discussed in Section 4.3, *Air Quality,* of this Draft EIR, the Project would not expose nearby residents or other sensitive receptors to significant levels of toxic air contaminants (TAC), and no mitigation measures would be required. Similarly, particulate matter (PM_{10} and $PM_{2.5}$) emissions would also be less than significant thresholds during construction of the Project and mitigation measures would not be required. In accordance with **Policy PHS-6.7**, and as discussed in Section 4.8, *Greenhouse Gas Emissions,* of this Draft EIR, the Project would not result in GHG emissions impacts and mitigation would not be required. Ultimately, as determined by this Draft EIR, the Project would have less than significant impacts related to air quality, and thus would be consistent with these policies of the General Plan.

In accordance with **Policies PHS-7.1, PHS-7.2, PHS-7.3, PHS-7.5, PHS-7.6, PHS-7.8,** and **PHS-7.9**, and as discussed in Section 4.9, *Hazards and Hazardous Materials,* of this Draft EIR, the Project would result in less than significant impacts related to hazardous materials and wastes. The use, storage, and disposal of such materials would be in accordance with state and federal requirements, and any hazardous materials that would be stored on-site would be contained in designated areas in accordance with an HMBP. Adherence to the HMBP as required by the California Hazardous Materials Release Response Plans and Inventory law (Health and Safety Code §25500 et seq.) would ensure that all handling, storage, and disposal of hazardous materials, including the proposed batteries, would be conducted in accordance with proven practices to minimize exposure to workers or the public. Ultimately, as determined by this Draft EIR, the Project would have less than significant impacts related to hazards and hazardous materials, and thus would be consistent with these policies of the General Plan.

The Project would include a gen-tie transmission line; however, in accordance with **Policies PHS-8.1** and **PHS-8.6**, and as discussed in Section 4.9, *Hazards and Hazardous Materials,* of this Draft EIR, the Project site is not located within an airport land use plan and, therefore, the Project components, including the gen-tie, would not interfere with the safe operation of aircrafts.

In accordance with **Policies PHS-9.1** and **PHS-9.4**, and as discussed in Section 4.13, *Noise,* of this Draft EIR, the Project would incorporate **Mitigation Measures NOISE-1**, **NOISE-2,** and **NOISE-3** to reduce Project-related noise impacts to less than significant levels. **Mitigation Measure NOISE-1** consists of requirements to reduce noise levels within the Project area during construction, **Mitigation Measure NOISE-2** requires the inclusion of sound walls along the Project perimeter to reduce noise levels during operation, and **Mitigation Measure NOISE-3** requires the inclusion of two 15-foot soundwalls on the western and eastern portions of the Project site to shield surrounding residential properties from Project-related noise. Further, vibration noise levels were also determined to be less than significant.

Therefore, for the reasons provided above, the Project would not result in a significant environmental impact due to a conflict with applicable policies of the San Joaquin County General Plan.

Alameda County Analysis

Due to the proposed gen-tie transmission line and tie-in with the PG&E Tesla Substation development within the jurisdiction of Alameda County, and specifically due to development of the gen-tie line within/along public roadways, the Project would be required to secure a Utility Roadway Permit from Alameda County in accordance with Chapter 12.08 of the Municipal Code

of Ordinances. As a discretionary action, Alameda County is a Responsible Agency for the Project, pursuant to CEQA Section 15381. Therefore, a land use consistency analysis with applicable Alameda County regulations is provided below for development of the proposed gen-tie line.

Additionally, the Applicant would only design, site, and construct the gen-tie line from the Project substation to the POCO while PG&E would design, site, and construct the gen-tie from the POCO to their Tesla Substation. The consistency analysis in this section focuses on the Applicant's portion of the gen-tie while PG&E's portion of the gen-tie and their improvements to the Tesla Substation are discussed in Section 4.11.5 below.

Alameda County Zoning and Municipal Code

As described above, the proposed gen-tie transmission line and tie-in with the PG&E Tesla Substation would be located within Alameda County, in an area zoned for Agriculture (A). Section 17.52.020 of the Alameda County Zoning Ordinance allows for public utility uses (except for buildings, service yards, and storage yards) in any zoning district without limitation as to height provided that plans for such uses be submitted to the Planning Commission for a report and recommendation prior to the acquisition of any site, easement, or ROW. Accordingly, the proposed gen-tie transmission line would be permitted by right within the Alameda County Agriculture zoning district if a Utility Roadway Permit were not required. However, the Project would require a Utility Roadway Permit due to the pathway of the gen-tie crossing Midway Road, which is parallel to the west Project site boundary.

Pursuant to Chapter 12.08, *Roadway Use Regulations*, of the County's Municipal Code, all cables, conduits, wires, ducts, converters, antennas, radios, poles, guy wires, pipes, vaults, splice boxes, meter boxes, valves, valve boxes, cabinets, or other owner or utility facilities shall be considered as encroachments, which are subject to encroachment permits (Utility Roadway Permit) when developed within and along public roadways. The proposed gen-tie would cross Midway Road, thus requiring a Utility Roadway Permit.

Finally, with regard to Chapter 13.16, *Underground Utility Districts,* per Section 13.16.030 of the County's Municipal Code, "utility distribution facilities" do not include wires carrying voltages higher than 35 kV. The proposed gen-tie line would be 230 kV and, therefore, would not require underground installation.

Therefore, if Alameda County approves the Utility Roadway Permit, the Project would not conflict with the Alameda County Zoning Ordinance or Municipal Code.

Alameda County East County Area Plan

Development of the gen-tie line would be considered an allowable use as a utility corridor under the LPA designation of the ECAP, and would be consistent with the applicable Land Use Element policies of the Alameda County ECAP, including **Policies 13, 54, 71, 73, 108, 114, 115, 116, 117, 118, 119, 120, 123, 134, 135, 137, 138, 139,** and **173**. In accordance with **Policy 13**, the gen-tie line would not induce excessive growth on the East County area but would rather support the reliability of the overall power grid. Additionally, the gen-tie line complies with **Policies 54, 138,** and **139** in that the gen-tie would be considered an allowable use outside the Urban Growth Boundary and would be sited as to avoid land use conflicts and potential health and safety risks, which are discussed in Section 4.9, *Hazards and Hazardous Materials,* of this Draft EIR. The gen-

tie line would also be a compatible use within the Wind Resource Area as delineated in the ECAP, consistent with **Policy 173**.

In accordance with **Policy 71**, the Project site is not located on prime soils, Farmland of Statewide Importance, or Unique Farmland. Additionally, the proposed gen-tie line is not located within a Williamson Act Contract. As discussed in Section 4.2, *Agriculture and Forestry Resources,* a Project-specific Agricultural Land Evaluation and Site Assessment (LESA) was prepared for the Project (Appendix B), in which the Project was determined to have no significant impact on agricultural land uses within the Project area. The Project would also incorporate adequate buffers and setbacks, in accordance with **Policy 73**, from adjacent agricultural properties, as well as the residences north of the Project site, in accordance with the requirements set forth by San Joaquin County through the Site Approval application process.

In accordance with **Policy 108**, the Project proposes to install the gen-tie line at the southwestern-most corner of the Project site, which is the farthest portion of the Project site from West Patterson Pass Road, a public viewpoint.

Policies 114 and **115** set forth requirements for landscaping in the County to enhance scenic quality and minimize visual impacts of development. The Project would not include landscaping. However, as discussed in Section 4.1, *Aesthetics*, of this Draft EIR, the Project would implement **Mitigation Measure AES-1**, which would reduce significant impacts on visual resources to below a level of significance through various Project design measures. Examples of measures included in **Mitigation Measure AES-1** include the use of non-reflective materials, color treatment of Project components to blend with the existing landscape, and preservation of existing vegetation. Refer to Section 4.1, *Aesthetics*, for a full list of measures included in **Mitigation Measure AES-1**. With regard to lighting, the gen-tie line would not include any lighting. Accordingly, the Project would not conflict with the intent of **Policies 114** and **115** to enhance scenic quality and minimize visual impacts of development.

In accordance with **Policy 116**, construction of the gen-tie line would not result in substantial landform alteration. Additionally, in accordance with **Policies 116** and **120**, site access would be in the southwestern corner of the Project site, near other existing utility lines and at the farthest portion of the Project site from West Patterson Pass Road, a public viewpoint. Therefore, the visual impact of the gen-tie line would be minimized. See also Section 4.1, *Aesthetics,* of this Draft EIR for additional information regarding visual impacts.

Although **Policy 120** requires utility lines to be placed underground, the proposed gen-tie line would not be required to be placed underground, as the gen-tie would be 230 kV and undergrounding of utility lines is not required for electrical distribution facilities carrying voltage higher than 35 kV, pursuant to Alameda County Code Section 13.16.030.

In accordance with **Policies 117, 118,** and **119**, construction of the gen-tie line would include ground clearing and other minor site preparation, but it would not require substantial cut or fill. Thus, no visibility issues occur with regard to cut and fill slopes and drainage improvements associated with the gen-tie line. Additionally, site access would be sited and designed to minimize grading associated with the battery energy storage facility portion of the Project located within San Joaquin County.

In accordance with **Policy 123**, biological resources are addressed in Section 4.4, *Biological Resources,* of this Draft EIR. As discussed therein, the gen-tie line would not result in any significant and unavoidable impacts to biological resources with implementation of **Mitigation Measures BIO-1, BIO-2,** and **BIO-3**.

In accordance with **Policies 134** and **135** and as determined by this Draft EIR, the Project, and specifically the gen-tie line, would not be located within an area with potential natural hazards, including flooding, geologic, wildland fire, or other environmental hazards. Refer to Section 4.10, *Hydrology and Water Quality,* regarding flood hazards, Section 4.7, *Geology, Soils, and Paleontological Resources,* regarding geologic hazards, Section 4.18, *Wildfire,* regarding wildland fire hazards, and Section 4.9, *Hazards and Hazardous Materials,* regarding other environmental hazards such as those associated with the use, transport, and disposal of hazardous materials. Impacts associated with natural hazards were all determined to be less than significant.

In accordance with **Policy 137**, and as discussed in Sections 4.5, *Cultural Resources,* and 4.16, *Tribal Cultural Resources,* of this Draft EIR, a Cultural Resource Phase I Investigation has been prepared for the Project. Additionally, the County as initiated tribal consultation in accordance with AB 52 requirements. As determined by this Draft EIR, impacts to cultural resources and tribal cultural resources would be mitigated to below a level of significance with implementation of **Mitigation Measures CUL-1** (Cultural Resource Worker Education/Training) and **CUL-2** (Inadvertent Discovery of Archeological Resources During Construction). Therefore, development of the gen-tie line would be consistent with this policy.

Development of the gen-tie line would also be consistent with the applicable Transportation Element policies of the Alameda County ECAP, including **Policies 180** and **215**. A Traffic Impact Study has been prepared for the Project, included as Appendix G. As discussed in Section 4.15, *Transportation,* of this Draft EIR, the Project, including the gen-tie line, would result in less than significant transportation impacts and would not be required to make transportation system improvements, and specifically within Alameda County. In accordance with **Policy 215**, the Project would result in less than significant impacts related to impacts on scenic highway corridors, as discussed in Section 4.1, *Aesthetics,* of this Draft EIR.

Development of the gen-tie line would also be consistent with the applicable Public Services and Facilities Element policies of the Alameda County ECAP, including **Policies 218, 253, 254, 275, 285, 286,** and **287**. In accordance with **Policy 218**, the gen-tie would be sited in an appropriate location outside the Urban Growth Boundary and consistent with the Land Use Diagram of the ECAP.

In accordance with **Policy 243**, and as discussed in Section 4.14, *Public Services and Facilities*, of the Draft EIR, the Project would result in less than significant impacts related to the adequate provision of police, fire, and emergency medical services and facilities. In accordance with **Policies 253** and **254**, and as discussed in Section 4.17, *Utilities and Service Systems,* of this Draft EIR, there is a sufficient water supply to support development of the Project, and specifically the gen-tie line. Further, in accordance with **Policy 275**, the Project would not include permanent sanitary facilities and thus would not impact wastewater treatment capacity.

The Project would also support **Policies 285** and **286** in providing new electric service facilities for existing and future needs within the region and in working with PG&E to design and locate the

expansion of electric systems as the Project, and specifically the gen-tie line, would connect to the PG&E Tesla Substation. Finally, the gen-tie line would not be located underground; however, this would not conflict with **Policy 287,** as the proposed gen-tie line would be 230 kV and undergrounding of utility lines is not required for electrical distribution facilities carrying voltage higher than 35 kV, pursuant to Alameda County Code Section 13.16.030.

Finally, development of the gen-tie line would be consistent with the applicable Environmental Health and Safety Element policies of the Alameda County ECAP, including **Policies 294, 296, 309, 310, 311, 313,** and **320**. In accordance with **Policies 294** and **296**, an Air Quality and Greenhouse Gas Technical Report has been prepared for the Project, included as Appendix G. As discussed in Section 4.3, *Air Quality,* of this Draft EIR, the Project would result in less than significant air quality impacts. Further, cumulative impacts were also considered and the Project was also determined to have less than significant cumulative air quality impacts.

In accordance with **Policies 309, 310, 311,** and **313**, and as discussed in Section 4.7, *Geology, Soils, and Paleontological Resources,* of this Draft EIR, impacts related to seismic and geologic hazards, including impacts related to erosion and slope stability, would be less than significant with implementation of **Mitigation Measure GEO-1**, which requires the incorporation of BMPs contained in the SWPPP to reduce potential impacts related to stormwater quality and runoff during construction and eventual decommissioning. Further, the Project, and specifically the gen-tie line, would not result in loss of lives or property in the event of a natural disaster, including flooding, geologic, wildland fire, or other environmental hazards. Refer to Section 4.10, *Hydrology and Water Quality,* regarding flood hazards, Section 4.7, *Geology, Soils, and Paleontological Resources,* regarding geologic hazards, Section 4.18, *Wildfire,* regarding wildland fire hazards, and Section 4.9, *Hazards and Hazardous Materials,* regarding other environmental hazards such as those associated with the use, transport, and disposal of hazardous materials. Impacts associated with natural hazards were all determined to be less than significant.

Finally, in accordance with **Policies 244** and **320**, and as discussed in Section 4.18, *Wildfire,* of the Draft EIR, the Project would result in less than significant impacts related to wildland fires, and site access would include gates and security fencing and would comply with the California Department of Forestry and Fire Protection and/or Alameda County Fire Department requirements.

Alameda County Measure D

With regard to the proposed gen-tie line, Measure D prohibits the County from providing or authorizing expansion of public facilities or other infrastructure that would create more capacity than needed to meet the development allowed by the Initiative. The Initiative does not prohibit public facilities or other infrastructure that have no excessive growth-inducing effect on the East County area and have permit conditions to ensure that no service can be provided beyond that consistent with development allowed by the Initiative. Consistent with Measure D, the gen-tie would have no growth-inducing effect on the East County area or elsewhere. Rather, the Project, and specifically the gen-tie line, would support the reliability of the overall power grid. As renewable energy developments continue to become a larger portion of the power grid's energy mix, battery energy storage is a useful support system to bolster energy supplies during peak energy use or down times in renewable energy production (such as overnight for solar energy or on calm days for wind energy). As such, the gen-tie line would not conflict with Measure D.

Summary

As discussed in the above policy consistency analysis for the Project within San Joaquin County and the gen-tie line within Alameda County, the Project would not conflict with either the County's Zoning Ordinance nor with the applicable policies in San Joaquin County's General Plan or Alameda County's ECAP. Therefore, the Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Impacts would be less than significant.

Mitigation: None required.

4.11.5 PG&E Tesla Substation Improvements and Gen-Tie

To accommodate the Project, PG&E would be responsible for siting, design and construction of the gen-tie transmission line from the POCO to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either ROW corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. All such improvements would be within the existing Tesla Substation footprint.

Neither development of PG&E's portion of the gen-tie line nor the improvements within the Tesla substation would divide an established community or interfere with any land use plan, policy, or regulation. The above policy consistency analysis in Section 4.11.4 for development of the gen-tie line within Alameda County would also support PG&E's development of its portion of the gen-tie cable. The main difference between the two portions of the gen-tie, other than ownership, is that PG&E is considering an option to install its portion of the gen-tie belowground. The ECAP includes **Policies 120** and **287,** which require undergrounding of utility lines, where feasible. Thus, this option for PG&E's portion of the gen-tie would further support these ECAP policies. However, as previously discussed, the gen-tie line would be 230 kV and the undergrounding of utility lines is not required for electrical distribution facilities carrying voltage higher than 35 kV, pursuant to Alameda County Code Section 13.16.030. Therefore, the PG&E Tesla Substation improvements and development of its portion of the gen-tie line would result in less than significant impacts per significance criteria described for Impacts 4.11-1 or 4.11-2. No mitigation would be required.

4.11.6 Cumulative Impacts

Because the Project would not have any significant impact on land use and planning, and because conflicts with land use plans, policies, or regulations are project-specific, the Project would not cause or contribute to any cumulative impact. Additionally, consistent with Alameda County Measure D, the gen-tie would have no growth-inducing effect on the East County area or elsewhere and would, therefore, not result in a cumulative impact related to excessive growth-inducing effects on the East County area. No mitigation would be required.

4.11.7 References

Alameda County. 2000. East County Area Plan. Amended November 2000. Available online at: https://www.acgov.org/cda/planning/generalplans/documents/EastCountyAreaPlancombined.pdf (accessed December 2022).

Alameda County. 2022. Frequently Asked Questions About Measure D 2022. September 8, 2022. Available online at: https://www.acgov.org/cda/planning/documents/BallotMeasureFAQs-FINAL9822.pdf (accessed December 2022).

FIC (Farmland Information Center). 2022. San Joaquin County, CA: Agricultural Land Mitigation Ordinance. Available online at: https://farmlandinfo.org/law/san-joaquin-county-ca-agricultural-land-mitigation-ordinance/ (accessed December 2022).

San Joaquin County. 2016. San Joaquin County General Plan. Published December 2016. Available online at: https://www.sjgov.org/commdev/cgi-bin/cdyn.exe?grp=planning&htm=gp2035 (accessed December 2022).

4.12 MINERAL RESOURCES

This section evaluates the issues related to mineral resources that have been identified in the Griffith Energy Storage Project (Project) area. It considers the physical setting and regulatory context while evaluating the criteria for potential impacts and their significance. The methods used to evaluate these impacts are explained below, and the results of the impact assessment are presented. The County did not receive scoping comments related to mineral resources.

4.12.1 Existing Conditions

The existing conditions considered for this Project site include the geology and natural setting and, in this context, the potential for impacts mineral resources is evaluated.

4.12.1.1 Geologic Environment

The geology of the regional environment is described in greater detail in Section 4.7*, Geology, Soils, and Paleontological Resources*. The Project site is located in foothills on the northeastern flank of the Diablo Range, which divides the San Francisco Bay Area from the Central Valley of California. The Diablo Range is part of the Coast Ranges geomorphic province, and the Project site is along its boundary with the adjacent Great Valley geomorphic province to the east. The Diablo Range includes a variety of rocks with ages ranging from the Quaternary to the Jurassic period. In the vicinity of the Project site, the rocks are almost exclusively sedimentary. East of the Project site, on the floor of the Great Valley, the underlying materials are primarily the youngest alluvial sediments, Quaternary age, unconsolidated to semi-consolidated, and mostly non-marine (Q). The Project site sits on older materials (QPc), Pliocene to Pleistocene in age, slightly more consolidated than the younger materials, and deposited into both non-marine and marine environments.

4.12.1.2 Mineral Resources Potential

The Mineral Resources Data System is an online database with mine information administered by the U.S. Geological Survey (USGS). This system maintains data on metallic and nonmetallic mineral resources, including deposit name, location, commodity, deposit description, production status, and references. The online database was reviewed to confirm the presence or absence of existing surface mines, closed mines, occurrences/prospects, and unknown/undefined mineral resources in the vicinity of the Project (USGS 2022). No mineral resources or operations are located within the Project site boundary.

Within the Midway Quadrangle (USGS 1:24,000 Topographic Map Series), a total of 21 locations are identified by the Mineral Resources Data System, but none are listed as active. Seven were identified as a past producer, six were considered a prospect, six were identified as an occurrence, and two were of an unknown status. Ten locations were associated with manganese as the commodity, while three were associated with clay, three were sand and gravel, and two were gemstone commodities. Quartz, silica, sulfur, and crushed stone were each identified at a single location. The closest location is approximately 3 miles to the west, off Patterson Road, in the middle of a wind energy facility. The other locations are all found at the southern end of the Midway Quadrangle, more than 6 miles to the south of the Project site.

The State of California maintains a robust database on active and permitted mines as well as a separate database on oil and gas wells and injectors. Figure 4.12-1 shows the regional locations of this activity surrounding the Project site.

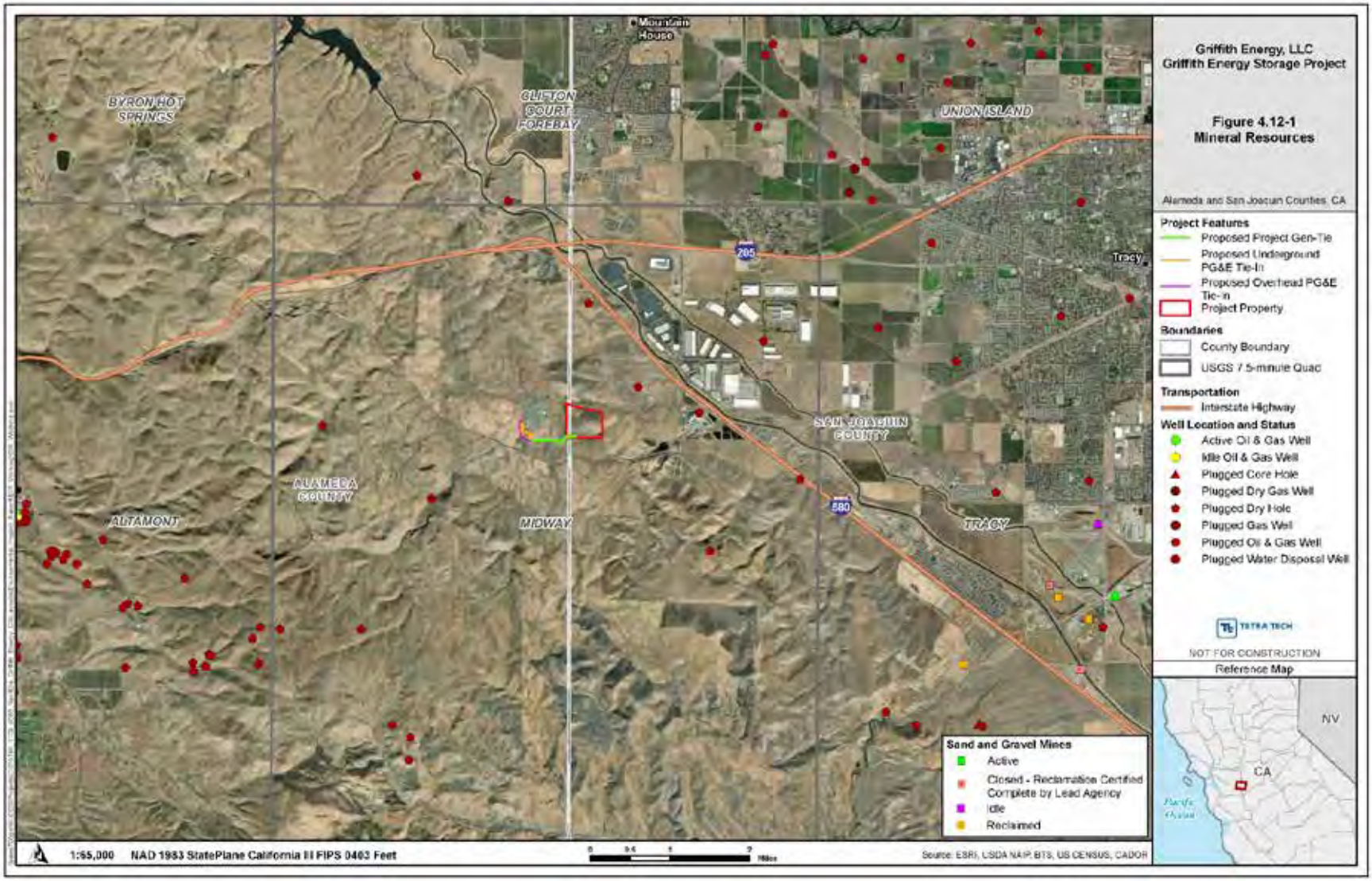


Figure 4.12-1 Mineral Resources

The State identifies three sand and gravel mine areas within approximately 15 miles of the Project site. The first is on the south side of the city of Tracy, approximately 8 miles east of the Project, where three mines are active. The second is near the town of Byron, between 13 and 14 miles north of the Project, where there are three active mines. The final area is outside of Livermore, approximately 15 to 16 miles west of the Project, where two mines are active. The petroleum industry has historically been fairly active in the surrounding area. Dozens of drilling locations have been identified in this region, though none have been successful, such that there are no active wells extracting oil or gas. The nearest active well is on the east side of Tracy, more than 10 miles from the Project site.

Based on the geological environment and historical trends, the potential for occurrence of locatable minerals is low within the surrounding area.

4.12.2 Regulatory Setting

4.12.2.1 Federal

No federal statutes, regulations, plans, or policies govern mineral resources on or near the Project site.

4.12.2.2 State

State Surface Mining and Reclamation Act of 1975

The State Surface Mining and Reclamation Act (SMARA; Public Resources Code Section 2710 et seq.) mandated the initiation by the State Geologist of mineral land classification to help identify and protect mineral resources in areas within the state subject to urban expansion or other irreversible land uses that would preclude mineral extraction. SMARA also allowed the State Mining and Geology Board to designate lands containing mineral deposits of regional or statewide significance. Mineral lands are mapped according to jurisdictional boundaries (i.e., counties), mapping all mineral commodities at one time in the area, using the California Mineral Land Classification System (DOC 2022). The objective of classification and designation processes is to ensure, through appropriate lead agency policies and procedures, that mineral deposits of statewide or regional significance are available when needed.

California Public Resources Code

Division 3 (*Oil and Gas*) of the California Public Resources Code addresses petroleum mineral resource rights, permitting for well drilling, underground injection, operating and maintaining wells, oil and gas production, and resource conservation, among other activities. The Division of Oil, Gas, and Geothermal Resources was created in 1915 to permit and regulate oil and gas wells, as well as to track information about production. Assembly Bill (AB) 1057 was signed into law in October 2019, changing the official name to California Geologic Energy Management (CalGEM) Division.

4.12.2.3 Local

San Joaquin County General Plan

The Natural and Cultural Resources Element of the County's General Plan contains goals and policies related to mineral resources (San Joaquin County 2016). The following are General Plan goals and policies that are applicable to the proposed Project:

> ***Goal NCR 4:*** *To provide for the production of mineral resources while protecting people, property, and the environment from hazards caused by resource extraction.*
>
> ***Policy NCR 4.1: Mineral Resource Protection****. The County shall require mineral deposits of significant quantity, value, or quality, as identified and updated by the State Division of Mines and Geology reports as MRZ-2 Mineral Resource Zones, to remain in agricultural or open space uses until the extraction of the resources, unless the immediate area has been committed to other uses.*

San Joaquin County Quarry Excavation Standards

The San Joaquin County Quarry Excavation Standards (Title 9, Division 14, Chapter 9-1415 of the Municipal Code) were adopted pursuant to the requirements of SMARA. Every county is required to adopt ordinances consistent with state policy for review and approval procedures governing reclamation plans, establishing and maintaining financial assurances, and issuing permits for surface mining operations. Under the associated requirements for Quarry Excavation Permits (Title 9, Division 8, Chapter 9-854 of the Municipal Code), San Joaquin County provides a process for issuance of surface mining permits. The requirements for both of these municipal code chapters are tied back to SMARA, so they follow the full lifecycle of a project from initiation through closure and reclamation activities. They include requirements for funding the final closure of an extraction site.

Alameda County East County Area Plan

The East County Area Plan (ECAP) contains goals, policies, and programs related to mineral resources (Alameda County 2000). The following ECAP policy is applicable to the proposed Project:

> ***Policy 52:*** *The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, windpower, and mineral extraction), protection of sensitive viewsheds (see definition in Table 1), preservation of biological resources, and the physical separation between neighboring communities.*

Alameda County Surface Mining Ordinance

In 1983, the Alameda County Surface Mining Ordinance was adopted pursuant to the requirements of SMARA. Every county is required to adopt ordinances consistent with state policy for review and approval procedures governing reclamation plans, establishing and maintaining financial assurances, and issuing permits for surface mining operations. Under Chapter 6.80 of the Alameda County General Ordinance Code, Alameda County authorizes mining activities on unincorporated lands through the issuance of surface mining permits. In addition, the County authorizes reclamation activities through approval of reclamation plans.

4.12.3 Thresholds of Significance

A project would cause significant impacts to mineral resources if either of the following occurs:

a) *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or*

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

4.12.4 Impact Analysis

IMPACT 4.12-1: *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?* **(No Impact)**

Although there are mineral resource locations and mining activities that occur throughout the region (in both San Joaquin County and Alameda County), there is very limited to no activity on or near the Project site. The nearest location is an "occurrence" that is not active now and is more than 3 miles away. The nearest active mining area is south of Tracy, approximately 8 miles to the east, and consists of three open-pit sand and gravel operations. Thus, the Project site is not located at or near any active mines, there are no mining claims within or near the Project site, and there is no designated Mineral Resource Zone (MRZ) within or near the Project site boundary.

Pursuant to SMARA, as amended, the State of California mandated the development of mineral land classifications to help identify and protect mineral resources. After classification of mineral resource areas, SMARA provides for the designation of lands containing mineral deposits of regional or statewide significance. In addition, SMARA was designed to provide guidelines for the proper reclamation of mineral lands. In compliance with SMARA, the State Mining and Geology Board established MRZs to classify lands that contain mineral deposits. According to California Geological Survey maps, the Project site is not located within an MRZ (CGS 2022).

The most current mapping of MRZs within San Joaquin County is presented in the San Joaquin County General Plan 2010 (San Joaquin County 1992). The map provided in this document shows no MRZs designated by the State Mining and Geology Board on or near the Project site. In the most recent update to the mapping of MRZs in Alameda County, the Midway Quad was not included (Kohler-Antablin 1996). As a result, no MRZs designated by the State Mining and Geology Board are present on or near the Project site in Alameda County. The closest zones are small areas of MRZ-2 in and around the town of Tracy, and a larger MRZ-3 area surrounding the Tracy MRZ-2 locations and extending southeast to the San Joaquin County boundary with Stanislaus County.

Although numerous wells have been drilled in both Alameda County and San Joaquin County looking for oil and gas, none of the locations within 10 miles of the Project site have proven viable, and no wells actively producing petroleum products are located within this 10-mile radius.

Therefore, the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state and no impact would occur.

Mitigation: None required.

IMPACT 4.12-2: *Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?* **(No Impact)**

The Project site is not delineated as a locally important mineral resource (DOC 2022). The most current mapping of MRZs within San Joaquin County is presented in the San Joaquin County

General Plan 2010 (San Joaquin County 1992). The map provided in this document shows no MRZs designated by the State Mining and Geology Board on or near the Project site. In the most recent update to the mapping of MRZs in Alameda County, the Midway Quad was not included (Kohler-Antablin 1996). As a result, no MRZs designated by the State Mining and Geology Board are present on or near the Project site in Alameda County and no mineral resources are identified in the General Plan on the Project site. The closest zones are small areas of MRZ-2 in and around the town of Tracy, and a larger MRZ-3 area surrounding the Tracy MRZ-2 locations and extending southeast to the County boundary with Stanislaus County. The implementation of the Project would not result in a loss of locally important mineral resources, and no impact would occur.

Mitigation: None required.

4.12.5 PG&E Tesla Substation Improvements and Gen-tie

To accommodate the Project, Pacific Gas and Electric (PG&E) would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

These improvements would result in a change in the availability of a known mineral resource, nor would they result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, the PG&E Tesla Substation improvements would have no impact on significance criteria described for Impacts 4.12-1 or 4.12-2. No mitigation would be required.

4.12.6 Cumulative Impacts

As described above, the Project would result in no impact to mineral resources. Therefore, the Project would not cause or contribute to a significant cumulative impact to mineral resources.

4.12.7 References

Alameda County. 2000. East County Area Plan. Adopted May 5, 1994. Amended November 2000. Available online at: https://www.acgov.org/cda/planning/generalplans/documents/EastCountyAreaPlancombined.pdf (accessed May 2023).

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DOC (California Department of Conservation). 2022. California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands. Available online at: https://www.conservation.ca.gov/smgb/Guidelines/Documents/ClassDesig.pdf (accessed August 2022).

Kohler-Antablin, S. 1996. Update of Mineral Land Classification: Aggregate Materials in the South San Francisco Bay Production-Consumption Region.

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USGS (U.S. Geological Survey). 2022. Mineral Resources Data System. Available online at: https://mrdata.usgs.gov/mrds/ (accessed August 2022).

4.13 NOISE

This section identifies and evaluates issues related to noise in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) received no scoping comments regarding noise.

4.13.1 Existing Conditions

The Project site is approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy, adjacent to the Pacific Gas and Electric (PG&E) Tesla Substation. The Project site is private land zoned as Agricultural General-160 and designated as General Agriculture. The site includes Grazing Land and Farmland of Local Importance, as classified by the California Department of Conservation. The nearest non-participating residential structure is approximately 0.2 mile southwest of the Project.

4.13.1.1 Acoustic Metrics and Terminology

All sounds originate with a source, whether it is a human voice, motor vehicles on a roadway, or a combustion turbine. Energy is required to produce sound and this sound energy is transmitted through the air in the form of sound waves–tiny, quick oscillations of pressure just above and just below atmospheric pressure. These oscillations, or sound pressures, impinge on the ear, creating the sound we hear. A sound source is defined by a sound power level (abbreviated "L_W"), which is independent of any external factors. By definition, sound power is the rate at which acoustical energy is radiated outward and is expressed in units of watts.

A source sound power level cannot be measured directly. It is calculated from measurements of sound intensity or sound pressure at a given distance from the source outside the acoustic and geometric near-field. A sound pressure level (abbreviated "L_P") is a measure of the sound wave fluctuation at a given receiver location and can be obtained through the use of a microphone or calculated from information about the source sound power level and the surrounding environment. The sound pressure level in decibels (dB) is the logarithm of the ratio of the sound pressure of the source to the reference sound pressure of 20 micropascals (µPa), multiplied by 20. The range of sound pressure that can be detected by a person with normal hearing is very wide, ranging from about 20 µPa for very faint sounds at the threshold of hearing, to nearly 10 million µPa for extremely loud sounds, such as a jet during take-off at a distance of 300 feet.

Broadband sound includes sound energy summed across the entire audible frequency spectrum. In addition to broadband sound pressure levels, analysis of the various frequency components of the sound spectrum can be completed to determine tonal characteristics. The unit of frequency is hertz (Hz), measuring the cycles per second of the sound pressure waves. Typically, the frequency analysis examines 11 octave bands ranging from 16 Hz (low) to 16,000 Hz (high). Since the human ear does not perceive every frequency with equal loudness, spectrally varying sounds are often adjusted with a weighting filter. The A-weighted filter is applied to compensate for the frequency response of the human auditory system and is represented in A-weighted decibel (dBA).

Sound can be measured, modeled, and presented in various formats, with the most common metric being the equivalent sound level (L_{eq}). The L_{eq} has been shown to provide both an effective and uniform method for comparing time-varying sound levels and is widely used in acoustic assessments in the State of California. Estimates of noise sources and outdoor acoustic environments as well as a comparison of relative loudness are presented in Table 4.13-1. Table 4.13-2 presents additional reference information on terminology used in the report.

Table 4.13-1. Sound Pressure Levels (L_P) and Relative Loudness of Typical Noise Sources and Acoustic Environments

Noise Source or Activity	Sound Level (dBA)	Subjective Impression
Vacuum cleaner (10 feet)	70	Moderate
Passenger car at 65 miles per hour (25 feet)	65	
Large store air-conditioning unit (20 feet)	60	
Light auto traffic (100 feet)	50	Quiet
Quiet rural residential area with no activity	45	
Bedroom or quiet living room; Bird calls	40	Faint
Typical wilderness area	35	
Quiet library, soft whisper (15 feet)	30	Very quiet
Wilderness with no wind or animal activity	25	Extremely quiet
High-quality recording studio	20	
Acoustic test chamber	10	Just audible
	0	Threshold of hearing

Adapted from: Kurze and Beranek (1988) and USEPA (1971).

Table 4.13-2. Acoustic Terms and Definitions

Term	Definition
Noise	Typically defined as unwanted sound. This word adds the subjective response of humans to the physical phenomenon of sound. It is commonly used when negative effects on people are known to occur.
Sound Pressure Level (L_P)	Pressure fluctuations in a medium. Sound pressure is measured in dB. Referenced to 20 micropascals (µPa), the approximate threshold of human perception to sound at 1,000 Hertz (Hz).
Sound Power Level (L_W)	The total acoustic power of a noise source measured in dB referenced to picowatts (one trillionth of a watt). Noise specifications are provided by equipment manufacturers as sound power as it is independent of the environment in which it is located. A sound level meter does not directly measure sound power.
Equivalent Sound Level (L_{eq})	The L_{eq} is the continuous equivalent sound level, defined as the single sound pressure level that, if constant over the stated measurement period, would contain the same sound energy as the actual monitored sound that is fluctuating in level over the measurement period.
A-weighted Decibel (dBA)	Environmental sound is typically composed of acoustic energy across all frequencies. To compensate for the auditory frequency response of the human ear, an A-weighting filter is commonly used for describing environmental sound levels. Sound levels that are A-weighted are presented as dBA in this report.
Unweighted Decibel (dBL)	Unweighted sound levels are referred to as linear. Linear decibels are used to determine a sound's tonality and to engineer solutions to reduce or control noise as techniques are different for low and high frequency noise. Sound levels that are linear are presented as dBL in this report.

Term	Definition
Propagation and Attenuation	Propagation is the decrease in amplitude of an acoustic signal due to geometric spreading losses with increased distance from the source. Additional sound attenuation factors include air absorption, terrain effects, sound interaction with the ground, diffraction of sound around objects and topographical features, foliage, and meteorological conditions, including wind velocity, temperature, humidity, and atmospheric conditions.

4.13.1.2 Vibration Metrics and Terminology

Vibration is an oscillatory motion that is described in terms of displacement, velocity, or acceleration. Velocity is the most common descriptor used when evaluating human perception or structural damage. Velocity represents the instantaneous speed of movement and more accurately describes the response of humans, buildings, and equipment to vibrations.

Peak particle velocity (PPV) and root mean square velocity are typical metrics used to describe vibration levels in units of inches per second in the United States. However, to evaluate annoyance to humans, the vibration dB (VdB) notation is commonly used. The decibel notation acts to compress the range of numbers required to describe vibration. In the United States, the accepted velocity reference for converting to dB is $1x10^{-6}$ inches per second. The abbreviation "VdB" is used for vibration dB to reduce the potential for confusion with sound decibels.

In contrast to airborne noise, ground-borne vibration is not an everyday occurrence for humans. The background vibration velocity levels within residential areas are usually 50 VdB or lower, which are well below the human perception threshold of approximately 65 VdB. However, human response to vibration is not usually significant unless the vibration exceeds 70 VdB. For a significant impact to occur, vibration levels must exceed 72 VdB during frequent events, 75 VdB for occasional events, and 80 VdB during infrequent events (FTA 2018). Outdoor sources that generate perceptible ground-borne vibrations are typically construction equipment, steel-wheeled trains, and traffic on rough roadways. Table 4.13-3 provides typical vibration sources as well as the human and structural response to ground-borne vibrations.

Table 4.13-3. Typical Levels of Ground-borne Vibration

Human/Structural Response	PPV (in/sec)	Velocity Level (VdB)[1/]	Typical Sources (50 feet from source)
Minor Cosmetic Damage, Fragile Buildings	0.4	100	Blasting from Construction Projects
	0.17-0.2	92-94	Heavy Tracked Construction Equipment
Difficulty with Tasks, Such as Reading a Computer Screen	0.125	90	
	0.074	85	Commuter Rail, Upper Range
Residential Annoyance, Infrequent Events	0.04	80	Rapid Transit, Upper Range
	0.013	75	Commuter Rail, Typical
	0.023	72	Bus or Truck Bump Over
Residential Annoyance, Frequent Events	0.013	70	Rapid Transit, Typical
Approximate Threshold of Human Perception	0.007	65	
	0.005	62	Bus or Truck, Typical
	0.0013	50	Typical Background Vibration Levels

1/ Root Mean Square Vibration Velocity in VdB reference to $1x10^{-6}$ inch/second.
Source: FTA (2018)

The degree of annoyance cannot always be explained by the magnitude of the vibrations alone. Phenomena, such as ground-borne noise and rattling, visual effects (e.g., movement of hanging objects), and time of day, all influence the response of individuals. The American National Standards Institute (ANSI) and the International Organization for Standardization (ISO) have developed criteria for evaluation of human exposure to vibrations. The recommendations of these standards and other studies evaluating human response to vibrations have been incorporated into the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (2018). The criteria within this manual are used to assess noise and vibration impacts from transit operations.

4.13.1.3 Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. These locations are referred to as noise-sensitive receptors (NSA). Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate, also are sensitive receptors. Commercial and industrial uses are considered the least noise-sensitive. As shown in Figure 4.13-1, there are multiple residences near the proposed Project site. The NSAs are also divided into participating and non-participating properties. The participating properties have an agreement with Griffith Energy, LLC in which the property owner accepts that Project noise levels may be higher than regulatory thresholds at their property.



Figure 4.13-1 Sensitive Receptors

4.13.1.4 Existing Sound Environment

The Project is bounded to the north by grazing land, rural residences, the West Patterson Pass, and the Union Pacific Railroad. To the east lies grazing land and open space. Rural residences, grazing land, and open space bound the Project to the south. The Project is bounded by rural residences, grazing land, and the PG&E Tesla Substation to the west.

The most significant sources of noise in the vicinity of the Project are vehicular traffic on Interstate 580 and the local street network. Railroad trains intermittently generate noise levels that are significant along the railroad tracks. General aviation aircraft using the Tracy Municipal Airport also contribute to intermittent noise levels. Noise is also generated on individual parcels whether industrial, office, retail or residential.

The San Joaquin County 2035 General Plan EIR contains ambient noise monitoring results at several locations within the County. The closest monitoring location is approximately 2.5 miles northeast of the Project site and shows an L_{eq} ranging from 39-45 dBA during the morning, 44-50 dBA during the afternoon, and 40-47 dBA during the night. The General Plan also shows an L_{max} ranging from 51-66 dBA during the morning, 58-78 dBA during the afternoon, and 47-68 dBA during the night.

4.13.2 Regulatory Setting

4.13.2.1 Federal

Federal Transit Administration and Federal Railroad Administration Standards

Although the FTA standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA (2018) *Transit Noise and Vibration Impact Assessment Manual* routinely are used for projects under review by local jurisdictions that have not adopted their own vibration impact standards. The FTA and Federal Railroad Administration have published guidelines for assessing the impacts of ground-borne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA's threshold of architectural damage for conventional sensitive structures from ground-borne vibration is measured as 0.2 inch per second PPV or 94 VdB (decibel units of 1 micro-inch per second). The FTA measure of human annoyance at residential uses is 72 VdB for "Frequent Events," or fewer than 70 vibration events of the same kind per day.

Occupational Safety and Health Act

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. §651 et seq.), the U.S. Department of Labor, Occupational Safety and Health Act (OSHA) adopted regulations (29 Code of Federal Regulations §910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list limits on noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations further specify requirements for a hearing conservation program (§1910.95(c)), a monitoring program (§1910.95(d)), an audiometric testing program (§1910.95(g)), and hearing protection (§1910.95(i)). There are no federal laws governing community noise.

Although no federal noise regulations exist, the U.S. Environmental Protection Agency (USEPA) has published noise guidelines (USEPA 1974). The USEPA guidelines recommend a day/night

noise level of 55 dBA to protect the public from the effect of broadband environmental noise outdoors in residential areas and farms, other outdoor areas where people spend widely varying amounts of time, and other places in which quiet is a basis for use (USEPA 1974).

4.13.2.2 State

Government Code Section 65302 encourages counties and cities to implement a noise element as part of the general plan. In addition, the California Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The California OSHA has published Occupational Noise Exposure Regulations (9 California Code of Regulations §§5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

4.13.2.3 Local

San Joaquin County Ordinance Code

San Joaquin County regulates noise through Chapter 9-1025 within the County Ordinance Code. Per Table 9-1025.9 Part II of the San Joaquin County Ordinance Code, exterior noise at noise-sensitive areas is limited to 50 dBA during the daytime (7:00 a.m. to 10:00 p.m.) and 45 dBA during the nighttime (10:00 p.m. to 7:00 a.m.). Further, maximum noise levels are not permitted to exceed 70 dBA during the daytime and 65 dBA during the nighttime. Noise sources associated with construction are exempt from these maximum noise levels, provided construction does not occur before 6:00 a.m. or after 9:00 p.m. on any day.

Chapter 9-1025.5 goes on to set limits on maximum displacement due to vibration but is only applicable to general industrial land use.

San Joaquin County General Plan

The San Joaquin County General Plan does not contain regulations for acceptable noise levels. However, for a CEQA analysis, the General Plan defines a significant impact as 3 dB above the ambient level.

Alameda County General Plan and East County Area Plan Noise Element

The Alameda County General Plan Noise Element does not contain regulations for acceptable noise levels. The ECAP does contain one policy that pertains to acceptable noise levels and is applicable to the Project (Alameda County 2000):

> ***Policy 288***: *The County shall endeavor to maintain acceptable noise levels throughout East County.*

Alameda County Noise Ordinance

The Alameda County Municipal Code Chapter 6.60, *Noise*, contains ordinances to control unnecessary, excessive noise. The following section would be applicable to the Project (Alameda County 2020).

> *Section 6.60.040 – Exterior Noise Level Standards*
>
> *It is unlawful for any person at any location within the unincorporated area of the county to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level when measured at any single- or multiple-family residential, school, hospital, church, public library or commercial properties situated in either the incorporated or unincorporated area to exceed the noise level standards as set forth in Table 6.60.040A* [shown in this report as Table 4.13-4].

Table 4.13-4. Alameda County Exterior Noise Standards

RECEIVING LAND USE – SINGLE- OR MULTIPLE-FAMILY RESIDENTAL, SCHOOL, HOSPITAL, CHURCH OR PUBLIC LIBRARY PROPERTIES NOISE LEVEL STANDARDS, dBA			
Category	Cumulative Number of Minutes in Any 1-hour Time Period	Daytime 7:00 a.m. to 10:00 p.m.	Nighttime 10:00 p.m. to 7:00 a.m.
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

Source: Alameda County Municipal Code Table 6.60.40A

> *B. In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal said ambient noise level.*
>
> *E. Notwithstanding the noise level standards set forth in this section, the noise level standard applicable to the emission of sound from transformers, regulators, or associated equipment in electrical substations shall be 60 dBA.*
>
> *6.60.070 - Special provisions or exceptions.*
>
> *E. Construction. The provisions of this chapter shall not apply to noise sources associated with construction, provided said activities do not take place before 7 a.m. or after 7 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday.*

Section 6.60.050(8) states the limits related to vibration. Operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty (150) feet (forty-six (46) meters) from the source if on a public space or public right-of-way.

4.13.3 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. The proposed Project would have a significant impact to noise if it would:

a) *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;*

b) *Result in generation of excessive groundborne vibration or groundborne noise levels;*

c) *For a project 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.*

4.13.4 Impact Analysis

IMPACT 4.13-1: *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 with Mitigation Incorporated)**

Construction

The Acoustical Analysis Report (Appendix F) estimated the noise levels generated by the Project during each stage of construction. Acoustic emission levels for activities associated with Project construction were based on typical ranges of energy equivalent noise levels at construction sites, as documented by the USEPA (1971) and the USEPA's *Construction Noise Control Technology Initiatives* (1980). The USEPA methodology distinguishes between type of construction and construction stage.

The basic model assumed spherical wave divergence from a point source located at the center of the Project site to each receptor structure. Furthermore, the model conservatively assumed that all pieces of construction equipment associated with an activity would operate simultaneously for the duration of that activity. An additional level of conservatism was built into the construction noise model by excluding potential shielding effects due to intervening structures and buildings along the propagation path from the site to receiver locations.

The construction processes are anticipated to occur during a period of approximately 15 months and begin in 2024. Project construction would generally consist of five major stages. The first stage would include mobilization, site preparation, fencing, and laydown. The second stage would involve excavation, trenching, and trench backfill. The medium-voltage stations would sit on concrete foundations or driven piles, pending final design. The construction noise analysis conservatively assumes pile driving will be required for this activity as part of the second stage. Pile driving would be the worst-case option in terms of noise as opposed to using concrete foundations. The third stage includes installation of cables and utilities. The fourth stage includes construction and installation of the battery storage units, and also includes commissioning and testing.. The final stage includes road paving. Table 4.13-5 summarizes the proposed equipment to be used for each stage and the associated noise level of the equipment. Table 4.13-6 summarizes the received construction noise levels at each NSA.

Table 4.13-5. Estimated Construction Noise by Stage at Nearest Receiver

Construction Stage	Equipment			
	Equipment Type	Quantity	Usage Factor (%)	USEPA Construction Noise Level (50 feet), dBA L_{max}
Site Clearing and Preparation (Stage 1)	Air Compressors	4	40	80
	Tractors/Loaders/Backhoes	2	40	80
	Graders	2	40	85
	Off-Highway Trucks	8	40	55
	Rollers	2	20	85
	Rubber Tired Dozers	2	40	85
	Rubber Tired Loaders	2	40	80
	Skid Steer Loaders	4	40	80
	Trenchers	2	50	82
	Dump Trucks	8	40	84
	Generators	4	50	82
Energy Storage Enclosure and Substation Installation (Stage 2)	Air Compressors	4	40	80
	Cranes	2	16	85
	Excavators	4	40	85
	Generator Sets	4	50	82
	Forklifts	2	50	85
	Plate Compactors	2	20	80
	Rollers	2	20	85
	Tractors/Loaders/Backhoes	6	40	80
	Pile Driver	1	20	95
Gen-Tie Line Foundation and Tower Erection (Stage 3)	Air Compressors	2	40	80
	Cranes	2	16	85
	Forklifts	2	50	85
	Generator Sets	2	50	82
	Pumps	2	50	77
	Welders	2	40	73
Gen-Tie Line Pulling and Stringing (Stage 4)	Forklifts	2	50	85
	Generator Sets	2	50	82
	Tractors/Loaders/Backhoes	2	40	80
Testing and Commissioning (Stage 5)	Off-Highway Trucks	3	40	55

Table 4.13-6. Received Construction Equipment Noise Levels by Stage (dBA L_{eq}, L_{max})

NSA	Participation Status	UTM Coordinates (meters)		Distance to Center of Construction (feet)	Construction Noise Levels									
					Stage 1		Stage 2		Stage 3		Stage 4		Stage 5	
		Easting	Northing		L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
NSA-1	Non-participant	628459	4176119	6,075	52	56	52	57	47	51	46	49	14	18
NSA-2	Non-participant	627076	4174143	1,850	62	67	62	68	57	62	56	59	24	28
NSA-3	Non-participant	627580	4175135	1,850	62	67	62	68	57	62	56	59	24	28
NSA-4	Non-participant	627733	4175104	1,975	62	66	62	67	57	61	56	59	24	28
NSA-5	Non-participant	628927	4175671	6,125	52	56	52	57	47	51	46	49	14	18
NSA-6	Participant	627115	4174455	1,025	68	72	68	73	62	67	61	64	30	34
NSA-7	Participant	627139	4174478	925	68	73	69	74	63	68	62	65	30	34
NSA-8	Participant	627122	4174991	1,550	64	68	64	69	59	63	58	61	26	30
NSA-9	Participant	627146	4174731	900	69	73	69	74	64	68	62	66	31	35
NSA-10	Non-participant	626174	4174293	4,125	56	60	56	61	50	55	49	52	18	21
NSA-11	Non-participant	627422	4175128	1,700	63	67	63	69	58	62	57	60	25	29

Noise levels resulting from the construction activities would vary significantly depending on several factors such as the type and age of equipment, specific equipment manufacture and model, the operations being performed, and the overall condition of the equipment and exhaust system mufflers. Project construction would occur between 7:00 a.m. and 7:00 p.m., in compliance with the County's Code. Although the County's ordinance may exempt daytime construction noise from the County's typical noise requirements, construction noise may still be considered an impact under CEQA. The FTA has published construction noise impact criteria levels of an 80 dBA 8-hour L_{eq} for the day and a 70 dBA 8-hour L_{eq} for the night for residential land uses. Table 6 shows that the highest construction noise levels at a non-participating receptor will be 63 dBA L_{eq} and 69 dBA L_{max} at NSA-11. This level is below the FTA guidance level of 70 dBA L_{eq} and is within the range of measured ambient L_{max} values published in The San Joaquin County 2035 General Plan EIR, which show an L_{max} ranging from 51-66 dBA during the morning, 58-78 dBA during the afternoon, and 47-68 dBA during the night. Due to these circumstances, the temporary increase in noise due to construction is considered to be a less than significant impact.

As shown above, the noise generated from the construction of the Project would not generate a significant impact. However, since construction machines operate intermittently, and the types of machines in use at the Project site change with the stage of construction, noise emitted during construction would be mobile and highly variable. Therefore, to help minimize noise impacts, the Project's construction management protocols would implement the following best practice noise reduction design measures:

- Maintain all construction tools and equipment in good operating order according to manufacturers' specifications;
- Limit use of major excavating and earth-moving machinery to daytime hours (7:00 a.m. to 7:00 p.m.);
- To the extent practicable, schedule construction activity during normal working hours on weekdays when higher sound levels are typically present and are found acceptable. Some limited activities, such as concrete pours, would be required to occur continuously until completion;
- Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks;
- For construction devices that utilize internal combustion engines, ensure the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible;
- Limit possible evening shift work to low noise activities such as welding, wire pulling, and other similar activities, together with appropriate material handling equipment; and
- Utilize a Complaint Resolution Procedure to address any noise complaints received from residents.

Operation

The Cadna-A® computer noise model was used to calculate sound pressure levels from the operation of the Project equipment in the vicinity of the Project site. The current ISO standard for outdoor sound propagation, ISO 9613 Part 2 – *Attenuation of Sound during Propagation Outdoors*, was used within Cadna-A (ISO 1996). The method described in this standard calculates sound attenuation under weather conditions that are favorable for sound propagation, such as for downwind propagation or atmospheric inversion, conditions which are typically considered worst-case. Off-site topography was obtained using the publicly available USGS digital elevation data. A default ground attenuation factor of 0.5 was assumed for off-site sound propagation over acoustically "mixed" ground. The Project's general arrangement was reviewed and directly imported into the acoustic model so that onsite equipment could be easily identified, buildings and structures could be added, and sound emission data could be assigned to sources as appropriate. If final equipment selection should differ from the equipment that has been analyzed, another acoustical evaluation will be done to determine compliance with the applicable regulations.

The primary noise sources during operations are the transformers and battery storage heating, ventilation, and air conditioning (HVAC) units. It is expected that all equipment would operate in a consistent manner during both daytime and nighttime hours. Reference sound power levels input to Cadna-A were provided by the Applicant (Burns and McDonnell 2021). The sound levels that were provided show that operation of the inverter/transformers will produce a sound pressure level of 80.5 dBA measured at 3 feet, and that operation of the battery storage and HVAC equipment will produce 70 dBA measured at 3 feet.

The proposed BESS would deliver power to the Tesla Substation located adjacent to the Project site in Alameda County through a new 230-kilovolt gen-tie line. The Applicant would construct the gen-tie from the Project substation to the point south of the Tesla Substation. There are no planned modifications to the Tesla Substation as part of the Project. The Electric Power Research Institute has conducted several studies of corona effects (EPRI 1978, 1987). The typical noise

levels for transmission lines with wet conductors are shown in Table 4.13-7 and, as such, a noise level of 40 dBA was used for the transmission line in the noise model.

Table 4.13-7. Estimated Transmission Line Noise

Line Voltage (kV)	Audible Noise Level Directly Below the Conductor (dBA)
138	34
240	40
360	51

Broadband (dBA) sound pressure levels were calculated for expected normal Project operation assuming that all components identified previously are operating continuously and concurrently at the representative manufacturer-rated sound. The sound energy was then summed to determine the equivalent continuous A-weighted downwind sound pressure level at a point of reception. Sound contour plots displaying broadband (dBA) sound levels presented as color-coded isopleths are provided in Figure 4.13-2. The sound contours are graphical representations of the cumulative noise associated with full operation of the equipment and show how operational noise would be distributed over the surrounding area of the Project site. The contour lines shown are analogous to elevation contours on a topographic map, i.e., the noise contours are continuous lines of equal noise level around some source(s) of noise. Table 4.13-8 shows the projected exterior sound levels at the property boundary of each NSA. The results indicate that the Project will not comply with applicable regulations at seven non-participating NSAs using the modeled equipment's noise levels.

In order for the Project to reach compliance, mitigation was designed in the form of sound walls with at least 3 pounds per square foot with minimal cracks or gaps. For this specific application, wall geometry (i.e., height, length, and location) is more important than the acoustic mitigation properties of the wall material, provided the wall material is of sufficient mass. Most of the noise received by the neighboring properties would be noise traveling over and around the walls, not through them. The sound wall configuration runs along the perimeter of the Project and between select BESS units. The sound walls' geometric properties are provided below:

- 20-foot-tall section totaling 1,998 linear feet;
- 26-foot-tall section totaling 1,995 linear feet;
- 26-foot-tall section totaling 302 linear feet;
- 26-foot-tall section totaling 308 linear feet; and
- 26-foot-tall section totaling 650 linear feet.

Table 4.13-8 and Figure 4.13-3 show the projected exterior sound levels at the property boundary of each NSA with mitigation. The results indicate that the Project will comply with applicable regulations at all non-participating receptors with the implementation of the sound barriers. The noise levels presented in Table 4.13-8 are consistent with the ambient levels shown in Section 4.13.1.4. The highest noise level associated with the mitigated Project operations is 45 dBA at

NSA-3, while the ambient noise level ranges from 39-45 dBA during the morning, 44-50 dBA during the afternoon, and 40-47 dBA during the night. With the **Mitigation Measures NOISE-1 and NOISE-2**, the Project would not increase the ambient noise level by more than 3 dB and results in a less than significant impact.

Table 4.13-8. Acoustic Modeling Results Summary

NSA Property Line	Participation Status	UTM Coordinates (meters)		Modeled Operational L_{eq}, dBA	Mitigated Modeled Operational L_{eq}, dBA
		Easting	Northing		
NSA-1	Non-participant	628459	4176119	35	33
NSA-2	Non-participant	627076	4174143	49	45
NSA-3	Non-participant	627580	4175135	49	44
NSA-4	Non-participant	627733	4175104	48	43
NSA-5	Non-participant	628927	4175671	35	33
NSA-6	Participant	627115	4174455	54	46
NSA-7	Participant	627139	4174478	55	46
NSA-8	Participant	627122	4174991	49	44
NSA-9	Participant	627146	4174731	53	44
NSA-10	Non-participant	626174	4174293	43	39
NSA-11	Non-participant	627076	4174143	50	44

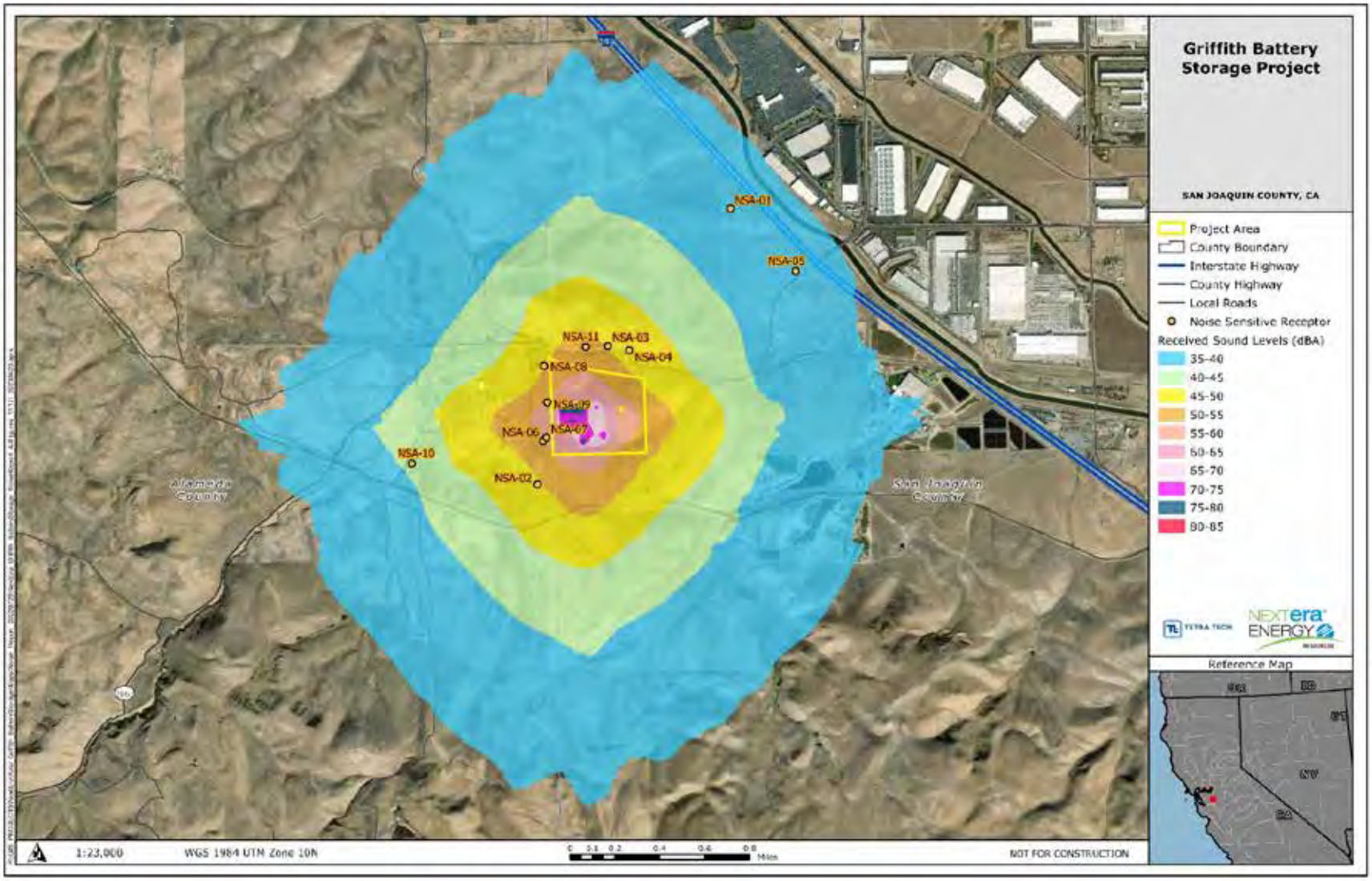


Figure 4.13-2. Unmitigated Operational Sound Levels (dBA)

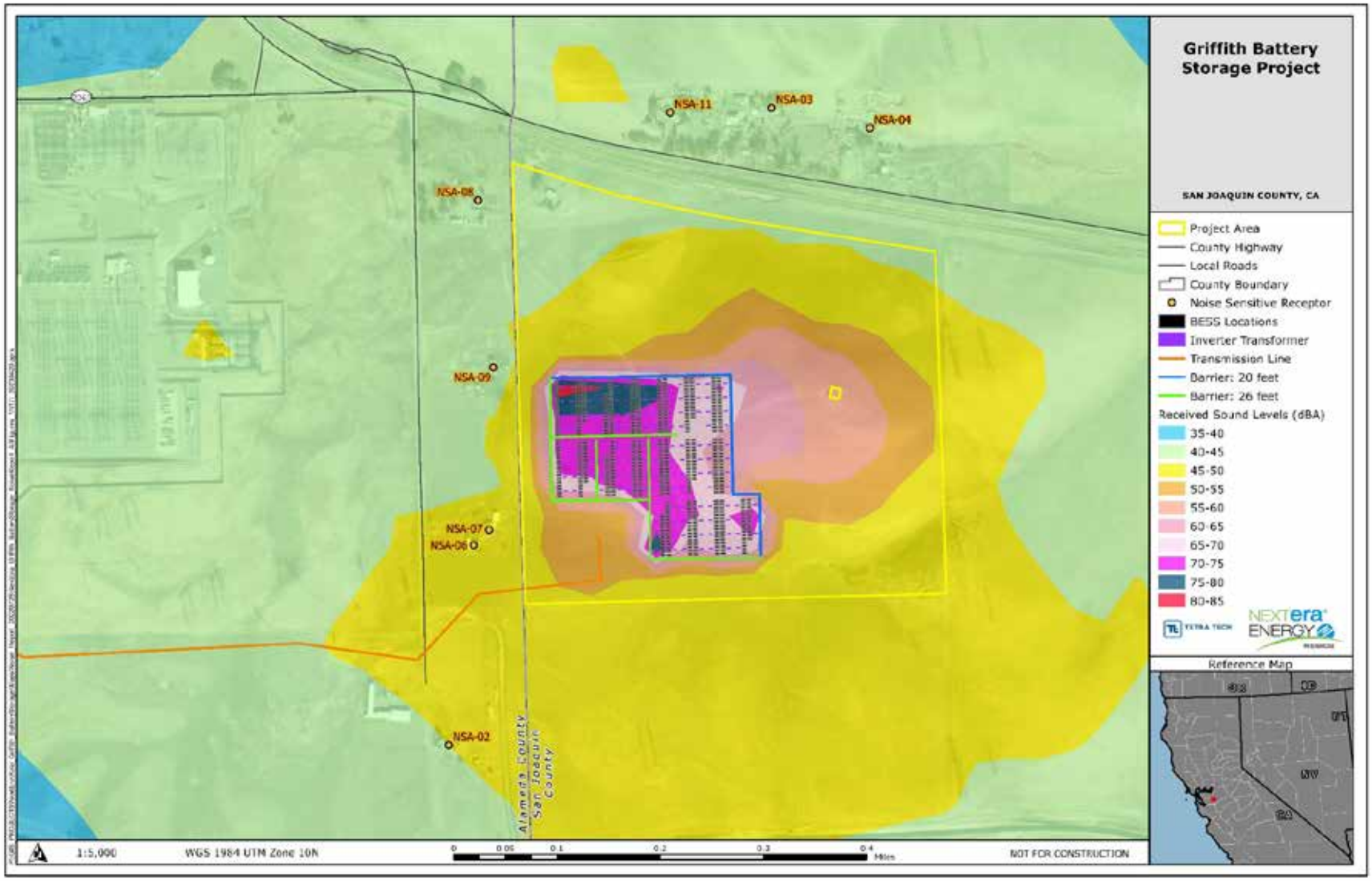


Figure 4.13-3. Mitigated Operational Sound Levels (dBA)

IMPACT 4.13-2: *Would the project result in generation of excessive groundborne vibration or groundborne noise levels?* **(Less than Significant Impact)**

This vibration analysis evaluated the worst-case vibration source, which would be the pile driver. Based on vibration propagation calculations, construction vibration levels are predicted to be 0.00255 PPV in/sec, or 56 VdB, at the nearest non-participating residential receptor, which is approximately 1,000 feet from the site. These levels are based on the worst-case vibration producing equipment and it is expected that other vibration generating equipment proposed for the Project construction would result in lower vibration levels. Vibration levels at the nearest non-participating sensitive receptor will be below the minimum vibration level for human perception of 65 VdB.

The only significant source of vibration resulting from the Project would occur during construction. Vibration levels have been analyzed and are not expected to be disturbing for human perception thresholds or detrimental to nearby structures throughout the duration of construction. Once construction is completed, the Project is not expected to have any significant operational vibration. The Project as a whole is considered to have a less than significant impact to excessive ground-borne vibration or ground-borne noise levels.

Mitigation: None required.

IMPACT 4.13-3: *For a project 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)**

The Project is not within 2 miles of a public airport or public use airport or in the vicinity of a private airstrip or an airport land use plan. There would be no impact.

Mitigation: None required.

4.13.5 Mitigation Measures

The following mitigation measures are recommended to reduce significant impacts to noise resources.

NOISE-1: The Project will include sound walls along the perimeter of the Project and between select BESS units. The sound walls will be of various heights and at least 3 pounds per square foot with minimal cracks or gaps. This mitigation measure is a result of the current operational equipment selected for the Project. When updated equipment is selected, another assessment will be conducted to evaluate the need for this mitigation measure. The same performance thresholds presented in this report will be used as a determination of significant impact when assessing any updated equipment, i.e., the San Joaquin County Ordinance Code and a 3 dB increase over ambient.

NOISE-2: The Project shall construct soundwalls on the western and eastern portions of the Project site to shield the surrounding residential properties. The sound walls will comprise the following dimensions:

- 20-foot-tall section totaling 1,998 linear feet;
- 26-foot-tall section totaling 1,995 linear feet;
- 26-foot-tall section totaling 302 linear feet;
- 26-foot-tall section totaling 308 linear feet; and
- 26-foot-tall section totaling 650 linear feet.

4.13.6 Pacific Gas and Electric Tesla Substation Improvements

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

Construction associated with the Tesla Substation improvements has the potential to generate noise. Operation of the Tesla Substation improvements would not appreciably increase noise above ambient levels and the current substation operations. The construction activities associated with the PG&E infrastructure would be required to comply with, and adhere to, the same mitigation measures as the rest of the Project components. The construction impacts are expected to be similar to the levels presented in Table 4.13-6**,** and as such, these improvements would not have a substantial adverse effect on noise, and no additional mitigation measures would be required.

4.13.7 Cumulative Impacts

Cumulative impacts should consider the effects of existing, current, and reasonably foreseeable future projects. As noted above, the proposed Project is shown to not significantly increase the overall ambient community noise level and would not expose persons to or generate excessive ground-borne vibration or ground-borne noise.

There are no cumulative projects close enough to the proposed Project to potentially result in a cumulative noise impact and, therefore, the Project would not significantly contribute to any impact to noise, ground-borne vibration, or ground-borne noise.

4.13.8 References

Alameda County. 2000. Noise Element. In: *Alameda County General Plan.*

Alameda County. 2020. Chapter 6.60 Noise. In: *Alameda County Code.*

Burns and McDonnell. 2021. Exhibit A1 – Attachment 7 – Noise Reduction Adder. NextEra North Central Valley BESS – Noise Analysis.

EPRI (Electrical Power Research Institute). 1978. *Transmission Line Reference Book, 115–138 kV.*

EPRI. 1987. *Transmission Line Reference Book, 345 kV.*

FTA (Federal Transit Authority). 2018. *Transit Noise and Vibration Impact Assessment Manual.*

ISO (International Organization for Standards). 1996. Part 2: General Method of Calculation. In: *Acoustics – Attenuation of Sound during Propagation Outdoors.* ISO Standard 9613-2. Geneva, Switzerland.

USEPA (U.S. Environmental Protection Agency). 1971. *Noise from Construction Equipment and Operations, US Building Equipment, and Home Appliances.* Technical Document NTID300.1. Prepared by Bolt Beranek and Newman for USEPA Office of Noise Abatement and Control, Washington, D.C. December.

USEPA. 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March.

USEPA. 1980. Construction Noise Control Technology Initiatives. Technical Report No. 1789. Washington, D.C: U.S. Environmental Protection Agency. September.

4.14 PUBLIC SERVICES

This section identifies and evaluates issues related to public services in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. During the scoping process, the Tracy Fire District provided comments on its difficulty accessing the meeting, the permitting process, alternative technologies, wildfire risks, effects of hazardous materials on human beings, emergency response plans, and fire station locations. These comments have been addressed in this Draft Environmental Impact Report (EIR).

4.14.1 Existing Conditions

The setting for public services includes the service areas of the fire protection, police protection, schools, parks, library, and medical providers that would serve the Project.

Fire Protection

The South San Joaquin County Fire Authority (SJC Fire) would provide fire services to the portion of the Project site in San Joaquin County. The battery energy storage facility is located in the Tracy Rural Fire District (San Joaquin County 2022). The nearest station is Tracy Fire Station 94, located at 16502 West Schulte Road in the City of Tracy and is approximately 2 miles from the Project site. The station houses a 2020 Pierce/Velocity Type 1 pumper advanced life support unit staffed with three personnel and a 2020 Type 3 OES Engine (Engine 4307). The station is located on a site adjacent to California Department of Forestry and Fire Protection Santa Clara Unit, Station 26 (SJC Fire 2022). The Alameda County Fire Department would provide fire services to the portion of the generation tie (gen-tie) line corridor in Alameda County and the Pacific Gas and Electric (PG&E) Tesla Substation (Alameda County Fire Department 2023). The nearest station is located at 7000 East Avenue in the City of Livermore and is approximately 8 miles from the gen-tie line corridor.

Police Protection

The Project site would be serviced by the San Joaquin County Sheriff's Department, which is located in French Camp approximately 18 miles from the Project site. The Sheriff's Department is located at 7000 Michael Canlis Boulevard, French Camp, California, 95231. Additionally, the Tracy Police Department provides mutual aid to the San Joaquin County Sheriff's Office when a situation exceeds the capabilities of either department. Mutual aid is coordinated by the San Joaquin County Sheriff's Office (City of Tracy 2011). The Tracy Police Department is located approximately 7.5 miles from the Project site at 1000 Civic Center Drive, Tracy, California, 95376. The Alameda County Sheriff's Office would service the portion of the gen-tie line in Alameda County and the PG&E Tesla Substation (Alameda County Sheriff's Office 2023). The Sheriff's Department is located at 6289 Madigan Road in the City of Dublin and is approximately 18 miles from the gen-tie line corridor.

Schools

The Project site would be served by the Tracy Unified School District (TUSD), which is comprised of three comprehensive high schools, two alternative education high schools, one community

school, two middle schools, four K-8 schools, and seven K-5 elementary schools (TUSD 2022). The schools closest to the Project site include Peter Honsen Elementary School, George Kelly School (K-8), Wanda Hirsch Elementary School, Earle E. Williams Middle School, and John C. Kimball High School. The closest school in Alameda County is Mountain House Elementary School District.

Parks

Recreational opportunities near the Project site include over 70 parks within the City of Tracy and various State Recreation Areas, including Bethany Reservoir State Recreation Area, Carnegie State Vehicular Recreation Area, and Del Valle Regional Park. The closest park is Marlow Brothers Park, located approximately 5.5 miles from the Project site.

Alameda County has approximately 41 parks and associated facilities. The park nearest the Project site in Alameda County is Tex Spruiell Park in Livermore, approximately 9.4 miles southwest. It is a neighborhood park that is managed by the Livermore Area Recreation and Park District and is located approximately 9.4 miles southwest of the Project site.

Other Public Facilities

The nearest library is Mountain House Branch Library, located approximately 5 miles from the Project site. The nearest public medical facility is the Sutter Tracy Community Hospital, located at 1420 North Tracy Boulevard in the City of Tracy, approximately 7 miles from the Project site.

The Springtown Branch Library, a branch of the Livermore Library Public Library System, is the closest library to the Project in Alameda County, located approximately 10 miles to the west.

4.14.2 Regulatory Setting

4.14.2.1 Federal

No federal statutes, regulations, plans, or policies apply to the Project site.

4.14.2.2 State

Quimby Act

The Quimby Act (California Government Code Section 66477) was established by the California legislature in 1965 to preserve open space and parkland in the rapidly urbanizing areas of the state. The Quimby Act authorizes local governments to establish ordinances requiring developers of new subdivisions to dedicate land for parks, pay an in-lieu fee, or perform a combination of the two. The Quimby Act requires a city or county to adopt standards for recreational facilities in its general plan recreation element if it is to adopt a parkland dedication/fee ordinance.

State School Funding

California Education Code Section 17620 authorizes school districts to levy a fee, charge, dedication, or other requirement against any development project for the construction or reconstruction of school facilities, provided that the district can show justification for levying of fees. California Government Code Section 65995 limits the fee to be collected to the statutory fee unless a school district conducts a School Facility Needs Assessment (California Government Code Section 65995.6) and meets certain conditions. Senate Bill (SB) 50 (Chapter 407, Statutes

of 1998) instituted a school facility program by which school districts can apply for state construction and modernization funds. This legislation imposed limitations on the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development.

4.14.2.3 Local

San Joaquin County General Plan

The Public Facilities and Services Element, the Health and Safety Element, and the Natural and Cultural Resources Element of the San Joaquin County General Plan (SJCGP) contain goals and policies related to public services and facilities. The following goals and policies are applicable to the Project (San Joaquin County 2016):

Infrastructure and Services Element

> ***Goal IS-1:*** *To provide residents and businesses quality, cost-effective, and sustainable public facilities and services.*
>
> > ***Policy IS-1.1: Essential Facilities and Services.*** *The County shall strive to ensure that adequate public facilities and services essential for public health and safety are provided to all County residents and businesses and maintained at acceptable service levels. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals.*
> >
> > ***Policy IS-1.2: Infrastructure Standards.*** *The County shall require new developments that include improvements to existing infrastructure or new infrastructure to meet the requirements and standards of the County or other agencies providing services.*
> >
> > ***Policy IS-1.4: Infrastructure Maintenance.*** *The County shall work with agencies to maintain, improve, and replace public facilities as necessary to maintain adequate levels of service for existing and future development and reduce the need for new facilities. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals.*
> >
> > ***Policy IS-1.9: Maximize Use of Existing Facilities.*** *The County shall require new development to be designed and sited to use existing facilities and services to the extent practical and to the extent that such a design and site choice would be consistent with good design principles.*
> >
> > ***Policy IS-1.13: Infrastructure Financing.*** *The County shall approve new development only when financial mechanisms are in place to ensure that adopted County service standards are met and that long-term infrastructure and facility maintenance can be provided.*

Public Health and Safety Element

> ***Policy PHS-1.1: Effective Emergency Response.*** *The County shall maintain adequate facilities equipment and staffing to respond effectively to emergencies.*

Policy PHS-1.10: Emergency Vehicle Access. *The County shall require all new developments to provide, and existing developments to maintain, adequate primary and alternative access for emergency vehicles.*

Natural and Cultural Resources Element

Policy NCR-2.13: Project Referral to Environmental Organizations. *The County shall encourage private resource and conservation organizations to review and comment on projects that could affect the County's biological resources.*

Policy NCR-3.5: Low Impact Development. *The County shall require new development to minimize or eliminate stormwater quality and hydro-modification impacts through site design, source controls, runoff reduction measures, best management practices (BMPs), and Low Impact Development (LID).*

Policy NCR-5.2: Alternative Energy. *The County shall encourage residents, businesses, and energy providers to develop and use alternative, renewable energy sources, including but not limited to, biomass, solar, wind, and geothermal*.

Policy NCR-8.2: Park Ratio Standard. *The County shall encourage and support the development of recreational facilities to serve unincorporated communities at a ratio of 10 acres of regional parks and three acres of local parks per 1,000 residents, except for Mountain House, which has an approved park ratio of not less than five acres of parks per 1,000 population. The County shall consider increasing its park ratio standards to address unmet park needs.*

Policy NCR-8.22: Park Dedication and In-lieu Fees. *The County shall require dedication of parkland or in-lieu fees for local parks until other methods of sufficient financing are established. In-lieu fees shall:*

- *be collected for new developments proposed in the county;*
- *include land acquisition and site development costs, such as grading, access, drainage, and fencing; and*
- *be given to the agency providing local recreation facilities.*

East County Area Plan

The Public Services and Facilities Element, and the Environmental Health and Safety Element of the ECAP contain goals, policies, and programs related to fire protection and police services. The following goals and policies are applicable to the Project (Alameda County 2000):

Policy 241: *The County shall provide effective law enforcement, fire, and emergency medical services to unincorporated areas.*

Policy 242: *The County shall reserve adequate sites for sheriff, fire, and emergency medical facilities in unincorporated locations within East County.*

4.14.3 Thresholds of Significance

A project would result in significant impacts to public services if it would:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i. Fire protection

ii. Police protection

iii. Schools

iv. Parks

v. Other public facilities

4.14.4 Impact Analysis

IMPACT 4.14-1: *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*

i) Fire protection **(Less than Significant Impact)**

SJC Fire would provide fire services to the Project facilities located in San Joaquin County. The nearest station is Tracy Fire Station 94, located at 16502 West Schulte Road in the City of Tracy, and is approximately 2 miles from the Project site. The Alameda County Fire Department would provide fire services to the portion of the gen-tie line corridor in Alameda County and the PG&E Tesla Substation. The nearest station is located at 7000 East Avenue in the City of Livermore and is approximately 8 miles from the gen-tie line corridor. The Project would be designed in compliance with federal, state, and local worker safety and protection codes and regulations that would minimize the potential for the occurrence of fire. The Project would require a temporary workforce for construction and eventual decommissioning, and one or two workers during Project operations to visit the facility on a weekly basis. Thus, the Project is not anticipated to contribute an increase in population that would cause an increase in the demand for fire protection and, specifically, result in a need for new or physically altered fire protection facilities.

Project maintenance and operation may introduce potential ignition sources, such as transformers, the gen-tie line, switchyard, maintenance vehicles, and gas/electric-powered machinery. However, the potential fire risk is low for these Project components. All battery components for the battery energy storage system would be installed on concrete pads and contained within an enclosure to minimize the potential for sparks or ignition. All such enclosures would be in conformance with the SJC Fire and County regulations.

During Project construction and decommissioning, the primary fire hazards would be heat or sparks from vehicles and construction equipment. These hazards could potentially ignite dry vegetation at the Project site, especially during the warmer, dry months between June and October. Additionally, construction activities, such as welding and grinding, could generate sparks that would increase the likelihood of ignition. Thus, dependent on the time of year and location of

construction activities at the Project site, there could be a temporary increase in exacerbated fire risk in the area due to these other factors. However, California Occupational Safety and Health Administration Title 8 Regulations include Subchapter 4, Construction Safety Orders, Article 36, Fire Protection and Prevention, which contains standard practices to minimize the potential for fires during construction. The Project would adhere to all applicable fire protection and prevention measures to limit the potential for fires during construction and decommissioning. Combustible vegetation or agricultural products on and around the Project site boundary would be actively managed by the Project owner or its affiliates during both the construction and decommissioning phases of the Project to minimize fire risk. Combustible products would be either limited in height or removed. Additionally, the Project would include firebreaks around the Project site boundary in the form of access roads subject to County standards.

Therefore, the impacts to the proposed Project would be less than significant as the Project would result neither in population growth nor in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities or need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts to maintain acceptable service ratios, response times, or other performance objectives for fire protection services.

ii) Police protection **(Less than Significant Impact)**

The Project site would be primarily serviced by the San Joaquin County Sheriff's Department, which is located in French Camp approximately 18 miles from the Project site. The Tracy Police Department, located approximately 7.5 miles from the Project site, also provides mutual aid to the San Joaquin County Sheriff's Office when a situation exceeds the capabilities of either department. The Livermore Police Department would also service the portion of the gen-tie line in Alameda County and the PG&E Tesla Substation (City of Livermore 2022). The Sheriff's Department is located at 1110 South Livermore Avenue in the City of Livermore and is approximately 11.2 miles from the gen-tie line corridor.

The Project is not anticipated to contribute an increase in population that would increase the demand for police protection and, specifically, result in a need for new or physically altered police facilities. No new residences are proposed as part of the Project. The construction, operation, and decommissioning of the Project would not substantially increase the demand for police services.

The Project would be secured with chain link fencing along the perimeter of the Project site, with three-strand barbed wire. Access to the facility would be provided by a gated entry point. Motion-controlled security lighting would be installed and would allow for the Project site to be monitored remotely. All safety and emergency services signs would be lit when the lights are on. Lights would be installed for maintenance and security purposes.

By implementing these measures, the impacts to the proposed Project would be less than significant as the Project would not result in population growth. As such, the Project would not result in any substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities or need for new or physically altered police protection facilities, or cause significant environmental impacts to maintain acceptable service ratios, response times, or other performance objectives for police services.

iii) Schools **(No Impact)**

The nearest schools to the Project site are the Peter Honsen Elementary School, George Kelly School (K-8), Wanda Hirsch Elementary School, Earle E. Williams Middle School, and John C. Kimball High School, as well as Mountain House Elementary School in Alameda County nearest the gen-tie line. The Project would require a temporary workforce for construction and eventual decommissioning, and one or two workers during Project operations to visit the facility on a weekly basis. Thus, the Project is not anticipated to contribute an increase in population or the associated potential increase in school-aged children and, therefore, would not result in any increase demand for schools. The Project will pay any applicable school or other impact fees. The Project would not result in any impacts associated with the provision of new or physically altered school facilities or need for new or physically altered school facilities, the construction of which could cause significant environmental impacts to maintain acceptable service ratios, response times, or other performance objectives for schools.

iv) Parks **(No Impact)**

The nearest park, Marlow Brothers Park, is a small local park managed by the Tracy Parks and Recreation Department and is approximately 5.5 miles from the Project site. The Project is not anticipated to contribute to an increase in population and, therefore, would not result in any increase demand for park facilities. Accordingly, the Project would not be required to pay in-lieu fees as described in General Plan Policy NCR-8.22 above.

Tex Spruiell Park in is the nearest park to the gen-tie line in Alameda County The Project, including the gen-tie line, would not contribute to an increase in population and, therefore, would not result in an increased demand for park facilities. All applicable impact fees would be paid by the Project.

The proposed Project would not result in population growth that would be associated with the provision of new or physically altered park facilities or need for new or physically altered park facilities. As such, the Project would not cause significant environmental impacts to maintain acceptable service ratios or other performance objectives for any park services.

v) Other public facilities **(No Impact)**

The Project is not anticipated to contribute to increased population growth. It is not anticipated that the demand for public facilities, such as libraries or other facilities, would be created. Therefore, the Project would not result in any impacts associated with the provision of new or physically altered public facilities or need for new or physically altered public facilities, the construction of which could cause significant environmental impacts to maintain acceptable service ratios, response times, or other performance objectives for any other public facilities.

Mitigation: None required.

4.14.5 PG&E Tesla Substation Improvements and Gen-tie

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are

available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either ROW corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

No additional public services would be required to make these improvements on PG&E's Tesla Substation property. Thus, these improvements would not result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, including fire, police, school, park, and other facilities. Accordingly, the PG&E Tesla Substation improvements and construction of the gen-tie from the POCO to its substation would have no impact on significance criterion 4.14-1. No mitigation measures would be required.

4.14.6 Cumulative Impacts

As discussed above, the Project would result in less than significant impacts with respect to the provision of new or physically altered fire or police protection facilities, and no impact with respect to the provision of new or physically altered school, park, or other public service facilities. The potential cumulative impact related to these services as a result of the Project would be less than significant.

4.14.7 References

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4.15 TRANSPORTATION

This section identifies and evaluates issues related to transportation in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) did not receive scoping comments relating to transportation.

A Traffic Impact Study was prepared for the proposed Project and is provided as Appendix G of this Draft EIR. The following discussion includes summaries and provides specific discussions of results and conclusions.

4.15.1 Existing Conditions

The existing setting includes descriptions of the roadways and documentation of existing vehicular traffic, major highways, local roads, and pedestrian and bicycle access conditions.

The Project is approximately 5 miles southwest of the center of city of Tracy and approximately 1 mile southwest of the Interstate (I)-580/I-205 interchange. The Project site can be accessed from I-580 via West Patterson Pass Road to Midway Road.

4.15.1.1 Environmental Setting

The San Joaquin County and Alameda County roadway system comprises freeways, arterials, and local streets. Each county maintains its local roadways, and there are also state and interstate roadways that connect the two counties, as described below and shown in Figure 4.15-1.

Major Highways

I-580 is an 8- to 20-lane east-west freeway that runs from the San Francisco-Oakland Bay Bridge, traveling through the Eden Area in Ashland, before turning east to Castro Valley, Livermore, and the Central Valley. Access to I-580 from the Project site is provided via West Patterson Pass Road (approximately 2 miles from the Project site). Access to I-580 is also possible from Grant Line Road via North Midway Road.

East of the Project site, I-580 is a four-lane divided highway; north of the Project site, it is an eight-lane divided highway. I-580 runs from the San Francisco-Oakland Bay Bridge, traveling through the Eden Area in Ashland, before turning east to Castro Valley, Livermore, and the Central Valley. In the Central Valley, I-580 generally runs northwest-southeast and ends at I-5. According to the most recent data published by the California Department of Transportation (Caltrans), the average annual daily traffic volume on I-580 in the vicinity of the Project site is approximately 4,700 vehicles during the peak traffic hour (Caltrans 2019).

I-205 is a six- to eight-lane, east-west divided highway that provides a connection between I-580 (north of the Project site) to I-5 further east. According to the most recent data published by Caltrans, the average annual daily traffic volume on I-205 in the vicinity of the Project site is approximately 8,400 vehicles during the peak traffic hour (Caltrans 2019).



Figure 4.15-1. Transportation

Local Roads

Patterson Pass Road and Midway Road, both of which are designated as collector roadways in Alameda County's East County Area Plan (ECAP), would be primarily utilized to access the Project site from I-580. Access to I-580 is also possible from I-580 via Grant Line Road via North Midway Road.

West Patterson Pass Road is a generally east-west roadway that runs from Mines Road in Livermore to I-580, where it turns into a north-south roadway named International/Mountain House Parkway. It continues north through Mountain House, where it terminates at Bryon Road. In the vicinity of the Project site, this roadway operates with one, undivided travel lane in each direction with shoulders of varying width. The speed limit is 55 miles per hour (mph) from I-580 to the Alameda County line where is changes to 40 mph. The Alameda County ECAP identifies West Patterson Pass Road as a collector roadway. West of the Midway Road intersection, there is a weight limit of 7 tons. Also, tractor-semis have turn restrictions and are instructed to use North Midway Road.

Midway Road is a north-south local roadway that extends from West Patterson Pass Road and terminates at the northeast corner of the Project site near a private residence and barn. North Midway Road extends north from West Patterson Pass Road to West Grant Line Road. This roadway operates with one, undivided travel lane in each direction with varying width shoulders.

Transit Conditions

The Project site is not currently served by local public transit service, nor is any such service anticipated to be established in the area in the foreseeable future. The San Joaquin Regional Transit District (SJRTD) provides public transportation to the communities within and around Stockton. The SJRTD has one fleet of buses, known as Hopper, which serves the surrounding communities, such as Lodi, Tracy, and Manteca (SJRTD 2023). No SJRTD routes have access near the Project site.

For Alameda County, the Livermore–Amador Valley Transit Authority (LAVTA) operates the Wheels Bus Service, which provides local public transit to the cities of Dublin, Livermore, Pleasanton, and unincorporated areas of Alameda County. LAVTA also provides connecting service to Bay Area Rapid Transit (BART), Altamont Commuter Express (ACE), and Central Contra County Transportation Authority (County Connection). The closest Wheels routes, Routes 20X and 11 (suspended in April 2020), operate in east Livermore, near the intersection of Patterson Pass Road and Vasco Road. This intersection is located approximately 10 miles from the Project site; therefore, no bus stops directly serve the Project site.

Walking/Accessibility Conditions

The Project site is located in a rural setting in unincorporated San Joaquin County and in unincorporated Alameda County. Generally, there are no pedestrian facilities, such as crosswalks, curb-ramps, and pedestrian signal heads, surrounding the Project site or at any of intersections in the Project vicinity.

Bicycle Conditions

According to the Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas (Alameda Bike Plan) (Alameda County 2019), unincorporated Alameda County currently has approximately 65.8 miles of bikeways, including Class I (4.4 miles), Class II (40.8 miles), and Class III (20.6 miles). There are currently no Class IV bikeways in unincorporated Alameda County. There are no bike lanes adjacent to the Project site.

In terms of future bikeways, the Alameda Bike Plan recommends an additional 200 miles of bicycle facilities that would increase the system-wide total mileage of bikeways to 265.9 miles, including Class I shared use paths (32.2 miles), Class II bike lanes (58.9 miles), Class III bike routes (164.8 miles), and Class IV separated bikeways (10 miles), in Alameda County.

West Patterson Pass Road is designated as a proposed Class III bike boulevard or rural routes in the Alameda Bike Plan. This aligns with the plan shown in the San Joaquin County Bicycle Master Plan Update, which will provide a continuation from the Alameda County line into San Joaquin County. However, it is noted that proposed bicycle routes in the study area would typically not serve a conventional bicycle commuter function and are primarily intended for recreational and interregional access routes.

4.15.2 Regulatory Setting

4.15.2.1 Federal

There are no federal regulations that apply to the Project.

4.15.2.2 State

California Department of Transportation

Caltrans is a state agency overseeing state highway, bridge, and rail transportation planning, construction, maintenance, and operation. Caltrans sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Alameda County is under the jurisdiction of Caltrans District 4, and San Joaquin County is under the jurisdiction of Caltrans District 10.

Caltrans' 2002 Guide for the Preparation of Traffic Impact Studies provides the fundamental criteria and guidelines for conducting such studies. In terms of state highway Level of Service (LOS) standards, Caltrans "endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D'… on State highway facilities" (Caltrans 2002:1). However, Caltrans recognizes that this may not always be feasible and invites lead agencies to consult with the agency to determine appropriate levels of service for particular state highway facilities. It should also be noted that the intersections of West Patterson Road and the I-580 eastbound and westbound ramps are under Caltrans jurisdiction.

The following Caltrans regulations apply to potential transportation and traffic impacts of the Project:

- **California Vehicle Code, Division 15, Chapters 1 through 5 (Size, Weight, and Load):** Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

- **California Street and Highway Code, Sections 660-711, 670-695:** Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

Senate Bill 743

Senate Bill (SB) 743, which was codified in Public Resources Code (PRC) Section 21099, required changes to the guidelines implementing the California Environmental Quality Act (CEQA Guidelines; California Code of Regulations, Title 14, Division 6, Chapter 3 § 15000 et seq.) regarding the analysis of transportation impacts. Pursuant to PRC Section 21099(b)(1), the criteria for determining the significance of transportation impacts must "promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses." (See adopted CEQA Guidelines Section 15064.3(b), *Criteria for Analyzing Transportation Impacts*). To that end, in developing the criteria, the Governor's Office of Planning and Research (OPR) has proposed, and the California Natural Resources Agency has certified and adopted, changes to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay, as measured by "level of service" and other similar metrics, no longer constitutes (in most cases) a significant environmental effect under CEQA (PRC Section 21099(b)(3)).

California Environmental Quality Act Guidelines Section 15064.3, subdivision (b)

In 2013, the State of California passed SB 743, transitioning from automobile delay (commonly measured by LOS) to VMT in transportation analysis under CEQA. CEQA Guidelines Section 15064.3(b) describes specific considerations for evaluating a project's transportation impacts. Generally, VMT is the most appropriate measure of transportation impacts. VMT refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) regarding roadway capacity, a project's effect on automobile delay shall not constitute a significant environmental impact.

It should be noted that SB 743 requires CEQA lead agencies to eliminate the use of vehicular LOS as the primary transportation metric. The OPR has mandated that all CEQA lead agencies adopt a new VMT transportation metric by July 1, 2020. Prior to July 1, 2020, jurisdictions had the option to continue using LOS analysis or converting to VMT analysis once such thresholds were adopted. San Joaquin County, the CEQA lead agency for this Project, and Alameda County are currently in the process of transitioning to the VMT metric. Therefore, LOS analysis is presented

for informational purposes only. As detailed in this section, VMT for the proposed Project is analyzed as required by the State CEQA Guidelines and, additionally, an LOS analysis is provided to determine consistency with the General Plan transportation policies.

4.15.2.3 Local

San Joaquin County General Plan

The San Joaquin County General Plan consists of a multitude of elements that contain the specific goals, policies, and implementation actions for community development, land use, housing, economic development, public facilities and services, transportation and mobility, infrastructure and services, public health and safety, and natural and cultural resources.

> ***Policy TM-3.1 Roadway Provision:*** *The County shall maintain Level of Service (LOS) standards consistent with the San Joaquin Council of Governments (SJCOG) Congestion Management Program (CMP) for State highways and designated County roadways and intersections of regional significance. Per the CMP, all designated CMP roadways and intersections shall operate at an LOS D or better except for roadways with "grandfathered" LOS. LOS for State highways shall be maintained in cooperation with Caltrans. The County LOS standards for intersections is LOS "D" or better on Minor Arterials and roadways of higher classification and LOS "C" or better on all other non-CMP designated County roadways and intersections. The County shall also maintain the following:*
>
> - *on State highways, LOS D or Caltrans standards whichever is stricter.*
> - *within a city's sphere of influence, LOS D, or the city planned standards for that level of service.*
> - *on Mountain House Gateways, as defined in the Master Plan, LOS D, on all other Mountain House roads, LOS C.*
>
> *For State highways are designated as part of SJCOG's CMP both the Caltrans and CMP LOS standards shall apply. Where roadways are designated as part of SJJCOG's CMP, both the County and CMP LOS standards shall apply.*
>
> ***Policy TM-3.10 Rural Road Traffic:*** *The County should monitor the use of rural roads by commuters as bypass routes from gridlocked arterials to gather data for use in any future traffic studies or plans designed to reduce the traffic impact on the operation of agricultural machinery.*
>
> ***Policy TM-6.1 Increased Vehicle Occupancy:*** *The County shall work with a broad range of agencies (e.g., San Joaquin Council of Governments, San Joaquin Regional Transit, San Joaquin Valley Air Pollution Control District, Caltrans) to comply with state laws that increase vehicle occupancy including the provision of traveler information, shuttles, and preferential parking for carpools/vanpools, transit passe subsidies, and other methods.*

San Joaquin Council of Governments Regional Transportation Plan/Sustainable Communities Strategy

The SJCOG RTP/SCS is a long-term vision for the transportation needs in the County. Additionally, the RTP/SCS considers future population growth and housing needs, as well as goals for the environment, economy, and public health. The RTP/SCS looks at how the County will integrate transportation and land use to allow for transportation options to assist in the region's growth. In Chapter 3 of the RTP/SCS, strategies are outlined to achieve the goals set throughout the plan.

> ***Policy:*** *Enhance the Environment for Existing and Future Generations and Conserve Energy.*
>
> ***Strategy No. 1:*** *Encourage efficient development patterns that maintain agricultural viability and natural resources.*
>
> ***Strategy No. 2:*** *Encourage preservation of natural resources.*
>
> ***Strategy No. 3:*** *Enhance the connection between land use and transportation choices through projects supporting energy and water efficiency.*
>
> ***Strategy No. 4:*** *Improve air quality by reducing transportation-related emissions.*

Alameda County East County Area Plan

The ECAP contains goals and policies to maintain an efficient circulation network in the eastern portion of Alameda County. These goals include creating and maintaining a balanced multimodal transportation system, cooperating with other regional transportation planning agencies, integrating pedestrian infrastructure into the transportation system, and mitigating exceedances of LOS standards. The ECAP standard for major intercity arterials is LOS D or better. Alameda County has not established designated local truck routes nor adopted specific policies regarding management of construction activities.

The ECAP contains transportation and traffic goals and policies applicable to the Project (Alameda County 2002). Goals in the ECAP are intended to be general statements of a condition Alameda County wants to achieve, and the associated policies are the focused statements of how Alameda County will achieve these goals. The Transportation Systems goals and policies listed below are considered relevant to the Project.

General Transportation

> ***Goal:*** *To create and maintain a balanced, multi-modal transportation system that provides for the efficient and safe movement of people, goods, and services.*
>
> > ***Policy 179:*** *The County shall adhere to provisions of the RTP, Countywide Transportation Plan, and County Congestion Management Program (CMP), insofar as they are not inconsistent with the Initiative.*

Transportation Demand Management

> ***Goal:*** *To reduce East County traffic congestion.*

Policy 183: *The County shall seek to minimize traffic congestion levels throughout the East County street and highway system.*

Policy 184: *The County shall seek to minimize the total number of Average Daily Traffic (ADT) trips throughout East County.*

Policy 185: *The County shall seek to minimize peak hour trips by exploring new methods that would discourage peak hour commuting and single vehicle occupancy trips.*

Policy 187: *The County shall monitor traffic levels according to ECAP and CMP objectives.*

Policy 188: *The County shall promote the use of transit, ridesharing, bicycling, and walking, through land use planning as well as transportation funding decisions.*

Policy 190: *The County shall require new non-residential developments in unincorporated areas to incorporate Transportation Demand Management (TDM) measures and shall require new residential developments to include site plan features that reduce traffic trips such as mixed-use development and transit-oriented development projects.*

Policy 191: *The County shall work with cities and the CMA to coordinate land use impact analyses.*

Streets and Highways

Goal: *To complete County-planned street and highway improvements that are attractively designed to integrate pedestrian and vehicle use.*

Policy 192*: The County shall work with Caltrans to improve the interstate and state highway systems and the County road system according to the street classifications shown on the ECAP Transportation Diagram, consistent with Policy 177.*

Policy 193*: The County shall ensure that new development pays for roadway improvements necessary to mitigate the exceedance of traffic LOS standards caused directly by the development. The County shall further ensure that new development is phased to coincide with roadway improvements so that (1) traffic volumes on intercity arterials significantly affected by the project do not exceed LOS D on major arterial segments within unincorporated areas, and (2) that traffic volumes on CMP designated roadways (e.g., Interstate Highways 580 and 680 and State Highway 84) significantly affected by the project do not exceed LOS E within unincorporated areas. If LOS E is exceeded, Deficiency Plans for affected roadways shall be prepared in conjunction with the CMA. LOS shall be determined according to CMA adopted methodology. The County shall encourage cities to ensure that these LOS standards are also met within unincorporated areas.*

Bicycle and Pedestrian Paths

Goal: *To include a comprehensive network of bicycle and pedestrian paths in the local and sub regional transportation network.*

Policy 211: *The County shall create and maintain a safe, convenient, and effective bicycle system that maximizes bicycle use.*

Policy 214: *The County shall require that circulation and site plans for individual developments minimize barriers to access by pedestrians, the disabled, and bicycles (e.g., collectors or arterials separating schools or parks from residential neighborhoods).*

Alameda County Transportation Commission and Alameda County Congestion Management Program

The Alameda County Transportation Commission (CTC) is a joint powers authority that plans, funds, and delivers transportation programs and projects that expand access and improve mobility to foster a vibrant and livable Alameda County. It was formed in 2010 from the merger of the Alameda County Transportation Improvement Authority and Alameda County Congestion Management Agency (CMA).

As required by state law, Alameda CTC updates its Congestion Management Plan (CMP) every 2 years by monitoring the operational performance of the designated County CMP road network. The current CMP was adopted in in March 2022 reporting for Year 2021. It is noted that Alameda CTC CMP standards and travel demand measures are focused on traffic impacts associated with future development. As such, they do not apply to construction activities, such as the Project, in which there are temporary short-term traffic increases that are eliminated once construction is completed.

Alameda Countywide Transportation Plan

The Alameda Countywide Transportation Plan is a long-range policy document that guides transportation funding decisions for Alameda County's transportation system through 2040. The plan lays out a strategy for meeting transportation needs for all users in Alameda County. The plan identifies projects and other improvements to new and existing freeways, local streets and roads, public transit (paratransit, buses, rails, ferries), and facilities and programs to support bicycling and walking (ACTC 2020). The plan sets the following goals for Alameda County’s transportation system.

- Accessible, affordable, and equitable for people of all ages, incomes, abilities and geographies;
- Integrated with land use patterns and local decision-making;
- Connected across the county, within and across the network of streets, highways and transit, bicycle and pedestrian routes;
- Multimodal;
- Cost effective;

- Safe;
- Reliable and efficient;
- Well maintained; and
- Supportive of a healthy and clean environment.

These goals are aligned with one or more performance categories and performance measurements. The plan also identifies land use and conservation development strategies.

Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas

The Bicycle and Pedestrian Master Plan describes existing conditions for bicycling and walking, identifies capital and program improvements to support these modes, and recommends projects to enhance bicycling and walking in the unincorporated areas (Alameda County 2019). The plan identifies high-priority projects that meet the short-term community needs, as well as strategies for education, funding, and implementation of the recommended projects and programs. This plan provides a vision for bicycling and walking in Alameda County as important alternative transportation modes. The plan also identifies implementable projects that will contribute to a more bicycle- and pedestrian-friendly environment in the unincorporated areas.

Bicycle facilities include bicycle lanes, trails, and paths. On-street bicycle facilities include:

- Class I bikeways (shared-use paths with two-way paved facilities, physically separated from vehicular traffic for use by bicyclists, pedestrians, or other non-motorized users. and includes trails that are unpaved paths accessible by bicycles and pedestrians, which are not considered accessible by Americans with Disabilities Act [ADA] standards);
- Class II bikeways (bike lanes striped within the paved areas of roadways and established for the exclusive use of bicycles, and includes buffered bicycle lanes that provide an additional painted buffer between the striped bicycle lane and adjacent travel lane);
- Class III bikeways (signed bicycle routes that allow bicycles to share travel lanes with vehicles on low-speed residential and rural roadways where bicyclists have priority); and
- Class IV separated bikeways (on-street bike facilities that are physically separated from traffic by curbs, plant boxes, bollards, grade separation, or parked cars for exclusive rights-of-way for use by bicyclists).

The Bicycle and Pedestrian Master Plan contains goals and policies for developing and implementing a bikeway system and pedestrian improvements that meet Alameda County's vision for safe, attractive, and convenient opportunities for bicycling and walking for all types of trips and user groups.

> ***Goal 1:*** *Improve bicycle and pedestrian access and circulation for all users as a means to meet the goals of the Alameda County Unincorporated Areas Climate Action Plan.*
>
> ***Goal 2:*** *Create and maintain a comprehensive system of bicycle and pedestrian facilities in the local and sub-regional transportation network in order to establish a balanced multi-modal transportation system.*

Policy 2.8*: Routinely maintain bicycle and pedestrian facilities and amenities.*

Goal 3: *Maximize the use of public and private resources for implementing bicycle and pedestrian improvements.*

Goal 4: *Provide a safer bicycling and walking environment.*

Policy 4.1*: Monitor bicycle and pedestrian-involved collisions in the Unincorporated Areas and target the high incidence locations for bicycle and pedestrian improvements.*

Policy 4.4*: Work with law enforcement officials on education and enforcement programs that increase safety awareness of all road users for bicyclists and pedestrians and that reduce bicycle and pedestrian-involved collisions.*

Goal 5: *Promote land uses and urban design that support a pleasant environment for bicycling and walking.*

Policy 5.2*: Design new development and redevelopment projects to facilitate bicycle and pedestrian access, reduce bicycling and walking trip lengths, and avoid adverse impacts to the bicycle and pedestrian safety, access, and circulation.*

Policy 5.3*: Consider options for commercial and industrial development projects to include bicycle storage facilities for employees and customers, shower/locker areas, and other facilities identified in this plan for employees that commute by bicycle. This could include on-site facilities or services available through local partnerships. Encourage including bicycle parking and shower/locker areas in new construction or major remodel projects.*

Policy 5.7*: Require that all traffic impact studies and analyses of proposed street changes address impacts on bicycling and pedestrian transportation. Specifically, the following should be considered:*

- *Consistency with General Plan and the Bicycle and Pedestrian Master Plan policies;*
- *Impact on the existing and future Bicycle and Pedestrian Master Plan Bikeway System;*
- *Permanent travel pattern or access changes including the degree to which bicycle and pedestrian travel patterns are altered or restricted due to any change to the roadway network; and*
- *Conformity to accepted bicycle and pedestrian facility design standards and guidelines.*

Goal 6: *Support agency coordination for the improvement of bicycle and pedestrian access.*

4.15.3 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would have a significant transportation impact if it would:

a) *Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;*

b) *Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);*

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

d) *Result in inadequate emergency access.*

4.15.4 Impacts Analysis

4.15.4.1 Methodology

Trip Generation

Typically, most transportation studies focus on impacts after a project is constructed and in operation, as the expected traffic generation once in operation is usually higher than that generated under any construction phase or combination of phases. For this Project, however, the reverse is true. As such, the transportation analysis presented below focuses on construction-related impacts as operation of the proposed Project would generate minimal to no peak hour trips and minimal VMT.

The Project's vehicular trip generation analysis is based on data provided by the Project Applicant on proposed construction activities. Specific data used include the anticipated construction schedule, maximum number of workers onsite during each construction phase, vendor trips, and truck haul trips required to complete each phase. As discussed in the Traffic Impact Study (Appendix G), the Project has a construction schedule of approximately 15 months, including 3 months of commissioning. Total trip generation will vary depending on the specific phase and construction stage, as will each type of trip. At peak construction, there will be approximately 60 workers and 10 to 20 trucks per day. The peak period is approximately 5 months. Worker vehicle trips, vendor trips, and truck haul trips are estimated separately as they represent distinct trip types. Detailed Project trip generation calculations are provided in Appendix A of the Traffic Impact Study.

For the purposes of CEQA, the values shown in Table 2-2, *Construction Equipment and Vehicle Trips Per Phase*, in Chapter 2. *Project Description,* provide a conservative scenario in that they represent the peak of Project construction activities that would occur for approximately 5 months. The Project traffic distribution is a reasonable estimate based on the battery equipment manufacturer, proximity to cities, commonality of the remaining materials like fencing and concrete, location of hotels, and size of local communities for both attractiveness for workers to stay there and likelihood that local residents would work on the Project. Based on these considerations, it is expected that the Project battery equipment would arrive by ship to the Port of Oakland, which is 47 miles from the Project location. The battery equipment would likely be delivered with standard, five-axle semi-trucks by way of I-5 to the Project location and are assumed to be 50 percent of the total materials loads. The remaining materials and equipment

(construction equipment, aggregate, concrete, fencing, cables and electrical equipment, etc.) are assumed to be found locally and split 50 percent from Oakland and 50 percent from Stockton.

Workers could reside in any number of local communities or hotels. Due to the proximity of the City of Tracy and good availability of hotels and lodging there, it is likely many workers will stay there. The other closest residential locations to the Project are the hotels in Ulmar, Livermore, and Pleasanton. Additional nearby communities include Verona, Asco, Dublin, Lathrop, and Manteca. The nearest large urban areas are Tracy (9 miles, 18 minutes) and Ulmar (12 miles, 18 minutes). Because both are close in proximity, both will be included in analysis as possible commuting locations. Because so many local communities exist, the analysis did not consider all possible locations. It has been simplified to be representative and conservative. The communities in addition to Tracy and Ulmar that are included are Dublin (25 miles, 28 minutes) and Manteca (27 miles, 40 minutes). An estimated 40 percent of workers are estimated to come from Tracy, 30 percent from Ulmar, 15 percent from Dublin, and 15 percent from Manteca). See Table 2-2, *Construction Equipment and Vehicle Trips Per Phase*, in Chapter 2, *Project Description,* for total worker, vendor, and hauler trips.

Peak hours for the Project are expected to be between 7:00 a.m. and 8:00 a.m. and 5:00 p.m. and 6:00 p.m., when construction workers would commute to and from the site. Once constructed, the Project would operate 7 days per week and 365 days per year. The facility would be operated by the Applicant or an affiliated company remotely. Periodic augmentation of batteries within the Project site may occur. Only occasion, on-site maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

Trip generation for decommissioning is conservatively assumed to be similar to Project construction.

Vehicle Miles Traveled

CEQA Guidelines Section 15064.3(b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines criteria focus the analysis of traffic impacts from driver delay to reduction of greenhouse gas (GHG) emissions, creation of multimodal networks, and diversity of land uses. The revisions required lead agencies to evaluate transportation impacts based on VMT beginning July 1, 2020. VMT is a measure of the total number of miles driven to or from a project and is sometimes expressed as an average per trip or per person. San Joaquin County has not yet adopted VMT-based transportation significance thresholds; however, Alameda County adopted VMT thresholds in March 2023. Where no VMT threshold has yet been adopted, the Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018) provides guidance:

> *The VMT metric can support the three statutory goals: "the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." (Pub. Resources Code, § 21099, subd. (b)(1), emphasis added.) However, in order for it to promote and support all three, lead agencies should select a significance threshold that aligns with state law on all three. State law concerning the development of multimodal transportation networks and diversity of land uses requires planning for and prioritizing increases*

in complete streets and infill development but does not mandate a particular depth of implementation that could translate into a particular threshold of significance. Meanwhile, the State has clear quantitative targets for GHG emissions reduction set forth in law and based on scientific consensus, and the depth of VMT reduction needed to achieve those targets has been quantified. Tying VMT thresholds to GHG reduction also supports the two other statutory goals. Therefore, to ensure adequate analysis of transportation impacts, OPR recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so.

4.15.4.2 Analysis

IMPACT 4.15-1: *Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?* **(Less than significant Impact)**

All study roadways and intersections would continue to operate within acceptable County and Caltrans operational standards, under Existing plus Project Conditions. Most maintenance and construction activities associated with the Project would be contained within the Project site and are not expected to result in the long-term closures of travel lanes or roadway segments, permanently alter the public access roadways, create new public roadways that could substantially change the travel patterns of vehicles and bicycles on surrounding roadways, or conflict with the policies and plans regarding bicycle facilities. There are no transit or pedestrian facilities adjacent to the Project site that would be impacted by Project-generated construction traffic.

There are no bike lanes along Patterson Pass Road or Midway Road adjacent to the Project site. The rural roadways in the study area are generally used for recreational and interregional travel that typically occur outside of the typical weekday peak commute periods and on weekends. During construction, slow-moving oversized trucks could potentially disrupt the movement of bicycles on Patterson Pass Road near the Project. However, construction would occur primarily during daylight hours and would not occur earlier than 6:00 a.m. or after 9:00 p.m. in compliance with the San Joaquin County Municipal Code (San Joaquin County 2022) when working on the Project site, with the highest concentration of construction-generated traffic occurring during the typical a.m. and p.m. peak commute periods when bicycle volumes are low. During construction of the gen-tie, activities would be limited to the hours between 8:00 a.m. and 5 p.m. in accordance with Alameda County Municipal Code (Alameda County 2020). Saturday work is anticipated, resulting in additional vehicle on the roadways. This could impact recreational bike use along Patterson Pass Road; however, this would only occur during the construction phase, and this would have a less than significant impact. No lane or road closures are anticipated during Project construction that could temporarily disrupt bicycle access on these roads. Furthermore, the analyzed Project-generated traffic would be related to temporary construction whose short-term traffic increases end when construction activities are completed.

For these reasons, the Project would not conflict with a plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Therefore, the Project would result in less than significant impacts to the performance of the local circulation system.

Mitigation: None required.

IMPACT 4.15-2: *Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?* **(Less than Significant Impact)**

VMT

The VMT analysis aims to quantify the total number of vehicle miles added to the roads as a direct result of the construction and operations of the Project. The Traffic Impact Report (2023) looked at the estimated number of workers expected on site for each construction phase and multiplied that by the approximate distance traveled and the number of times per week that distance is traversed (i.e., commutes happen 10 times per week, which equals 2 times per day).

Employees during the construction phase are anticipated to commute from communities and towns approximately 20 miles from the Project site. These nearby communities include Tracy, Dublin, Ulmar, Livermore, Verona, Asco, Lathrop, and Manteca. In the Traffic Impact Report (2023), it was assumed that 40 percent of workers are to come from Tracy, 30 percent from Ulmar, 15 percent from Dublin, and 15 percent from Manteca.

It is expected that the Project battery equipment would arrive by ship to the Port of Oakland, which is 47 miles from the Project location. The battery equipment would likely be delivered with standard, five-axle semi-trucks by way of I-5 to the Project location and are assumed to be 50 percent of the total materials loads. The remaining materials and equipment (construction equipment, aggregate, concrete, fencing, cables and electrical equipment, etc.) are assumed to be found locally and split 50 percent from Oakland and 50 percent from Stockton. Table 4.15-1 provides the results of the VMT analysis.

Table 4.15-1. Construction Vehicle Miles Traveled

Source Location	Distance (miles)	Occurrences per Week*	Total
Worker Commute from/to Tracy	9.4	10	128,066
Worker Commute from/to Ulmar	11.3	10	115,463
Worker commute from/to Dublin	24.4	10	124,660
Worker Commute from/to Manteca	23.1	10	118,018
Battery Equipment Deliveries from the Port of Oakland	46.7	53	198,008
Materials Deliveries from Oakland	46.7	27	99,004
Materials Deliveries from Stockton	30.4	26	64,448
Total Passenger Vehicle VMT			**486,207**
Total Heavy Vehicle VMT			**361,460**
Grand Total Construction VMT			**847,667**

*Average over all stages.

There is no established threshold of significance for VMT in San Joaquin County. Alameda County has a threshold of 110 daily vehicle trips for small projects (Association of Bay Area Governments 2023). The proposed Project would generate approximately 60 daily vehicle trips, significantly less than the threshold.

Since no quantitative, qualitative, or performance level is identified, the significance of 847,667 additional miles traveled must be evaluated based on the three guidance criteria from the CEQA Technical Advisory, including the project's reduction of GHG emissions, diversity of land use, and

development of multimodal transportation networks. Based on these CEQA criteria, the Project would have a less than significant impact for VMT during construction.

The operations VMT is considerably less than that of the construction VMT. During operations, there would be no daily workers commuting to or from the Project site. Though only one or two workers would be anticipated to visit the site each week, for modeling purposes a conservative estimate of the VMT for operations would assume two workers from the city of Oakland every week, which is a maximum of 4,857 VMT per year during operations. This rate would be typical throughout the operational life of the facility. There would likely be occasional larger repair operations, but these would be infrequent and of short durations. Given the short duration and infrequency of the repairs, these occurrences would add so few VMT that it is not a meaningful inclusion in the analysis. Over the next 20 years, the total VMT for operations is likely less than 97,136 miles and the Project would have a less than significant impact for VMT during operations.

Reduction of GHG Emissions

The Project is a battery energy storage system facility and the chief aim of constructing such facilities is to increase local energy storage capacity. This Project would support the state policies necessary to meet the California renewable energy standards. California has proceeded to advance energy storage uses to support the grid, including the passage of Assembly Bill 2514, as well as the resulting CPUC decision for energy procurement targets for each of the investor-owned utilities. The proposed Project would address the limitations of the electrical grid by the increasing demand for renewable energy. Layering energy storage systems into the energy grid improves grid reliability and makes it more resilient to disturbances and peaks in energy demand. The Project and other energy storage systems are used to supply power during brief disturbances, reduce outages and associated impacts to the community, and substitute for certain large footprint transmission and disruption upgrades.

Additionally, the Applicant conducted an Air Quality and Greenhouse Gas Technical Report for San Joaquin County, which concluded a “less than significant impact” for both construction and operations emissions (see Appendix D). The GHG technical report identified a quantitative threshold of significance for GHG emissions. The analysis included in that report accounted for construction traffic emissions to determine the total emissions for the Project. Using this definitive quantitative metric yielded a “less than significant impact.” Based on this conclusion, a threshold value for VMT would likely be much higher than the Project-generated VMT. This assertion is in line with the fact that the guidance for conducting VMT analysis originated with GHG emissions reduction regulations and goals, and the guidance states “OPR recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so.”

Diversity of Land Use

Diversity of land use is a more difficult criteria to quantify for a comparative analysis. According to CEQA (2018),

> *State law concerning the development of multimodal transportation networks and diversity of land uses requires planning for and prioritizing increases in complete streets and infill development but does not mandate a particular depth of implementation that could translate into a particular threshold of significance.*

The Project would diversify land use by changing the current use from undeveloped cropland grazing land to renewable energy storage. While the Project would increase the VMT from undeveloped to developed conditions, nearly all of the VMT are added during a relatively short construction time window. The expected facility maintenance would generate infrequent and light traffic during operations, and it is anticipated that eventually maintenance visits would be reduced to once per month or less and would not impact peak hour traffic. Development of the Project would, therefore, support California's statutory energy goals—reduction of GHGs through development of a storage facility for renewable energy, development of multimodal transportation networks, and a diversity of land uses.

Development of Multimodal Transportation Networks

This CEQA guidance criterion is not relevant to the Project.

The additional vehicle miles that would be traveled by workers and delivery trucks during construction of the Project is considered a less than significant impact. The Project would have less than significant impacts on VMT during the operational lifecycle due to the very low maintenance and on-site staff need on a weekly basis.

Mitigation: None required.

IMPACT 4.15-3: *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?* **(Less than Significant Impact)**

The Project would not permanently alter any roadways that would result in a design feature that could substantially increase hazards. The Project would construct a new access road from the terminus of Midway Road that would conform to County sight distance standards and would not introduce new hazards. All Project infrastructure would be set back from public intersections to avoid any sight distance hazards.

During construction, slow-moving oversized trucks could potentially disrupt the movement of slow-moving farm equipment on Midway Road in the Project area. However, standard traffic control, such as signage and use of orange cones and flaggers, would be implemented on the roadway, if necessary.

The Project land use is considered a compatible use as discussed in Section 4.11, *Land Use and Planning*, of this Draft EIR. For these reasons, the Project would result in less than significant impacts related to increased hazards due to design features or incompatible uses.

Some of the heavy construction equipment and facility materials may be transported to the site by oversize vehicles. The use of oversize vehicles during construction can create a hazard to the public by limiting motorist views on roadways and by the obstruction of space.

Oversize vehicle loads must comply with permit-related and other requirements of the California Vehicle Code and California Streets and Highway Code. California Highway Patrol and San Joaquin County may require oversize load permits, which would specify if California Highway Patrol escorts are required during oversize vehicle trips. Due to the rural nature of the area roads and relatively low traffic volumes, construction vehicles are not anticipated to cause hazards to

other roadway users traveling to and from the Project site. Furthermore, the Project would not include a design feature or utilize vehicles with incompatible uses that would create a hazard on the roadways surrounding the Project site.

Mitigation: None required.

IMPACT 4.15-4: *Would the project result in inadequate emergency access?* **(Less than Significant Impact)**

The Project would not permanently alter any roadways nor create any traffic conditions that would impede emergency access. Furthermore, the analyzed Project-generated traffic would be related to temporary construction-related traffic increases that would end when construction is completed.

The Project is located in a rural area, within proximity to a main roadway. Midway Road connects the Project site to Patterson Pass Road, which would allow for any emergency vehicles to easily access the Project site. No additional construction to roadways would occur during construction of the Project. Therefore, the Project would result in less than significant impacts related to emergency access.

Mitigation: None required.

4.15.5 PG&E Tesla Substation Improvements and Gen-Tie

To accommodate the Project, PG&E would be responsible for siting, design and construction of the gen-tie transmission line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. All such improvements would be within the existing Tesla Substation footprint.

Similar to the Project, the construction activities associated with the PG&E infrastructure would utilize the same roadways as the Project and would be temporary, where short-term traffic increases would end when construction activities are completed. PG&E improvements and construction of the gen-tie would not conflict with a plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Furthermore, construction worker trips for PG&E infrastructure are included in the construction and equipment vehicle trips presented in Table 2-2, *Construction Equipment and Vehicle Trips Per Phase*, of Chapter 2, *Project Description*, and would result in less than significant impacts related to VMT.

PG&E improvements would not permanently alter any roadways that would result in a design feature that could substantially increase hazards. Due to the rural nature of the area roads and

relatively low traffic volumes, construction vehicles associated with PG&E improvements are not anticipated to cause hazards to other roadway users traveling to and from the Project site. Thus, PG&E improvements would not substantially increase hazards due to a geometric design feature or incompatible use.

Finally, Midway Road connects the Project site to Patterson Pass Road, which would allow for any emergency vehicles to easily access the Project site, including the PG&E Tesla Substation and gen-tie corridor where PG&E improvements would occur. The gen-tie corridor is also assumed to be up to 100 feet in width and would include a maintenance road, allowing for adequate emergency access along the gen-tie corridor. Thus, construction of PG&E infrastructure would provide adequate emergency access.

Ultimately, PG&E improvements would have less than significant impacts related to transportation, similar to the Project.

4.15.6 Cumulative Impacts

As discussed above, the Project would have less than significant impacts with respect to conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Therefore, the Project could neither cause nor contribute to any potential significant cumulative effect regarding these considerations.

The potential for cumulative transportation impacts exists where there are multiple projects proposed in an area that have overlapping construction schedules and/or project operations that could result in a substantial contribution to increased traffic levels throughout the surrounding roadway network.

For the purposes of the cumulative analysis of transportation impacts, only other projects that contribute, or could contribute, traffic to the same roadway segments as the Project should be included. Because the volume of traffic generated would not be particularly high during site clearing and construction and decommissioning and would be substantially less during operation and maintenance activities, only segments of Midway Road and Patterson Pass Road would experience increases in traffic. Therefore, the geographic scope for cumulative impacts consists of those two roadway segments.

Similar to the Project analysis above, which focused on the construction phase of the Project, the temporal scope for cumulative transportation impacts is limited to the construction and decommissioning phases because activities during these times would contribute the most traffic to roadways within the geographic scope.

Past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Table 2-3. Past projects have been constructed and so would contribute only ongoing operational traffic to area roadways during the Project's construction phase. The ongoing impacts associated with past projects are accounted for as part of baseline conditions for the Project and are described as part of the existing conditions described above. That evaluation indicates that vehicular circulation would continue to operate acceptably under Project conditions.

The Kola Interconnect Battery Energy Storage Project proposed to the west of the Project could potentially interact with the Project and contribute traffic to the roadway segments defined above in the geographic scope of the cumulative transportation analysis. However, the construction traffic associated with the Project would not increase VMT or daily trips beyond the roadways' current operating capacities, such that the Project's incremental contribution to cumulative transportation impact would not be cumulatively considerable.

Operational traffic associated with the Project would not substantially increase daily trips on any roadway segment. The Project would not cause or contribute to a significant adverse cumulative impact relating to operational traffic.

4.15.7 References

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4.16 TRIBAL CULTURAL RESOURCES

This section identifies and evaluates issues related to tribal cultural resources in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

4.16.1 Existing Conditions

The Project is within the northwestern ancestral lands of the Northern Valley Yokuts (see discussion in Section 4.5.1.2). An ethnographic review of tribal cultural resources was performed via the Northwest Information Center (NWIC) record search, Native American Heritage Commission (NAHC) sacred lines file (SLF) search, and review of available ethnographic documents (see Section 4.5, *Cultural Resources*). San Joaquin County, as the lead California Environmental Quality Act (CEQA) agency, invited the following Native American Tribes to consult on the Project: Buena Vista Rancheria, California Tribal TANF Partnership, California Valley Miwok Tribe, North Valley Yokuts Tribe, and United Auburn Indian Community (as specified by PRC Section 21080.31 and as amended by Assembly Bill (AB) 52; see Sections 4.16.2 and 4.16.4 below). The original Project consultation letter was sent to Tribes on September 21, 2022; no responses have been received to date. As responsible agency, Alameda County does not formally consult with tribes as part of the CEQA process.

4.16.2 Regulatory Setting

A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource may have a significant effect on the environment (Public Resource Code [PRC] 21084.2). As specified in the PRC Section 21080.31, as amended by AB 52, a lead agency is required to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. Consultations must include discussing the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe (PRC 21080.3.1 (a) and 20184.3(b)(a), and Government Code 65352.4). That consultation must take place prior to the determination of whether a negative declaration, mitigated negative declaration, or EIR is required for a project.

PRC Section 21074 defines tribal resources as follows:

> *(a)"Tribal cultural resources" are either of the following:*
>
> > *(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:*
> >
> > > *(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.*
> > >
> > > *(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.*

(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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

14 California Code of Regulation 15120(d) Confidentiality

Section 15120(d) of the California Code of Regulations (CCR) states that information and locational information regarding archaeological sites, sacred lands, or other information is confidential and is restricted from disclosure in public documents.

Also see California Health and Safety Code, Sections 7052 and 7050.5, and California PRC, Section 5097, discussed in Section 4.5.2.2 in this Draft EIR.

4.16.3 Threshold of Significance

In recognition of AB 52, which strengthens the level of review required for tribal cultural resources and establishes guidelines for required consultation with Native American tribes, the following threshold is included:

- *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*

  i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)

  ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe?

4.16.4 Impact Analysis

IMPACT 4.16-1*: Would the project cause adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural*

landscape that is geologically defined in terms of the size and scope of the landscape, sacred plan, or object with cultural value to a California Native American tribe that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code 5020.1(k); or

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, as the CEQA lead agency, has considered the significance of the resource to a California Native American tribe? **(Less than Significant Impact with Mitigation**)

The combined NWIC record search, NAHC SLF search, intensive pedestrian field surveys (see Section 4.5), and tribal notification did not identify any tribal cultural resources within the Project site that are listed in a local register or listed in, or eligible for listing in, the California Register of Historical Resources (CRHR).

Per AB 52 (21080.3.1), San Joaquin County, as the lead CEQA agency, sent a Project consultation letter to the following Tribal governments on September 21, 2022:

- Buena Vista Rancheria;
- California Tribal TANF Partnership;
- California Valley Miwok Tribe;
- North Valley Yokuts Tribe; and
- United Auburn Indian Community.

No responses have been received to date from any of the Tribes.

Mitigation: Implementation of **Mitigation Measures CUL-1** (Cultural Resource Worker Education/Training) and **CUL-2** (Inadvertent Discovery of Archaeological Resources During Construction) would ensure that tribal resources would be appropriately addressed, therefore reducing any significant impacts. Thus, after mitigation, the Project would have a less than significant impact.

4.16.5 Mitigation Measures

Mitigation Measures CUL-1 and **CUL-2** would be implemented, as described in Section 4.5, *Cultural Resources*.

Through the implementation of **Mitigation Measures CUL-1 and CUL-2**, the Project would not have a substantial adverse effect on any tribal cultural resources, and no additional mitigation measures would be required.

4.16.6 PG&E Tesla Substation Improvements and Gen-tie

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie line from the point of change of ownership (POCO) to its substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a below ground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

Through the implementation of **Mitigation Measures CUL-1 and CUL-2**, these improvements would not have a substantial adverse effect on any tribal or cultural resources, and no additional mitigation measures would be required.

4.16.7 Cumulative Impacts

Development of the proposed Project, in combination with other projects in the area, has the potential to contribute to a cumulatively significant tribal cultural resources impact due to the potential loss of historical resources, archaeological resources, and human remains unique to the region. However, as discussed in Section 4.16.5, **Mitigation Measures CUL-1** and **CUL-2** would mitigate impacts to tribal cultural resources to be less than significant, and compliance with existing regulations would ensure that any impacts to human remains would be less than significant. In addition, tribal cultural resources that are potentially affected by related or future projects would be subject to the same requirements of CEQA and the laws and regulations discussed above in Section 4.16.2. Therefore, the Project would contribute to a less than significant cumulative impact to tribal cultural resources.

4.17 UTILITIES AND SERVICE SYSTEMS

This section identifies and evaluates issues related to utilities and service systems in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) received no scoping comments relating to utilities and service systems.

This analysis is based in part on the Water Supply Assessment prepared by Tetra Tech in February 2023 (Appendix H). The County independently reviewed these analyses and other materials prepared by or on behalf of the Applicant, and determined them to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft Environmental Impact Report (EIR).

4.17.1 Existing Conditions

For the purposes of this analysis, the relevant utility or service systems are the water supply, wastewater, stormwater, solid waste disposal, gas and electrical, and telecommunication utilities that would provide service to the Project site.

4.17.1.1 Water Supply

The Project is located in San Joaquin County, with generation tie (gen-tie) facilities and substation upgrades located in Alameda County, and is not included in a water agency boundary; the nearest water agency boundary is for the Byron Bethany Irrigation District, approximately 5 miles southeast of the Project. Four active domestic water wells are located on parcels owned by the current Project landowner (DWR 2006). Existing water supply infrastructure at the 106-acre Project site includes one on-site groundwater well and the other three wells on the landowner's property are outside of the Project site. No wells occur with the 32-acre area that would be developed as part of the Project.

The Project site is located within the western portion of the Tracy Subbasin (#05-022.15), which is within the larger San Joaquin Valley Groundwater Basin (#05-022). This is a large subbasin (539 square miles), which spans parts of Alameda, Contra Costa, and San Joaquin Counties. The entire Project, including the gen-tie line, falls within the Tracy Subbasin.

4.17.1.2 Wastewater

Wastewater service is not currently provided at the Project site. Within western San Joaquin County, rural areas generally use on-site septic systems for wastewater disposal.

4.17.1.3 Stormwater

Existing stormwater drainage at the Project site is natural overland flow and infiltration into on-site soils. The site drainage is designed to follow the natural drainage pattern of the site. The southern portion of the Project area includes a steep slope where water drains away from the Project area naturally. No humanmade stormwater drainage facilities occur on the Project site.

4.17.1.4 Electric Power and Natural Gas

Pacific Gas and Electric (PG&E) is an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000-square-mile service area that includes San Joaquin County and Alameda County (PG&E 2021).

The Project will be located adjacent to and east of the PG&E, 70-acre 500-kilovolt (kV) Tesla Substation. Multiple sets of overhead high-voltage transmission lines from the substation traverse the Project site in southeasterly and southwesterly directions.

Natural gas utility connections exist at nearby residences; however, no natural gas utility connections are located at the Project site.

4.17.1.5 Telecommunications

Telecommunications connections exist at nearby residences; however, no telecommunications infrastructure is present within the Project site.

4.17.1.6 Solid Waste Management

San Joaquin County is primarily served by the Foothill Sanitary Landfill and the North County Recycling Center and Sanitary Landfill. The Foothill Sanitary Landfill currently has a permitted capacity of 1,500 tons of solid waste per day and a total design capacity of 138,000,000 cubic yards; the landfill has an estimated “cease of operation date” of December 31, 2082 (CalRecycle 2022a; San Joaquin County 2022;). The North County Recycling Center and Sanitary Landfill has a permitted capacity of 825 tons of solid waste per day and a total design capacity of 41,200,000 cubic yards with an estimated “cease of operation date” of December 31, 2048 (CalRecycle 2022b).

Alameda County is primarily served by the Vasco Road Sanitary Landfill and the Altamont Landfill and Resource Recovery. The Vasco Road landfill currently has a permitted capacity of 2,518 tons of solid waste per day and a total design capacity of 32,970,000 cubic yards with an estimated “cease of operation date” of December 31, 2022. Based on current capacity, the estimated effective closure year is 2031. In March 2022 Alameda County submitted an Initial Study - Negative Declaration for continued use of the landfill that would result in an increase of 7,237,100 cubic yards in total design capacity, which would extend the closure year to 2051 (County of Alameda 2022). The Altamont Landfill and Resource Recovery has a permitted capacity of 11,150 tons of solid waste per day and a total design capacity of 124,400,000 cubic yards with an estimated “cease of operation date” of January 1, 2025 (CalRecycle 2022b).

4.17.2 Regulatory Setting

4.17.2.1 Federal

Clean Water Act

Section 304 of the CWA establishes primary drinking water standards and requires states to ensure that potable water retailed to the public meets these standards. State primary and secondary drinking water standards are promulgated in California Code of Regulations (CCR) Title 22, Sections 64431–64501. Secondary drinking water standards incorporate non-risk

factors, including taste, odor, and appearance. The National Pollutant Discharge Elimination System (NPDES) regulates the discharge of drainage to surface waters. Federal NPDES regulations are administered by the State Water Quality Control Board (SWRCB) and through Regional Water Quality Control Boards (RWQCBs). Although most of Alameda County lays within the jurisdiction of Region 2 (the San Francisco Bay RWQCB), the easternmost portion of the County, including the Project area, is within Region 5 (Central Valley RWQCB). Municipal storm drainage is required to meet board standards under waste discharge regulations and NPDES permits.

4.17.2.2 State

Porter-Cologne Water Quality Control Act (Section 13000 et seq.)

Porter-Cologne directs the SWRCB and RWQCBs to prepare water quality control plans (basin plans) that establish water quality objectives and beneficial uses for each body of water, including groundwater basins, within the regional boundaries. Porter Cologne empowers the SWRCB and RWQCBs to protect the beneficial use of California waters, thereby providing broader authority than offered by the Clean Water Act (CWA) alone. The SWRCB and RWQCBs adopt regulations to protect surface water quality.

Water Well Standards

In June 1991, the California Department of Water Resources (DWR) published Bulletin 74-90 as a supplement to Bulletin 74-81, *Water Well Standards: State of California, December 1981.* Together, the two bulletins form the complete minimum well standards for the construction, maintenance, abandonment, and destruction of water wells, monitoring wells, and cathodic protection wells. The DWR requires that wells be in good working order with adequate protection measures in place to protect persons/animals if the intent is to use the well in the future. If the well is not to be used, the DWR requires the well be abandoned within 1 year after it was last used.

California Water Code Section 10912

Section 10912 of the Water Code requires a city or county that determines that a project, as defined, is subject to the California Environmental Quality Act (CEQA) to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified water supply assessment (WSA). The proposed Project is an industrial project occupying 42 acres of land and, therefore, qualifies as a project requiring preparation of a WSA.

Sustainable Groundwater Management Act

In 2014, a three-bill legislative package was signed into law by Governor Jerry Brown. The three-bill package comprised Assembly Bill (AB) 1739, Senate Bill (SB) 1168, and SB 1319, known as the Sustainable Groundwater Management Act. The Act requires governments and water agencies of high- and medium-priority basins to manage over drafting to bring groundwater basins to balanced levels of pumping and recharge. The Sustainable Groundwater Management Act empowers local agencies to form groundwater sustainability agencies (GSAs) to manage basins and adopt groundwater sustainability plans (GSPs) for crucial groundwater basins in California.

The California Integrated Waste Management Act

The California Integrated Waste Management Act was enacted in 1989 as AB 939 and codified in Public Resources Code §40050 et seq. The Act required all California cities, unincorporated portions of counties, and approved regional solid waste management agencies to divert a minimum of 25 percent of solid waste from landfills by 1995 and 50 percent by 2000. Cities and counties are required to maintain the 50 percent diversion specified by AB 939 past 2000. Diversion includes waste prevention, reuse, and recycling. Contracts, which include work that will generate solid waste, including construction and demolition debris, have been targeted for participation in source reduction, reuse, and recycling programs. Contractors are urged to manage solid waste to divert waste from landfills (particularly Class III landfills) and to maximize source reduction, reuse, and recycling of construction and demolition debris.

The Act resulted in the creation of the California Integrated Waste Management Board, which is now known as CalRecycle, to oversee, manage, and track the 76 million tons of waste generated in California each year. It is one of the six agencies under the umbrella of the California Environmental Protection Agency. Under the Act, jurisdictions also have to submit solid waste planning documentation to CalRecycle. The Act also established a comprehensive statewide system of permitting, inspections, and maintenance for solid waste facilities, and authorized local jurisdictions to impose fees based on the types and amounts of waste generated. Enforcement authority is typically delegated to the local government, and CalRecycle works jointly with local governments to implement regulations and fund programs.

Title 22 of the California Code of Regulations Division 4.5

Title 22 of the CCR discusses an array of requirements with respect to the disposal and recycling of hazardous and universal wastes. Specific standards and requirements are included for the identification, collection, transportation, disposal, and recycling of hazardous wastes. Additional standards are included for the collection, transportation, disposal, and recycling of universal wastes, where universal wastes are defined as those wastes identified in Section 66273.9 of Title 22 of the CCR, including batteries, electronic devices, mercury containing equipment, lamps, cathode ray tubes, and aerosol cans. Requirements include recycling, recovery, returning spent items to the manufacturer, or disposal at an appropriately permitted facility. Division 4.5 of Title 22 also provides restrictions and standards relevant to waste destination facilities and provides authorization requirements for various waste handlers. Title 22 includes California's Universal Waste Rule, as well as other additional waste handling and disposal requirements.

Utility Notification Requirements

California Government Code Section 4216 et seq. requires owners and operators of underground utilities to become members of, participate in, and share the costs of a regional notification center.

California Energy Commission

The California Energy Commission (CEC) regulates the provision of natural gas and electricity within the state. The CEC is the state's primary energy policy and planning agency and has five major responsibilities: forecasting future energy needs and keeping historical energy data; licensing thermal power plants 50 megawatts (MW) or larger; promoting energy efficiency

through appliance and building standards; developing energy technologies and supporting renewable energy; and planning for and directing the state response to energy emergencies.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates services and utilities and assures California's access to safe and reliable utility infrastructure and services. The essential services regulated include electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. The CPUC implements CEQA for utility construction by PG&E and the other public utilities under its jurisdiction and regulates the location and relocation of power lines by investor-owned utilities, such as PG&E.

National Pollutant Discharge Elimination System Construction General Permit

Construction activities disturbing 1 acre or more of land, as proposed for the Project site, are subject to the permitting requirements of the NPDES Construction General Permit and must apply for Construction General Permit coverage. For all new projects, applicants must electronically file permit registration documents using the Stormwater Multiple Applications and Report Tracking Systems, and must include a Notice of Intent, risk assessment, site map, and SWPPP to be covered by the Construction General Permit prior to beginning construction. The risk assessment and SWPPP must be prepared by a State-qualified SWPPP Developer. See Sections 4.7, *Geology, Soils, and Paleontological Resources,* and 4.10, *Hydrology and Water Quality*, for a more detailed discussion relative to water quality and SWPPP requirements.

4.17.2.3 Local

San Joaquin County General Plan 2035

The purpose of the San Joaquin County General Plan is to serve as San Joaquin County's "blueprint" or "constitution" for all future land use, development, preservation, and resource conservation decisions within the County. The goals and policies in the General Plan are intended to inform decisionmakers, the general public, public agencies, and those doing business in the County of the County's position on land-use-related issues, and to provide guidance for day-to-day decision-making. Relevant components of the General Plan (San Joaquin County 2016) related to utilities and service systems are listed below:

> ***Goal:*** *To ensure the quality of water for municipal and industrial uses, agriculture, recreation, and fish and wildlife.*
>
> ***Policy NCR-3.1:*** *The County shall strive to ensure that substantial groundwater recharge areas are maintained as open space.*
>
> ***Policy NCR-3.2:*** *The County shall encourage the development of groundwater recharge projects of all scales within the County and cities to increase groundwater supplies.*
>
> ***Policy NCR-3.3:*** *The County shall support multi-jurisdictional groundwater management that involves adjacent groundwater basins.*
>
> ***Policy NCR-3.5:*** *The County shall require new development to minimize or eliminate stormwater quality and hydro-modification impacts through site design,*

source controls, runoff reduction measures, best management practices, and Low Impact Development.

Goal: *To increase energy independence through the use of renewable energy sources and improved energy conservation and efficiency.*

Policy NCR-5.1: *The County shall support the efforts of residents, businesses, and energy providers to reduce the consumption of nonrenewable energy and shall promote energy providers' programs to increase energy efficiency and implement demand response programs.*

Policy NCR-5.2: *The County shall encourage residents, businesses, and energy providers to develop and use alternative, renewable energy sources, including but not limited to, biomass, solar, wind, and geothermal.*

Policy NCR-5.3: *The County shall prepare and maintain an ordinance that guides the permitting, construction, operation, and decommissioning of large-scale solar energy facilities.*

Goal: *To protect and enhance the unique scenic features of San Joaquin County.*

Policy NCR-7.8: *The County shall require all new electric and communication distribution facilities adjacent to scenic routes to be placed underground, whenever feasible. Where overhead utility lines are unavoidable, every effort should be made to reduce the visual impact through elements of design.*

Alameda County East County Area Plan

The purpose of the East County Area Plan (ECAP) is to present a clear statement of the County's intent concerning future development and resource conservation within East County. The goals and policies in the ECAP are intended to inform decisionmakers, the general public, public agencies, and those doing business in the County of the County's position on land-use-related issues, and to provide guidance for day-to-day decision-making. Relevant components of the ECAP (Alameda County 2002) related to utilities and service systems are listed below:

Goal: *To provide infrastructure and services necessary to accommodate East County holding capacities in a logical, cost-effective, and timely manner.*

Policy 218: *The County shall allow development and expansion of public facilities (e.g., parks and recreational facilities; schools; child care facilities; police, fire, and emergency medical facilities; solid waste, water, storm drainage, flood control, subregional facilities; utilities etc.) in appropriate locations inside and outside the Urban Growth Boundary consistent with the policies and Land Use Diagram of the East County Area Plan.*

Policy 221: *Basic rural services should normally be provided by Alameda County and other existing service districts.*

Policy 222: *The County shall continue to provide rural services to development within existing rural residential areas including Sunol, Tesla Road, South Livermore, Midway, Mines Road, Little Valley Road, Welch Creek Road, and other rural locations.*

Goal: *To provide an adequate, reliable, efficient, safe, and cost-effective water supply to the residents, businesses, institutions, and agricultural uses in East County.*

Policy 253: *The County shall approve new development only upon verification that an adequate, long-term, sustainable, clearly identified water supply will be provided to serve the development, including in times of drought.*

Policy 254: *The County shall encourage Zone 7 and local water retailers to require new development to pay the full cost of securing, conveying, and storing new sources of water.*

Policy 259: *The County shall include water conservation measures as conditions of approval for subdivisions and other new development.*

Goal: *To provide efficient and cost-effective sewer facilities and services.*

Policy 275: *The County shall condition the approval of new development on verification that adequate wastewater treatment and export and/or reclamation capacity exists to serve the development.*

Policy 276: *The County shall require new development to pay its fair share of the costs of East County planned sewer system improvements including treatment, distribution, and export.*

Goal: *To provide efficient, cost-effective, and environmentally sound storm drainage and flood control facilities.*

Policy 279: *The County shall require new development to pay its fair share of the costs of East County storm drainage and flood control improvements.*

Policy 280: *The County shall regulate new development on a case-by-case basis to ensure that, when appropriate, project storm drainage facilities shall be designed so that peak rate flow of storm water from new development will not exceed the rate of runoff from the site in its undeveloped state.*

Goal: *To provide efficient and cost-effective utilities.*

Policy 285: *The County shall facilitate the provision of adequate gas and electric service and facilities to serve existing and future needs while minimizing noise, electromagnetic, and visual impacts on existing and future residents.*

Policy 286: *The County shall work with PG&E to design and locate appropriate expansion of gas and electric systems.*

Policy 287: *The County shall require new developments to locate utility lines underground, whenever feasible*.

Zone 7 Water Agency

The Zone 7 Water Agency is responsible for all well permitting activities for eastern Alameda County and manages all drilling permit applications within its service area. Zone 7 Water Agency

is the administering agency for Alameda County's "Water Wells Ordinance" (General Ordinance Number 0-2015-20) in eastern Alameda County. The purpose of the code is to prevent pollution or contamination of groundwater such that water obtained from water wells will be suitable for the beneficial uses intended and shall not jeopardize the health, safety, or welfare of the people of the County. The County also regulates the destruction of abandoned wells or wells found to be public nuisances.

4.17.3 Significance Criteria

A project would result in significant impacts to utilities and service systems if it would:

a) *Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;*

b) *Not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;*

c) *Result in a determination by the waste water treatment provider, which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;*

d) *Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or*

e) *Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.*

4.17.4 Impact Analysis

IMPACT 4.17-1: *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?* **(Less than Significant Impact with Mitigation Incorporated)**

Water Supply

During Project construction and decommissioning, it is anticipated that approximately 30.7 acre-feet (af) of water (10,000,000 gallons) would be used per phase for dust suppression and earthwork (Appendix H). Less than 1 af of water per year would be required for the operation of the Project. Water for construction of the battery energy storage system (BESS) facility would be obtained via an off-site water purveyor and trucked to the site. Water providers would be permitted and licensed businesses and, correspondingly, in compliance with regulatory requirements, and no new or relocated water facilities would be required. Therefore, the Project would not require the relocation or construction of new water facilities that would result in significant environmental impacts.

Wastewater

The Project site does not contain existing wastewater facilities or connections to wastewater conveyance systems and no new connections to wastewater facilities or conveyance systems are proposed as part of the Project. Portable sanitary facilities would be provided for workers for the duration of Project construction and would be removed upon completion of construction. Therefore, the proposed Project would not require the relocation or construction of new wastewater facilities that would result in significant environmental impacts.

Stormwater

The battery energy storage facilities included in the proposed Project would include swales and armored outlets to direct stormwater in accordance with San Joaquin County, Alameda County, and State of California standards. No stormwater facilities would be required for the gen-tie line. The size and location of such features would be determined at a future date as site design progresses. Retention basins may be required for hydrologic control. The specific locations for these retention basins would be determined during final engineering design and would be located within the 32-acre disturbance area. During construction, coverage under the State's Construction General Permit would be required since the Project would disturb more than 1 acre. As part of the permit, a Project-specific SWPPP would be prepared and implemented, as required by **Mitigation Measure GEO-1**. Therefore, impacts from the construction of the stormwater facilities would be less than significant.

Electric Power

As a BESS facility, the Project would be a new component of the local electric power utility and service system, and the Project would interconnect with the nearby electricity grid at PG&E's Tesla Substation, which is located adjacent to the Project site using a new 230-kV gen-tie line. The Applicant would construct the gen-tie from the Project substation to the point south of the Tesla Substation. The gen-tie line would require new, steel tubular poles up to approximately 165 feet in height. The poles may be A-frame, H-frame, monopole, or a combination thereof, and the number and height of the poles would be finalized during detailed design. PG&E would be responsible for siting, design, and construction of the gen-tie line to its property boundary and within the Tesla Substation, and may elect to install the interconnection via an overhead line or underground. The Project includes multiple, modular, prefabricated battery enclosures in a parallel configuration. It is estimated that one inverter would be required for every four BESS enclosures. Underground or aboveground collector lines would transmit energy between an on-site switchyard and the inverters within the BESS switchyards. The proposed switchyard would host the grid intertie safety equipment and switches required to interconnect to the high-voltage transmission system. The switchyard would include switchgear and additional electrical equipment as required by PG&E specifications.

As discussed above, the energy would be transported from the on-site substation to the adjacent PG&E Tesla Substation through a 230-kV overhead gen-tie transmission line. The gen-tie transmission line ROW is expected to be up to 100 feet wide and would include a maintenance road. Poles similar to those described above may also be required at substation terminus for the belowground gen-tie line, if required for interconnection. The Tesla Substation would provide the necessary circuit breakers, switches, protection relays, and other equipment to reliably and safely protect both the Project's and PG&E's electrical infrastructure.

The proposed Project would not require the expansion of the existing PG&E Tesla Substation or relocation of existing utility lines. As discussed above, the proposed Project would use underground or aboveground power lines to connect to the Tesla Substation. New transmission lines or structures would be constructed in accordance with the most recent APLIC guidance (APLIC 2012) to reduce the potential for injury and mortality to migratory birds from collisions and electrocution, and impacts to birds due to collisions with the proposed overhead electrical lines would be less than significant, as further discussed in Section 4.4, *Biological Resources*.

Electric facilities and connections proposed as part of the Project could result in potential environmental impacts that are discussed throughout this Draft EIR. The Project would not require or result in the construction or relocation of new or expanded electric facilities beyond those included as part of the Project that would cause an adverse environmental effect.

Natural Gas

No natural gas utility connections are proposed or would be impacted by the proposed Project. As a BESS facility, the Project does not require the use of natural gas for the power generation process. Therefore, no natural gas facilities are proposed as part of the Project, nor would the Project result in the relocation or construction of new or expanded natural gas facilities that would cause an adverse environmental effect.

Telecommunications Facilities

The proposed Project would not require the construction of new or modifications to existing telecommunication infrastructure.

In summary, the proposed Project would not require the relocation or expansion of existing utilities in the Project area. The proposed Project would include the installation of a gen-tie transmission line, either underground or overhead, and an associated maintenance road would be required. Acquisition of the appropriate permits noted above, and compliance with all applicable regulations and requirements of those permits would reduce any potential impacts from the construction of new utilities to a less than significant level.

Mitigation: GEO-1.

IMPACT 4.17-2: *Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?* **(Less than Significant Impact)**

As discussed in **IMPACT 4.17-1**, the BESS facility would require a minimal amount of water during construction, operation, and decommissioning. Water would be used for dust control and soil compaction during construction and decommissioning. Active construction and decommissioning water use would require 30.7 af of water per phase, and construction would take place over a 15-month period. Operation of the Project would require less than 1 af of water per year. Water would be primarily sourced from an offsite water purveyor within the Tracy Subbasin (Appendix H).

Construction water demand is expected to be met from groundwater from the Tracy Subbasin. The water demand of the Project (61.4 af; 30.7 af each for construction and decommissioning) accounts for only 0.03 percent of the average annual pumping demand (199,549 AFY) within the

Tracy Subbasin, and the groundwater budget indicates that there is a surplus supply of just over 4,800 AFY. Thus, the Tracy Subbasin could easily support this Project (Appendix H). As an alternative or as a supplement, the City of Tracy has surplus water in normal years in both the near term and the long term and could provide water for the Project. In single dry years, the City has a deficit and may not be able to support the Project. However, in a multi-dry-year scenario occurring by the year 2030 or earlier, the City has a surplus of water adequate to supply the Project (Appendix H).

Ultimately, due to the low amount of water used during the construction and operation of the life of the Project and the ample availability of the Tracy Subbasin to easily support the Project, the Project would have sufficient water supplies during normal, dry, and multiple dry years. Impacts would be less than significant.

Mitigation: None required.

IMPACT 4.17-3: *Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?* **(No Impact)**

Wastewater disposal needs at the proposed Project site during construction and decommissioning would be provided on-site via portable toilet facilities, with sanitary disposal occurring at an off-site facility. No permanent sanitary facilities would be required during operations. Public wastewater treatment services would not be required for the Project and no increase in demand for wastewater treatment services would occur with implementation of the Project. Therefore, the Project would not result in a determination by the wastewater treatment provider that said provider has inadequate capacity to serve the Project's demand in addition to the provider's existing commitments. Therefore, the proposed Project would have no impact on the projected demand and service of local wastewater treatment providers.

Mitigation: None required.

IMPACT 4.17-4: *Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?* **(Less than Significant Impact)**

The proposed Project would not demolish any structures and the Project components would all be delivered for on-site assembly. The proposed Project would generate small quantities of construction debris from site preparation activities and during installation of the battery energy systems and associated infrastructure. Refuse generated during Project construction would be disposed of at either the Foothill Sanitary Landfill or the North County Recycling Center and Sanitary Landfill, both of which service San Joaquin County.

Since the proposed Project is an energy storage facility and would have few employees regularly on-site, operation of the proposed Project would generate a small amount of solid waste (less than 1 cubic yard of waste per week), which would be a negligible increase in solid waste generation on-site.

Generation of solid waste during the construction phase would be properly disposed of in accordance with applicable statutes and regulations. Similarly, any waste generated during future decommissioning of the Project would be required to be properly managed and disposed of in a licensed off-site landfill or recycling facility. Therefore, the proposed Project would not exceed state or local standards or exceed the capacity of the receiving landfills, and impacts related to solid waste generation would be less than significant.

Battery Disposal

The proposed energy storage system will likely use lithium-ion batteries. Used lithium-ion batteries are not considered hazardous waste by the U.S. Environmental Protection Agency (USEPA); at present there are optional USEPA guidelines (USEPA's Universal Waste Regulations) that address the responsible disposal and recycling of these batteries. Some lithium-ion batteries may be considered hazardous waste under the Resource Conservation and Recovery Act (RCRA) if they exhibit a characteristic of hazardous waste such as ignitability, reactivity, or toxicity when they are disposed. Commercial establishments are responsible for determining whether any waste they produce is hazardous waste, including lithium-ion batteries at their end of life (USEPA 2023).

Since some lithium-ion batteries may have more hazardous properties than others, it can be difficult for a waste generator to identify which of its waste lithium-ion batteries are defined as hazardous waste when disposed of. Therefore, where there is uncertainty, USEPA recommends that businesses consider managing lithium-ion batteries under the federal "universal waste" regulations in Title 40 of the Code of Federal Regulations (CFR) part 273 (USEPA 2023).

The universal waste regulations provide a streamlined set of requirements for generators of specific types of common hazardous wastes (e.g., fluorescent lamps containing mercury, batteries) from a wide variety of commercial settings. Requirements differ depending on whether waste generators accumulate less or more than 5,000 kilograms of total universal wastes onsite at one time, but they include instructions on how to manage the waste, how to label containers, how long the waste can be accumulated on site, and where the waste can be sent, among others. Universal waste regulations do not require shipment using a hazardous waste manifest but do require that the waste be sent to a permitted hazardous waste disposal facility or a recycler (USEPA 2023).

During Project operation, battery cells may occasionally be replaced due to defects or loss of efficiencies. More significantly, all batteries will be removed from the Project site during Project decommissioning. The battery modules included in the BESS will be recycled or disposed of in accordance with the federal and California nonhazardous and hazardous waste requirements applicable at the end of their useful life. Many battery manufacturers offer to reclaim batteries as many of the component parts can be recycled from spent batteries and used in new products. In addition to re-use in new battery cells, the recycled materials extracted can be used in a wide variety of consumer products such as lithium grease, concrete additives, and some glass products. Ultimately, many options exist to manage used lithium-ion batteries, and batteries will not be disposed of in a municipal landfill. Impacts related to battery disposal will be less than significant.

In summary, the Project would be implemented in compliance with applicable federal, state, and local statutes and regulations related to solid waste and battery disposal. Therefore, impacts would be less than significant.

Mitigation: None required.

IMPACT 4.17-5: *Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?* **(No Impact)**

The proposed Project would be required to comply with federal, state, and local management and reduction statutes and regulations related to solid waste. Most solid waste generated during construction would be non-hazardous and consist primarily of cardboard, wood pallets, copper wire, scrap metal, common trash, and wood wire spools. Construction waste materials, such as metal and wood, would be separated from the waste stream and recycled whenever feasible. Construction materials would be handled in accordance with the 2022 California Green Building Standards Code, which establishes standards for construction and demolition waste management, and recycling or salvage of a minimum of 65 percent of nonhazardous construction and demolition waste. Non-recyclable construction waste would be placed into commercial trash dumpsters located on-site. Dumpsters would be collected as needed by a commercial service and delivered to a landfill. Construction would generate an average of approximately 5 cubic yards of solid waste per week over the period of construction. Operation and maintenance activities would generate less than 1 cubic yard of waste per week, to be accumulated in an on-site dumpster that would be collected by a commercial waste management service.

During initial construction and eventual decommissioning, the Project would be required to comply with the regulations promulgated by CalRecycle, which are intended to assist the County in compliance with the SB 1383 *Short-lived Climate Pollutants (SLCP): Organic Waste Reductions* regulation goals (CalRecycle 2000). As described above, Project operation would generate a negligible amount of solid waste, collected in an onsite dumpster that would be collected by a commercial waste management service. Therefore, the Project would not negatively impact the provision of solid waste services or the attainment of solid waste reduction goals, and no impact would occur.

Mitigation: None required.

4.17.5 Pacific Gas and Electric Tesla Substation

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie transmission line from the point of change of ownership (POCO) to their substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and

outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

The construction activities associated with the PG&E infrastructure would be required to comply with and adhere to the same design criteria included in the CBC as the rest of the Project components. Construction would be required to comply with requirements of the Construction General Permit as required by **Mitigation Measure GEO-1**, similar to the Project components evaluated above, including implementation of BMPs during construction activities. Subsurface excavation required for the PG&E infrastructure is not anticipated to occur at depths below 10 feet below ground surface. These improvements would not alter the current and future water usage of the Project. The utilities discussed in **IMPACT 4.17-1** would not be affected due to the PG&E improvements, nor would solid waste management exceed any capacity of the local waste facilities or the standards set by local and state agencies as a result of these impacts. Additionally, the PG&E improvements would not obstruct the implementation of the Basin Plan or the Tracy Subbasin GSP. Thus, the improvements would have no impact on local utilities.

4.17.6 Cumulative Impacts

The potential cumulative impacts related to utilities and service systems would extend within the service areas of the utility and service providers that would serve the Project site. As discussed above, there would be less than significant impacts with respect to construction or expansion of water, wastewater, stormwater, telecommunications, or natural gas facilities, or compliance with federal, state, or local management and reduction statutes related to solid waste, such that there is no significant cumulative impact to these criteria to which the Project could contribute.

The cumulative analysis provided below considers the incremental impacts related to water availability and landfill capacity that could be caused by the Project in combination with other past, present, and reasonably foreseeable future projects.

The geographic scope of potential cumulative impacts to landfill capacity would be the areas served by the Foothill Sanitary Landfill and the North County Recycling Center and Sanitary Landfill.

The Foothill Sanitary Landfill currently has a permitted capacity of 1,500 tons of solid waste per day and a total design capacity of 138,000,000 cubic yards; the landfill has an estimated “cease of operation date” of December 31, 2082 (CalRecycle 2022a; San Joaquin County 2022). The North County Recycling Center and Sanitary Landfill has a permitted capacity of 825 tons of solid waste per day and a total design capacity of 41,200,000 cubic yards with an estimated “cease of operation date” of December 31, 2048 (CalRecycle 2022b).

The Project would generate solid waste, causing less than significant impacts during short-term construction and decommissioning and a negligible amount during operations and maintenance, recycling whenever feasible. In the unlikely scenario that the cumulative projects resulted in a significant cumulative effect, the Project’s incremental contribution would not be cumulatively considerable due to the negligible amount of waste that would be generated during the Project’s lifecycle.

The WSA determined water availability during normal, single dry, and multiple dry years during a 20-year projection in addition to the area’s existing and planned future uses. Any adjacent

cumulative projects that meet the criteria included in SB 610 would be required to complete WSAs. Development of these WSAs would address each project's cumulative ability to determine sufficient groundwater supplies would be available to meet their demands.

4.17.7 References

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4.18 WILDFIRE

This section identifies and evaluates issues related to wildfire in the context of the Griffith Energy Storage Project (Project). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. San Joaquin County (County) received scoping comments relating to wildfire from the Tracy Rural County Fire Protection District, and those comments have been incorporated into the Draft Environmental Impact Report (EIR).

4.18.1 Existing Conditions

Wildland fire hazards in San Joaquin County and Alameda County have the potential to affect grasslands, forest, and brushlands and, when uncontrolled, they have the potential to cause property damage, human injury, and mortality. Wildfires ignite from both natural causes (e.g., lightning strikes) and human-caused ignition sources. The degree of wildfire hazard is determined primarily by fuel availability and type, topography, and weather. This analysis includes a discussion of wildfire risk on the Project site.

4.18.1.1 Climate and Topography

The Project site is in southwestern San Joaquin County and northeastern Alameda County, approximately 5 miles southwest of the City of Tracy and along the San Joaquin County and Alameda County boundary. The proposed gen-tie line also crosses into Alameda County and would connect with the existing Pacific Gas and Electric (PG&E) Tesla Substation, just west of the Project site. San Joaquin County is one of eight counties located entirely or partially within the San Joaquin Valley region of central California. The climate of the San Joaquin Valley is characterized by hot, dry summers and foggy, rainy winters (State of California 2022). This region averages 16 inches of rainfall annually, most of which falls during the winter months (Best Places 2022). Elevation at the Project site ranges from approximately 340 to 510 feet above mean sea level.

4.18.1.2 Vegetation/Fuels and Ignition Sources

Fuels can include natural materials, such as dead tree leaves, twigs, branches, dead or live trees, brush, and dry grasses, as well as humanmade structures. The Project site consists of rolling hills and flat grazing land with few trees and lacks heavy brush. A few residences and several agricultural structures are present immediately west of the battery energy storage system (BESS) portion of the Project site, and additional rural residences exist west of the gen-tie corridor and north of the BESS portion of the Project site across West Patterson Pass Road. Potential ignition sources include both natural and human-caused in connection with vehicles, agricultural equipment, and the residences.

4.18.1.3 Fire History

Historically, the California fire season extends from June through October of each year during the hot, dry months. However, since 2010, the fire season throughout California has been getting longer, typically starting in May and extending into November, but wildfires can occur any time of the year. CAL FIRE has recorded 13 fires within San Joaquin County since 2011 and 46 fires in Alameda County since 2006. However, as fires are not jurisdictionally specific, all fires within 25

miles of the Project site were noted, including within Contra Costa County, Santa Clara County, and Stanislaus County. Additionally, according to the National Wildfire Coordinating Group (NWCG), a national interagency group comprising 12 member agencies, a large fire is defined as a fire burning more than a specified area of land (e.g., 300 acres), which is also the size threshold of a Class E Fire (NWCG 2022a, 2022b). Fire classes range from Class A at 0.25 acre or less, to Class G at 5,000 acres or more (NWCG 2022b). Therefore, fires larger than 300 acres and documented within 25 miles of the Project site are as shown in Table 4.18-1, organized by date (CAL FIRE 2022a).

Table 4.18-1. Fires Over 300 Acres within 25 miles of the Project Site by Date

Name	Start Date	Counties	Acres Burned	Approximate Distance (mile) from Project Site
Tesla Fire	6/23/2022	Alameda	524	24 miles S
SCU Lightning Complex	8/16/2020	Santa Clara, San Joaquin, Contra Costa, Alameda, and Stanislaus	396,624	23 miles SE
Marsh Complex	8/3/2019	Contra Costa	340	22 miles NW
Rock Fire	6/25/2019	Stanislaus	2,420	23 miles S
Grant Fire	7/8/2018	Alameda	480	4 miles NW
Grant Fire	5/30/2018	Alameda	484	3 miles N
Tesla Fire	8/19/2015	Alameda	2,850	23 miles S
Site Fire	6/5/2015	Alameda	300	5 miles S
Morgan Fire	9/8/2013	Contra Costa	3,111	22 miles NW
Flynn Fire	7/21/2011	Alameda	517	6 miles W
Flynn Fire	7/14/2011	Alameda	400	6 miles NW
Chrisman Fire	7/5/2011	San Joaquin	400	10 miles SE
Curry Fire	8/24/2010	Contra Costa	375	20 miles NW
Diablo Fire	6/18/2010	Alameda	475	6 miles NW
Corral Fire	8/13/2009	Alameda	12,500	6 miles W
Midway Fire	7/11/2006	Alameda	6,400	0.1 mile NW
Canyon Fire	7/9/2006	Stanislaus	34,217	22 miles S
Del Puerto Fire	6/30/2006	Stanislaus	2,593	22 miles S
Santa Clara Complex	8/25/2003	Santa Clara	30,170	Within the Diablo Range, specific area undefined
Del Puerto Fire	7/20/2003	Stanislaus	5,909	22 miles S

4.18.1.4 CAL FIRE-designated Wildfire Hazard Zones

The California Department of Forestry and Fire Protection (CAL FIRE) has published Draft Fire Hazard Severity Zones for both Local Responsibility Areas (LRA) and State Responsibility Areas (SRA). SRAs are the official boundaries where the State of California (through CAL FIRE) has the primary legal and financial responsibility for the prevention and suppression of wildland fires. The Project is entirely located within a High Fire Hazard Severity Zone (FHSZ) within the SRA (CAL FIRE 2022b). The nearest Very High FHSZ is located approximately 3.5 miles southwest of the Project site (Figure 4.18-1).

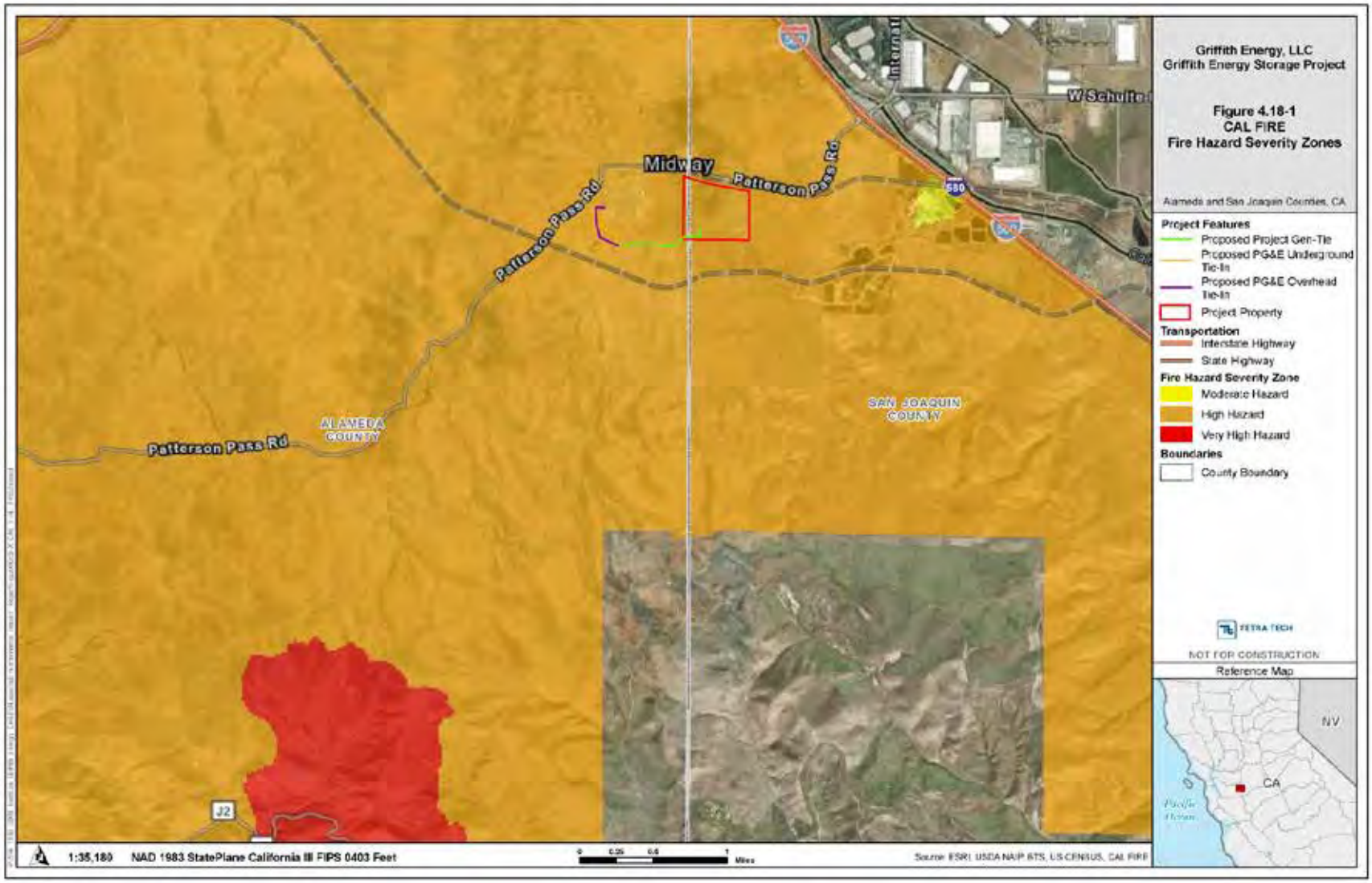


Figure 4.18-1. CAL FIRE Fire Hazard Severity Zones

4.18.1.5 California Public Utilities Commission-designated Wildfire Hazard Zones

Pursuant to its Fire Safety Rulemaking, the California Public Utilities Commission (CPUC) mapped high fire threat areas where more stringent inspection, maintenance, vegetation clearance, and wire clearance requirements (as required by CPUC General Orders 95, 165, and 166, described in Section 4.18.2.2, below) would be implemented due to the elevated risk for powerline fires. The CPUC High Fire Threat District Map identifies three tiers of elevated risk for fires associated with utilities. The Project site is not located in a CPUC-designated High Fire Threat District (HFTD). The closest CPUC-designated HFTD is located approximately 5 miles southwest of the Project site (CPUC 2022).

4.18.1.6 Fire Protection Services

South San Joaquin County Fire Authority (SJC Fire) would provide local fire services to the Project site, which is in the Tracy Rural Fire District (San Joaquin County 2022a). The nearest station is Tracy Fire Station 94, located at 16502 West Schulte Road in the City of Tracy and is approximately 2 miles from the Project site by road, with a drive time of approximately 5 to 10 minutes. The station houses a 2020 Pierce/Velocity Type 1, pumper advanced, life support unit staffed with three personnel and one 2020 Type 3 OES Engine (Engine 4307). The station is located on a site adjacent to California Department of Forestry and Fire Protection Santa Clara Unit, Station 26 (SJC Fire 2022).

The Alameda County Fire Department (ACFD) is also responsible for providing emergency fire and medical response to all residents of the unincorporated areas of Alameda County. The nearest ACFD station is located at 7000 East Avenue in the City of Livermore, approximately 8 miles west of the Project site.

CAL FIRE is also responsible for providing wildland fire protection, fire prevention, and resource management on more than 31 million acres of SRA lands throughout California. In addition, CAL FIRE provides emergency services to 115 local government cooperators through agreements with districts, cities, and counties. CAL FIRE is also responsible for fire protection and suppression activities in the area, as the Project site is located within a SRA. CAL FIRE Station 26 is located adjacent to the aforementioned Tracy Fire Station 94.

Primary fire services for the BESS would be provided by SJC Fire in San Joaquin County. The ACFD would provide fire services to the portion of the gen-tie corridor in Alameda County and the PG&E Tesla Substation. CAL FIRE would also provide secondary fire services to the entire Project site as the site is located entirely within the SRA.

4.18.2 Regulatory Setting

4.18.2.1 Federal

North American Electric Reliability Corporation Standards

The North American Electric Reliability Corporation (NERC) is a nonprofit corporation comprising six regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC 2022). To improve the reliability of regional electric transmission systems and

in response to the massive widespread power outage that occurred on the Eastern Seaboard in 2003, NERC developed a transmission vegetation management program. The program is applicable to all transmission lines operated at 200 kilovolts (kV) and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region.

The transmission vegetation management program, which became effective on April 7, 2006, establishes requirements of the formal transmission vegetation management program. Requirements include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, and take into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway. The clearances identified must be no less than those set forth in the Institute of Electrical and Electronics Engineers Standards Association (IEEE) Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) (IEEE 2003), which establishes minimum vegetation-to-conductor clearances to maintain electrical integrity of the electrical system.

Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 provides the legal basis for the Federal Emergency Management Agency's (FEMA) mitigation planning requirements for state, local, and tribal governments as a precursor to mitigation grant assistance. The Disaster Mitigation Act of 2000 requires that local governments prepare a Local Hazard Mitigation Plan (LHMP) that must be reviewed by the State Mitigation Officer, approved by FEMA, and renewed every 5 years. The plan must include a planning process, a risk assessment, a mitigation strategy, and plan maintenance and updating procedures to identify the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government. Natural hazards include earthquakes, tsunamis, tornadoes, hurricanes, flooding, and wildfires. The San Joaquin County LHMP is currently being updated and is anticipated to be adopted in January 2023 (San Joaquin County 2022b). The current Alameda County LHMP was adopted in December 2021 (Alameda County 2021).

4.18.2.2 State

California Public Resources Code

California Public Resources Code (PRC) Section 4290 requires CAL FIRE to adopt regulations implementing minimum fire safety standards for defensible space that would be applicable to lands within the SRA and lands within Very High FHSZs.

SRAs are defined by California PRC Section 4102 as areas of the state in which CAL FIRE has determined that the financial responsibility for preventing and suppressing fires lies with the State of California. SRAs are lands in California where CAL FIRE has legal and financial responsibility for wildfire protection. SRA lands typically are unincorporated areas of a county, are not federally owned, have wildland vegetation cover, have housing densities lower than three units per acre, and have watershed or range/forage value. In SRAs, CAL FIRE is required to delineate three hazard ranges: moderate, high, and very high; whereas LRAS, which are under the jurisdiction of local entities (e.g., cities, counties), are required to only identify very high fire hazard severity zones. The hazard ranges are measured quantitatively based on vegetation, topography, weather, crown fire potential (a fire's tendency to burn upward into trees and tall brush), and

ember production and movement within the area of question. Where SRAs contain built environment or development, the local government agency assumes responsibility for fire protection.

The California PRC includes fire safety provisions that apply to SRAs during the time of year designated as having hazardous fire conditions. During the fire hazard season, these regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided on-site for various types of work in fire-prone areas. Additional codes require that any person who owns, controls, operates, or maintains any electrical transmission or distribution line must maintain a firebreak clearing around and adjacent to any pole, tower, or conductors that carry electric current as specified in PRC Sections 4292 and 4293. Section 4292 also requires that a 10-foot area around the base of poles be cleared of all flammable vegetation.

LRAs include lands that do not meet criteria for SRAs or federal responsibility areas, or are lands in cities, cultivated agricultural lands, and nonflammable areas in the unincorporated parts of a county. LRAs can include flammable vegetation and wildland-urban interface areas. LRA fire protection is provided by the local fire departments, fire protection districts, county fire departments, or by contract with CAL FIRE.

California Fire Code

The California Fire Code (CFC) is contained within Title 24, Chapter 9, of the California Code of Regulations. Based on the International Fire Code (IFC), the CFC is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials, including ignitable ones, at fixed facilities. Similar to the IFC, the CFC and the California Building Code (CBC) use a hazards classification system to determine the appropriate measures to incorporate to protect life and property. The CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, fire hydrant locations and distribution, and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas. Chapter 49 of the CFC also includes requirements for Wildland-urban Interface Fire Areas, which prescribes construction materials and methods in FHSZs; requirements generally parallel CBC Chapter 7A.

Very High Fire Hazard Severity Zones Government Code 51177

Very High FHSZs are defined by Government Code Section 51177 as areas designated by the Director of CAL FIRE as having the highest possibility of having wildfires. These zones are based on consistent, statewide criteria and the severity of fire hazard that is expected to prevail in those areas. The zones are also based on fuel loading, slope, fire weather, and other factors, such as wind, which have been identified by CAL FIRE as a major cause of the spreading of wildfires. FHSZ maps are produced and maintained for each county.

2018 Strategic Fire Plan for California

Developed by the Board of Forestry and Fire Protection, the Strategic Fire Plan outlines goals and objectives to implement CAL FIRE’s overall policy direction and vision. The 2018 Strategic

Fire Plan goals revolve around fire prevention, natural resource management, and fire suppression efforts, as broadly construed (CAL FIRE 2018).

California Emergency Response Plan

Pursuant to the Emergency Services Act (Government Code Section 8550 et seq.), California has developed an Emergency Plan to coordinate emergency services provided by federal, state, and local governmental agencies and private persons. Response to hazardous materials incidents is one part of this plan. The plan is administered by the California Governor's Office of Emergency Services (Cal OES), which coordinates the responses of other agencies, including the U.S. Environmental Protection Agency, California Highway Patrol, the California Department of Fish and Wildlife, the RWQCB, the local air quality district, and local agencies. The Project site is located within District 5S/Central Valley of the RWQCB and within the San Joaquin Valley Air Pollution Management District (APMD). The portion of the Project site located in Alameda County, which includes the proposed gen-tie line and PG&E Tesla Substation improvements, is located in the Bay Area Air Quality Management District (AQMD).

The State Emergency Plan defines the "policies, concepts, and general protocols" for the proper implementation of the California Standardized Emergency Management System. The Standardized Emergency Management System is an emergency management protocol that agencies within the state of California must follow during multi-agency response efforts whenever state agencies are involved.

California Public Utilities Commission Requirements

General Order 95

General Order 95 governs the design, construction, and maintenance of overhead electrical lines and applies to work conducted by PG&E and the other Investor-owned Utilities (IOU)[1]. The replacement of poles, towers, or other structures is considered reconstruction and requires adherence to all strength and clearance requirements of this order. CPUC Decision 17-12-024 created enhanced requirements under Rule 18A, Rule 35, and Rule 38, which apply to overhead electric lines located in Tier 2 or Tier 3 HFTDs. The Project site is not located in a CPUC designated HFTD (CPUC 2022); therefore, the enhanced requirements would not apply to the Project.

General Order 165

General Order 165 establishes requirements for the inspection of electric distribution and transmission facilities that are not contained within a substation. Utilities must perform "patrol" inspections, defined as a simple visual inspection of utility equipment and structures that is designed to identify obvious structural problems and hazards, and must be performed at least once per year for each piece of equipment and structure. "Detailed" inspections, where individual pieces of equipment and structures are carefully examined, are required every 5 years for all overhead conductors and cables, transformers, switching/protective devices, and regulators/capacitors. By July 1 of each year, each utility subject to this General Order must

[1] IOUs are private electricity and natural gas providers. The CPUC regulates IOUs.

submit an annual report of its inspections for the previous year under penalty of perjury (CPUC 2017a).

General Order 166

General Order 166 Standard 1.E requires IOUs to develop a Fire Prevention Plan, which describes measures that the utility will implement to mitigate the threat of powerline fires generally. Additionally, this standard requires that IOUs outline a plan to mitigate powerline fires when wind conditions exceed the structural design standards of the line during a Red Flag Warning[2] in a high fire threat area. Fire Prevention Plans created by IOUs are required to identify specific parts of the utility's service territory where the conditions described above may occur simultaneously. Standard 1 also requires that utilities prepare an emergency response plan. PG&E's Emergency Response Plan, prepared in compliance with Standard 1, is described below. Standard 11 requires that utilities report annually to the CPUC regarding compliance with General Order 166 (CPUC 2017b).

PG&E Company Emergency Response Plan

PG&E's Company Emergency Response Plan describes and formalizes PG&E's in-place plans and protocols for response to emergencies. The plan identifies potential hazards, available resources to respond to emergencies, internal communication protocols, and operational structure. Additionally, PG&E's Wildfire Safety Operations Center operates 24 hours per day during wildfire season (PG&E 2019).

PG&E Wildfire Mitigation Plan

Pursuant to Senate Bill (SB) 901 and SB 1028, PG&E submitted its 2022 Wildfire Mitigation Plan (WMP) to the California Office of Energy Infrastructure Safety (OEIS or Energy Safety) on February 25, 2022. The WMP describes PG&E's approach to mitigate wildfire risk and is characterized by undergrounding powerlines to harden the system, expanding its Enhanced Powerline Safety Settings (EPSS) to all risk areas, applying new mitigation technology, continuing aggressive vegetation management, performing enhanced risk inspections and risk modeling, utilizing cameras and weather stations to improve situational awareness, and utilizing Public Safety Power Shutoffs (PSPS) as a final safety action.

The "over-arching objective of the [plan] is to is to reduce the risk and consequences of wildfires associated with utility electrical equipment, thereby avoiding catastrophic wildfires across central and northern California" (PG&E 2022).

Senate Bill 1028

SB 1028 (2016) requires each electrical corporation to construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment, and makes a violation of these provisions by an electrical corporation a crime under state law. The bill also requires each electrical corporation to annually prepare a WMP and submit to the CPUC for review. The plan must include a statement of objectives, a description of preventive strategies and programs that are focused on minimizing

[2] A "Red Flag Warning" is issued by the National Weather Service to alert fire departments of the onset, or possible onset, of critical weather and dry conditions that could lead to rapid or dramatic increases in wildfire activity.

risk associated with electric facilities, and a description of the metrics that the electric corporation uses to evaluate the overall WMP performance and assumptions that underlie the use of the metrics. PG&E released the 2022 WMP on February 25, 2022 (PG&E 2022).

Senate Bill 901

SB 901 (2018) expanded upon the WMP requirements of SB 1028 and included a number of provisions related to wildfire risk and management in California including, but not limited to, the following: budget adjustments related to emergency response and readiness, the creation of a CAL FIRE Wildfire Resilience Program, and increasing the maximum penalties that can be issued by the CPUC to a public utility that fails to comply with CPUC requirements. Additionally, the legislation requires that utilities prepare WMPs that include elements specified in the bill, such as the following:

1) A description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.
2) Protocols for disabling reclosers[3] and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure.
3) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the electrical corporation's service territory.

These WMPs are required to be reviewed by an independent evaluator.

4.18.2.3 Local

San Joaquin County General Plan

The Public Health and Safety Element of the San Joaquin County General Plan outlines the County's planning strategies regarding emergency management and response and addresses a variety of public health and safety hazards, including fire hazards. The following list consists of goals and policies of the Public Health and Safety Element relevant to Wildfires (San Joaquin County 2016):

> ***Goal PHS-1:*** *To maintain a level of disaster preparedness necessary for the protection of public and private property, and the health, safety, and welfare of people living and working in San Joaquin County.*
>
> > ***Policy PHS-1.10: Emergency Vehicles Access****. The County shall require all new developments to provide, and existing developments to maintain, adequate primary and alternative access for emergency vehicles.*
>
> ***Goal PHS-4:*** *To minimize the risk of wildland and urban fire hazards.*

[3] Reclosing devices, such as circuit breakers, are used to isolate circuit segments when abnormal system conditions are detected.

Policy PHS-4.3: Fire Prevention Measures*. The County shall implement State recommendations for fire prevention in Fire Hazard Severity Zones and require new and/or existing development to provide clearance around structures, use fire-resistant ground cover, build with fire-resistant roofing materials, participate in fuel load reduction, and take other appropriate measures.*

Alameda County East County Area Plan

The purpose of the East County Area Plan (ECAP) is to present a clear statement of the Alameda County's intent concerning future development and resource conservation within East County. The goals and policies in the ECAP are intended to inform decisionmakers, the general public, public agencies, and those doing business in Alameda County of the County's position on land use-related issues and to provide guidance for day-to-day decision making. The programs that follow the policies identify a set of specific actions the County will undertake to achieve the goals and policies of the plan (Alameda County 2000).

The proposed gen-tie line lies within Alameda County and is covered by the ECAP. The gen-tie line would be considered an allowable use as a utility corridor under the Large Parcel Agriculture designation of the ECAP. The Alameda County ECAP includes the following goals and policies that are relevant to the Project:

Goal: ***To minimize the risks to lives and property due to environmental hazards.***

Policy 134: *The County shall not approve new development in areas with potential natural hazards (flooding, geologic, wildland fire, or other environmental hazards) unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis.*

Policy 135: *The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.*

Goal: *To ensure the prompt and efficient provision of police, fire, and emergency medical facility and service needs.*

Policy 243: *The County shall require new developments to pay their fair share of the costs for providing police, fire, and emergency medical services and facilities.*

Policy 244: *The County shall require that new developments are designed to maximize safety and security and minimize fire hazard risks to life and property.*

Goal: *To minimize the risks to lives and property due to fire hazards.*

Policy 320: *The County shall consider, in reviewing development projects and subdivision of agricultural lands, the severity of natural fire hazards, potential damage from wildland and structural fires, the adequacy of fire protection services, road access, and the availability of an adequate water supply and pressure.*

2022 CAL FIRE Santa Clara Unit Strategic Fire Plan

The CAL FIRE Santa Clara Unit prepares an annual Strategic Fire Management Plan (SCU SFP) for each coming fire season. The 2022 SCU SFP documents an assessment of the fire situation in the Unit, includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions within the five counties (Santa Clara, Alameda, Contra Costa, San Joaquin, and Stanislaus) of the CAL FIRE Santa Clara Unit. The SCU SFP is developed to achieve the goals and objectives of the greater 2022 CAL FIRE Strategic Fire Plan for California.

As part of development of the SCU SFP, Pre-fire Engineering includes GIS mapping of values at risk, wildland fuel belts, and the maintenance of various other GIS data layers to assess the existing levels of wildland protection services, identify high-risk and high-value areas that are potential locations for costly and damaging wildfires, rank these areas in terms of priority needs, and prescribe what can be done to reduce future costs and losses. The SCU SFP provides planning information on a Unit-wide scale and recognizes the variation in fuels, weather, topography, and community/agency priorities present in each county. It is intended to be a dynamic planning tool for promoting wildfire protection efforts in the Unit (CAL FIRE 2022c).

San Joaquin County Emergency Operations Plan

The San Joaquin County Emergency Operations Plan (SJC EOP) establishes the central role of the San Joaquin County Emergency Operations Center (EOC) in the overall incident management of emergencies and major disasters, while emphasizing coordination with incident command(s) in the field as well as other emergency operations/coordination centers. Under this plan, the SJC EOC is responsible for collecting and disseminating information; fulfilling or forwarding resource requests; and setting priorities or policies specific to an incident.

The SJC EOP establishes a systematic and synchronized process to facilitate emergency preparedness, promote hazard mitigation, and coordinate emergency response and disaster recovery activities and actions. The SJC EOP identifies the primary responsibilities of San Joaquin County government before, during, and after emergencies and major disasters, while recognizing the significant roles of federal, tribal, state, and other local government agencies, as well as the private sector, and non-governmental organizations/private nonprofits (NGO/PNP).

The primary objective of the SJC EOP is to coordinate the personnel, facilities, and other resources of the County into an efficient organization capable of responding to any emergency, disaster, or planned event. The SJC EOP defines the emergency management organization and details the method by which the County will coordinate emergency response both internally within their jurisdiction and externally with outside response organizations. The SJC EOP further details the EOC, including activation, responsibilities, and operational procedures. The SJC EOP was last updated in February 2022 (San Joaquin County 2022c).

Alameda County Emergency Operations Plan

The purpose of the Alameda County Emergency Operations Plan (AC EOP) is to establish the foundational policies and procedures that define how Alameda County will effectively prepare for, respond to, recover from, and mitigate against natural or human-caused disasters. It provides a description of the emergency management organization and how it is activated. The AC EOP, adopted in December 2012, establishes policies and procedures, in addition to assigning

responsibilities to ensure the effective management of emergency operations within the Alameda Operational Area. Cities and towns within the County participate in the Alameda Office of Emergency Services coordination of emergency management activities (Alameda County 2012).

Alameda County Community Wildfire Protection Plan

The Community Wildfire Protection Plan (CWPP) for Alameda County, updated in 2015, provides a comprehensive analysis of wildfire hazards and risks in the wildland-urban interface of Alameda County. The CWPP contains an action plan, which identifies wildfire mitigation measures. These measures are organized into four broad categories, including education planning priorities, enhanced suppression capability and emergency preparedness, fuel reduction treatments, and improving survivability of structures. The goal of the CWPP is to reduce hazard through increased information and education about wildfires, hazardous fuels reduction, actions to reduce structure ignitability, and other recommendations to assist emergency preparedness and fire suppression efforts (Alameda County 2015).

San Joaquin County Local Hazard Mitigation Plan

In September 2022, the San Joaquin County Office of Emergency Services launched an effort to reassess risks posed by natural and human-caused disasters and identify ways to reduce those risks and began updating the previously FEMA-approved 2018 LHMP. The LHMP intends to provide strategies for the County and other local jurisdictions to identify and implement mitigation actions for reducing damages from various natural and technological disasters. The LHMP outlines a process for assessing and analyzing those hazards to which San Joaquin County is most vulnerable. The process can improve the County's resilience by performing a hazard risk assessment, using available tools to complete a capabilities assessment, and then identifying mitigation actions for these hazards. The LHMP analyzes the risk posed to people and property by earthquakes, landslides, floods, wildfires, drought, severe weather, and other hazards, such as climate change, and considers mitigation actions that the County could implement before such events. The goal is to reduce the risk to life and safety and the risk of property damage and service disruption caused by these natural hazards. The LHMP establishes prioritized mitigation goals and adopts a 5-year implementation timeline, which the County would seek to implement, subject to funding and resource limitations (San Joaquin County 2022b).

Alameda County Local Hazard Mitigation Plan

The Alameda County LHMP was last updated in 2021 and adopted by the County Board of Supervisors and approved by FEMA in March 2022. The purpose of this plan, a requirement of FEMA, is to identify the natural hazards in our area, determine how they will impact our community, and develop strategies to lessen the effect of those hazards and create a more disaster resilient Alameda County. The plan includes a discussion of climate change adaptation and will also maximize the CRS credit for County residents under the auspices of the NFIP (Alameda County 2022).

4.18.3 Thresholds of Significance

A project would result in significant wildfire impacts if located in or near state responsibility areas or lands classified as very high fire hazard severity zones, and would:

a) *Substantially impair an adopted emergency response plan or emergency evacuation plan;*

b) *Due to slope, prevailing winds, and other factors, would exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildfire;*

c) *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or*

d) *Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

4.18.4 Impact Analysis

IMPACT 4.18-1: *Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?* **(No Impact)**

The Project is entirely located within a High FHSZ within the SRA and the nearest Very High FHSZ is located approximately 3.5 miles southwest of the Project site (Figure 4.18-1). The primary fire protection services in the vicinity of the Project site are provided by SJC Fire. However, CAL FIRE is responsible for providing wildland fire protection, fire prevention, and resource management within SRA lands throughout California. The ACFD would also provide fire services to the portion of the gen-tie corridor in Alameda County and the PG&E Tesla Substation.

The Project would comply with all applicable CAL FIRE and San Joaquin County Fire Protection District requirements, including those regarding site access. The Project would also incorporate fire protection measures in accordance with the requirements set forth by the County through the Site Approval application process.

As discussed in Sections 4.9, *Hazards and Hazardous Materials,* and 4.15, *Transportation,* the Project would not have an impact on emergency response, evacuation routes, and emergency access during construction, operation, and decommissioning. Due to the Project's location in a rural area of San Joaquin County and the gen-tie line's location in rural Alameda County, the Project site is not located near any established evacuation routes and would not require any road closures during any Project phase (San Joaquin County 2022d). Further, the Project would not result in population growth in the area, which could strain emergency evacuation efforts. Construction and decommissioning would also be temporary and short-term in nature, and construction of the Project would require approximately 60 workers at peak, with average number of workers on-site anticipated to be approximately 10 to 60 people. Decommissioning of the Project would require a similar workforce. During Project operation, one or two workers would visit the site on a weekly basis. Thus, due to the rural location of the Project and the minimal personnel required for all Project phases, the Project would result in no impact with regard to the substantial impairment of an adopted emergency response plan or emergency evacuation plan.

Mitigation: None required.

IMPACT 4.18-2: *Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildlife?* **(Less than Significant Impact)**

Construction and Decommissioning

During Project construction and decommissioning, the primary fire hazards would be heat or sparks from vehicles and construction equipment. These hazards could potentially ignite dry vegetation at the Project site, especially during the warmer, dry months between June and October. Additionally, construction activities, such as welding and grinding, could generate sparks that would increase the likelihood of ignition. Thus, depending on the time of year and location of construction activities at the Project site, there could be a temporary increase in exacerbated fire risk in the area due to these other factors. However, California Department of Industrial Relations Division of Occupational Safety and Health (Cal/OSHA) Title 8 Regulations include Subchapter 4, *Construction Safety Orders*, Article 36, *Fire Protection and Prevention*, which contains standard practices to minimize the potential for fires during construction. The Project would adhere to all applicable fire protection and prevention measures to limit the potential for fires during construction.

Combustible vegetation or agricultural products on and around the Project boundary would be actively managed by the Project owner or its affiliates during both the construction and decommissioning phases of the Project to minimize fire risk. Combustible products would be either limited in height or removed. Additionally, the Project would include firebreaks around the site boundary in the form of access roads subject to County standards.

While the Project site is located in an area with some rolling hills, and winds could exacerbate a potential fire under certain weather conditions, the Project would be constructed on a single terrace and would not be expected to affect wind patterns. Most importantly, the Project would not include any occupants who could be exposed to wildfire risks. Construction and decommissioning workers would be working on-site during respective phases of the Project, but construction and decommissioning would be short-term in nature and upon completion, the Project site would not include any permanent workers or occupants. Therefore, the Project would not expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, or other factors, and no significant impact would occur during construction and decommissioning.

Operation

The Project would include a BESS and other supporting electrical equipment elements that may be susceptible to fire. Project operations and maintenance (O&M) may introduce potential ignition sources, such as transformers, inverters, electric transmission line (including the gen-tie line), substations, maintenance vehicles, gas/electric-powered machinery, and batteries. However, the potential fire risk is low for these Project components. All battery components for the BESS would be installed on concrete pads and contained within an enclosure to minimize the potential for sparks or ignition. Fire detection measures would be incorporated in the Project design in accordance with National Fire Protection Association (NFPA) safety standards.

Prior to operations, the Applicant would meet with the appropriate local fire departments to provide a tour of the site, including review of access points and major Project components; review the

site's emergency response plan, which would include Material Safety Data Sheets as appropriate; and educate and train first responders with regard to any specific safety concerns related to the use of battery storage components and the safety systems in place.

The Project would also be designed, operated, and ultimately disposed of in compliance with all applicable requirements, including the CFC and Section 608 of the IFC, which has been adopted by the State of California, to minimize risk of fire from stationary BESS and contain fire in the event of such an incident. Additionally, Article 480 of the National Electrical Code identifies insulation and venting requirements for stationary storage batteries to further reduce potential fire risk. Intermittent maintenance activities could increase the potential for ignition on-site due to the presence of vehicles and use of equipment; however, given the low frequency and nature of maintenance activities (one or two workers visiting the site on a weekly basis), Project O&M would not significantly exacerbate wildfire risks. However, most importantly, the Project would not include any occupants which could be exposed to wildfire risks. Therefore, the Project would not expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, or other factors, and no significant impact would occur during operation.

Mitigation: None required.

IMPACT 4.18-3: *Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?* **(Less than Significant Impact)**

The Project is entirely located within a High FHSZ within the SRA and the nearest Very High FHSZ is located approximately 3.5 miles southwest of the Project site (Figure 4.18-1). Project components would include the installation and maintenance of infrastructure associated with the BESS, such as roads, fuel breaks, and powerlines. The proposed BESS is considered a Major Utility pursuant to Division 14, Section 9-115.580, of the San Joaquin County Municipal Code. The Project would include powerlines (including the proposed gen-tie transmission lines) and other electrical components, such as transformers, inverters, substations, maintenance vehicles, gas/electric-powered machinery, and batteries. Within both San Joaquin County and Alameda County, the proposed gen-tie line and tie-in to the existing PG&E Tesla Substation would also be required to comply with transmission vegetation management standards established by NERC.

The Project would be designed in compliance with federal, state, and local worker safety and fire protection codes and regulations, which would minimize the potential for the occurrence of fire. As described in Section 2.5.2.3, *Fire Safety,* of Chapter 2, *Project Description,* each battery enclosure unit would have a fire rating in conformance with local fire authority and County standards, via compliance with the California Fire Code 2022. The Project's fire protection design would comply with California Fire Code Section 1207 Electrical Energy Storage Systems, which adopts the NFPA's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). Project maintenance and operation may introduce potential ignition sources, such as transformers, inverters, electric transmission line (including the gen-tie line), substations, maintenance vehicles, gas/electric-powered machinery, and batteries. However, the potential fire risk is low for these Project components. All battery components for the BESS would be installed on concrete pads and contained within an enclosure to minimize the potential for sparks or

ignition. Fire detection measures would be incorporated in the Project design in accordance with NFPA safety standards.

The Project will also comply with applicable local and state fire code requirements, standards from Underwrites Laboratories (UL; safety organization), and the NFPA. Specifically, the selected battery technology for the Project will comply with UL 9540A testing. UL 9540A testing is performed by the battery manufacturer/vendor to prevent thermal runaway and mitigate fire risk. Some of the measures to mitigate fire risk include heating, ventilation, air conditioning, sprinkler system, early smoke detection, alarms, and remote monitoring. The latest UL 9540A testing criteria for battery units such as those proposed for the Project specifically test for the potential for thermal runaway to prevent a thermal runaway event. The latest technology in battery storage has established a design such that in the unlikely event a combustion episode occurs, the combustion would be contained to a single battery container and not result in thermal runaway that could affect neighboring units. The fire protection and prevention technology employed in battery storage units based on battery models available on the current market is specifically designed to prevent a combustion event, and then subsequently put through UL9540A testing to confirm a combustion event that could result in a fire hazard would not occur. In fact, a recent study conducted by the Fire Protection Research Foundation titled “Hazard Assessment of Lithium-Ion Battery Energy Storage Systems” tested an older model of battery in an attempt to intentionally cause a thermal runaway event to determine the potential for thermal runaway, and the attempt failed, demonstrating the fire prevention integrity of such units to prevent combustion and thermal runaway from occurring (NFPA 2016).

Compliance with these standards and certification includes a Battery Management System (BMS) design that detects high temperatures at the battery cell or battery module level and automatically shuts down the battery rack. Furthermore, installation of battery units would follow manufacturer specifications for the spacing of batteries and clearance distances to further prevent a thermal runaway event. Each unit would also be equipped with thermal management systems for thermal management of the batteries. Power to the thermal management system and lighting would be provided through a connection to the on-site station service transformer with connection lines installed above and/or below ground. Cabinets housing batteries are designed with adequate ventilation and will also be equipped with carbon monoxide (CO) detection that would alert the remote monitoring facility that the sensor has been activated.

The Project would require water for dust suppression during construction and decommissioning activities, and operational water use would be nominal. The Project would also include firebreaks around the site boundary in the form of access roads subject to the standards of each County. Combustible vegetation or agricultural products on and around the Project boundary would be actively managed by the Project owner or its affiliates during the construction, operation, and decommissioning phases of the Project to minimize fire risk. Combustible products would be either limited in height or removed. These measures (i.e., dust suppression) and Project components (i.e., batteries) are considered to be part of the Project. Accordingly, the environmental impacts that could result from Project measures and components have been analyzed throughout this Draft EIR, and no additional impacts (beyond those that are identified in this Draft EIR) would occur. The Project would not require the installation or maintenance of associated infrastructure outside of these Project measures and components included as part of the Project and analyzed in this Draft EIR. Therefore, the Project would have a less-than-

significant impact related to the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

Mitigation: None required.

IMPACT 4.18-4: *Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?* **(Less than Significant Impact with Mitigation Incorporated)**

The Project is entirely located within a High FHSZ within the SRA and the nearest Very High FHSZ is located approximately 3.5 miles southwest of the Project site (Figure 4.18-1). The Project site is in an area with some rolling hills, and development of the Project could potentially affect runoff and drainage patterns due to site preparation, which would require cut and fill to create a single terrace on which the batteries would be installed. However, no grading that may obstruct, impede, or interfere with the natural flow of storm waters would occur. The site drainage is designed to follow the natural drainage pattern of the site. The Project would include swales and armored outlets to direct stormwater, as shown in the preliminary grading and site plan provided as Figure 2-2 of Chapter 2, *Project Description,* and in accordance with San Joaquin County and State of California standards. Additionally, as discussed in Section 4.7, *Geology, Soils, and Paleontological Resources,* of this Draft EIR, there are no mapped landslides on or around the Project site or the gen-tie corridor (DOC 2022). Accordingly, flooding or landslides due to runoff, slope instability, or drainage would be adequately managed during Project operation through proper site design.

Site preparation and construction activities would be performed in accordance with a Stormwater Pollution Prevention Plan (SWPPP) that incorporates stormwater best management practices (BMP) to reduce the adverse effects of erosion and sedimentation, as required by **Mitigation Measure GEO-1**. The SWPPP would apply to the entire Project, including the BESS located within San Joaquin County, and the gen-tie line and PG&E Tesla Substation tie-in located within Alameda County. Such practices would include, for example, the use of water trucks to manage dust; silt fencing, straw wattles, temporary catch basins, and inlet filters to control stormwater; and truck tire muck shakers or similar devices to prevent mud and debris from being carried onto roadways. Similar measures would be implemented during Project decommissioning. Finally, as discussed in Section 4.10, *Hydrology and Water Quality,* impacts associated with runoff and erosion due to water flows would be less than significant. Thus, the Project would not result in changes to runoff, slope instability, or drainage patterns that have the potential to exacerbate downslope or downstream flooding or landslides and thereby expose people or structures to associated risks.

Regarding the exposure of people or structures to wildfire risks, the Project would not result in the exposure of construction, operation, or decommissioning workers to significant wildfire risks, as discussed under the previous **Impacts 4.18-1, 4.18-2,** and **4.18-3** above. Additionally, potential fire risk of Project structures would be low, including from transformers, inverters, electric transmission line (including the gen-tie line), substations, maintenance vehicles, gas/electric-powered machinery, and batteries. All battery components for the BESS would be installed on concrete pads and contained within an enclosure to minimize the potential for sparks or ignition. Fire detection measures would be incorporated in the Project design in accordance with NFPA

safety standards. Such measures would reduce wildfire risk onsite, thereby reducing the secondary risk of runoff, post-fire slope instability, or drainage changes due to onsite fires.

Other people and structures with the potential to be exposed to runoff, post-fire slope instability, or drainage changes include rural residences west, southwest, and north of the Project site. However, for the reasons previously discussed, these residences would not be exposed to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Therefore, the Project would have a less-than-significant impact with regard to the exposure of people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Mitigation: GEO-1.

4.18.5 PG&E Tesla Substation Improvements and Gen-tie

To accommodate the Project, PG&E would be responsible for siting, design, and construction of the gen-tie transmission line from the point of change of ownership (POCO) to their substation. Two options are available for the gen-tie line route from this point. The first option would be to connect via an aboveground line from the POCO to a point on the west side of the southwestern boundary of the substation. The second option is to enter the substation on the southwestern edge by way of a belowground line as shown in Figure 2-1 of Chapter 2, *Project Description*. Either right-of-way corridor is assumed to be up to 100 feet in width.

Additionally, PG&E would upgrade the Tesla Substation, and the improvements would include the installation of a grounding system, disconnect switches, surge arresters, outdoor lighting and outlets, and fiber termination for the gen-tie line. The improvements made would be within the existing Tesla Substation footprint.

As a result of these substation improvements and PG&E construction of the gen-tie from the POCO to their substation, it is anticipated that there would be minimal impacts related to wildfire hazards. These improvements are not likely to impede or conflict with any emergency plans or evacuation routes, nor would the impacts exacerbate wildfire risks and the potential pollutants caused by wildfires. The improvements would not build any housing facilities and, thus, would not increase the risk of direct impacts caused by wildfires. Construction impacts would be similar to those of the battery energy storage facility and would be regulated by the same regulations as previously discussed. Operation and decommissioning impacts would also be similar to those of the battery energy storage facility, which would be less than significant. The gen-tie line is also within a relatively flat area and would not result in significant impacts related to flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. The gen-tie line and Tesla Substation improvements would also be designed, operated, and ultimately disposed of in compliance with all applicable requirements, including the CFC. Therefore, there would be no significant impacts and no mitigation would be required.

4.18.6 Cumulative Impacts

The Project would not impair the ability to implement an emergency response or emergency evacuation plan. Therefore, the Project would not cause or contribute to any cumulative impacts

to emergency response or evacuation. The potential for the Project to cause or contribute to a potential, significant cumulative impact with respect to the remaining wildfire considerations is evaluated below.

The geographic scope for potential cumulative impacts to wildfire encompasses the Project site and the surrounding areas, which consist of agricultural and utility land uses. Ongoing impacts relating to wildfire considerations of past projects are reflected in the environmental setting described in Section 4.18.1. While existing land uses could provide ignition sources, operating battery energy storage projects and agricultural uses do not present a significant risk with respect to ignition sources. In combination with other projects in the vicinity, including the Kola Interconnect Battery Energy Storage Project located approximately 0.1 mile southwest of the Project site, the Project could increase the potential for ignition sources. However, given the Project's design in compliance with the CFC and the lack of thick vegetation within the geographic scope, the impact of an increase in ignition sources of the Project in combination with the incremental impacts of other cumulative projects would be less than significant. Additionally, other projects would be subject to compliance with federal, state, and local worker safety and fire protection codes and regulations, and applicable fire protection standards, similar to the Project. Therefore, the Project would not contribute to significant cumulative wildfire impacts.

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5 COMPARISON OF ALTERNATIVES

5.1 INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15126.6, this Draft Environmental Impact Report (EIR) contains a comparative impact assessment of alternatives to the proposed Griffith Energy Storage Project (Project). The primary purpose of an alternatives analysis is to provide decision-makers and the public with a reasonable number of feasible project alternatives that could attain most of the basic project objectives, while avoiding or reducing any of the project's significant adverse environmental effects. Important considerations for this alternative analysis are noted below (as stated in CEQA Guidelines Section 15126.6):

- An EIR need not consider every conceivable alternative to a project;
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process;
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives;
  - Infeasibility; or
  - Inability to avoid significant environmental effects.

5.1.1 Significant Unavoidable Impacts

CEQA requires that alternatives to a proposed project have the potential to avoid or substantially lessen one or more significant effects of the project (CEQA Guidelines Section 15126.6). At the Project and/or cumulative level, the Draft EIR has not identified any environmental issues that may result in significant and unavoidable impacts.

5.1.1.1 Alternatives to the Proposed Project

The three alternatives to the proposed Project analyzed in this section are as follows:

No Project Alternative: The Project site would not be developed and would remain in its existing condition.

Three-Terrace Southeast Corner Alternative: Under the Three-Terrace Southeast Corner Alternative, the site would be set back from residences along West Patterson Pass to the north and Midway Road to the west. The facilities would be sited on three terraces with approximately the same final footprint as the Project, as shown in Figure 5-1. This alternative would otherwise be as described in Chapter 2, *Project Description*.

Northern Site Alternative: The Northern Site Alternative would relocate the Project to a parcel north of the Project site and north of West Patterson Pass Road, which is approximately 142 acres in size, shown in Figure 5-2. This alternative would otherwise be as described in Chapter 2, *Project Description*.

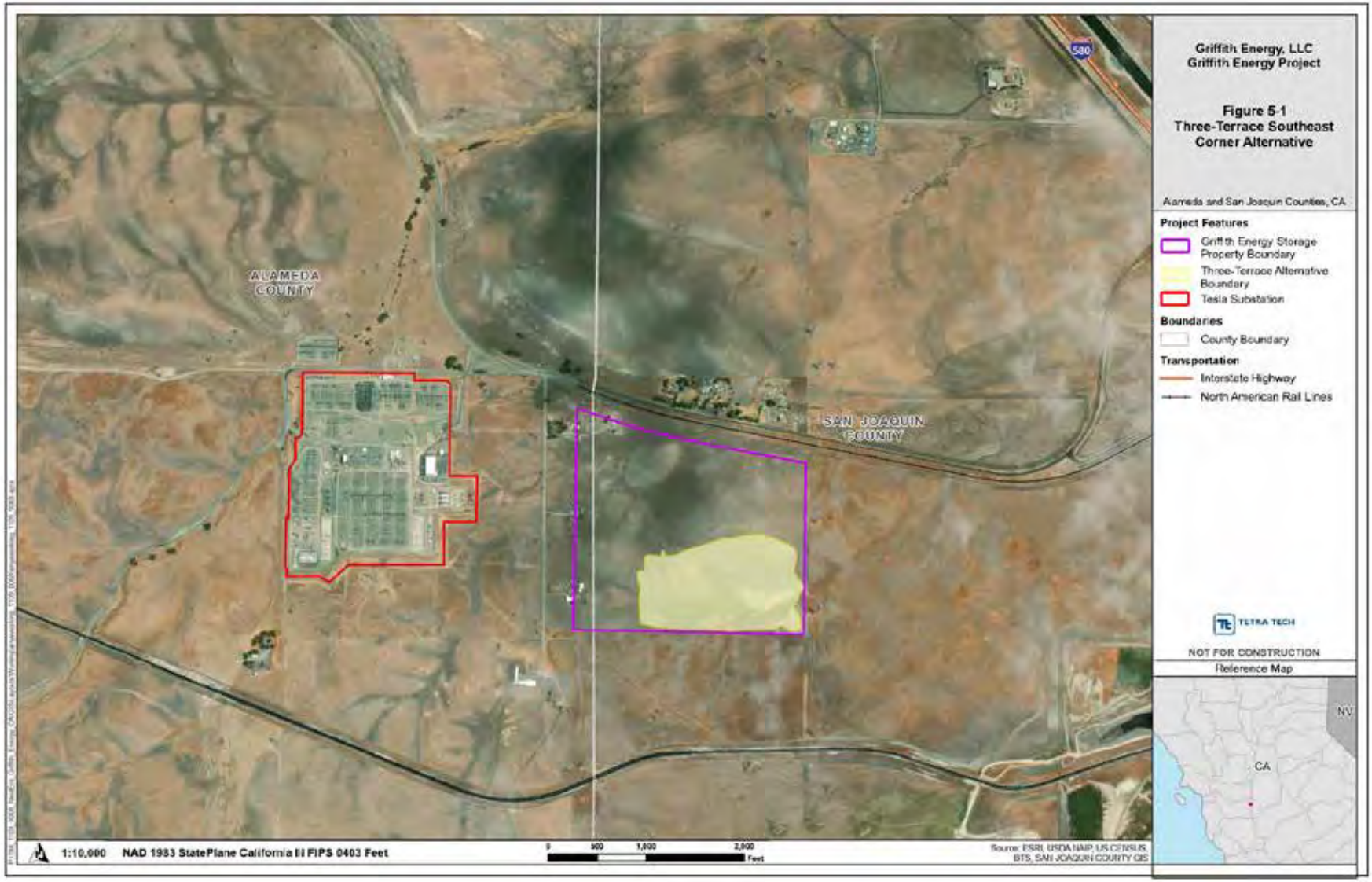


Figure 5-1. Three-Terrace Southeast Corner Alternative

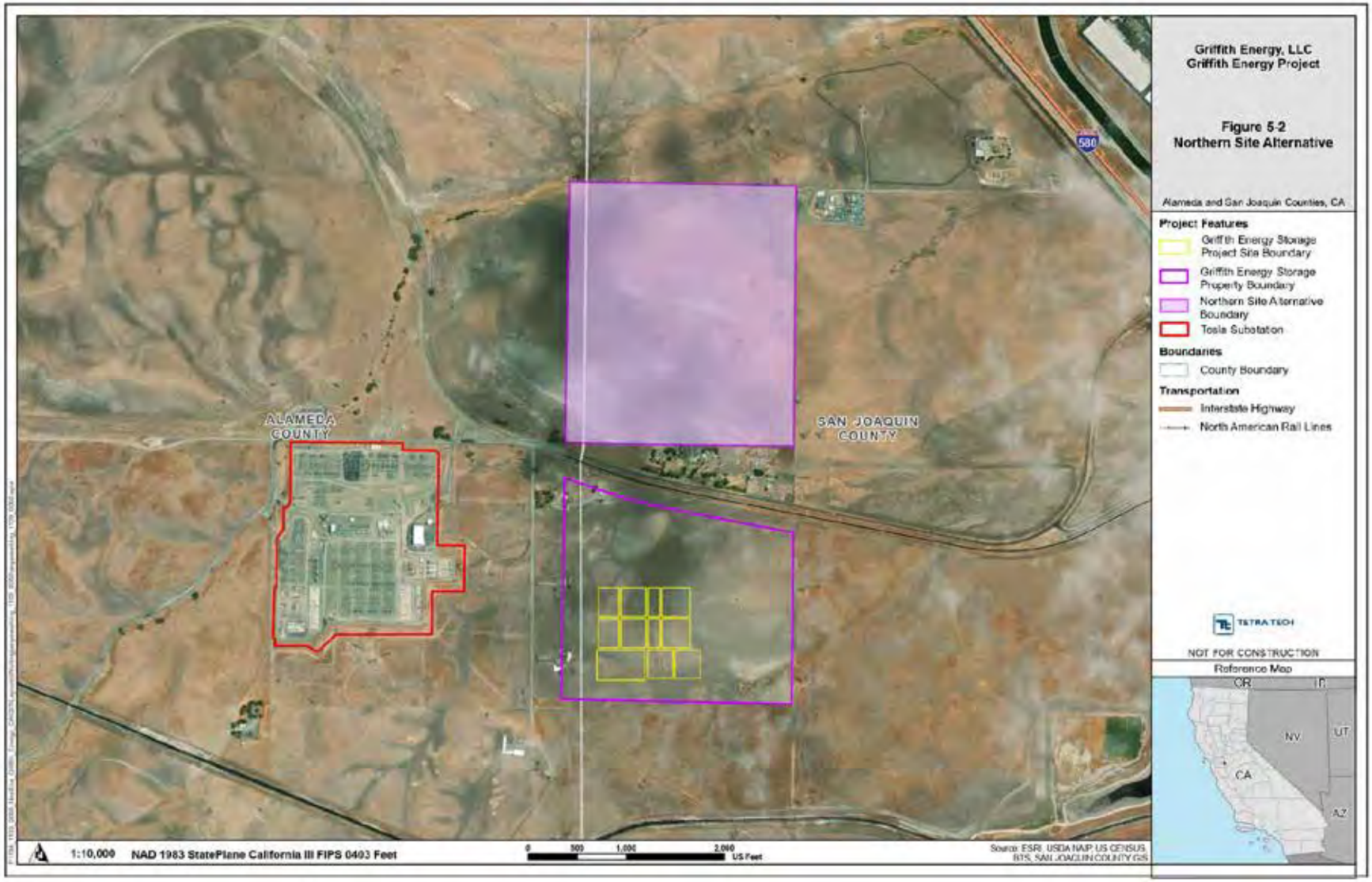


Figure 5-2. Northern Site Alternative

A comparison of the alternatives is included in Table 5-1 and the following sections.

Table 5-1. Alternatives Comparison

Resource Area	Project	No Project	Three-Terrace Southeast Corner	Northern Site
Aesthetics	Impacts determined to be less than significant	-	-	+
Agriculture and Forestry Resources	Impacts determined to be less than significant with mitigation incorporated.	-	=	=
Air Quality	Impacts determined to be less than significant with mitigation incorporated.	-	+	=
Biological Resources	Impacts determined to be less than significant with mitigation incorporated.	-	=	=/+
Cultural Resources	Impacts determined to be less than significant with mitigation incorporated.	-	+	=/+
Energy	Impacts determined to be less than significant.	-	+	=
Geology, Soils, and Paleontological Resources	Impacts determined to be less than significant with mitigation incorporated.	-	=/-	=
Greenhouse Gas Emissions	Impacts determined to be less than significant.	-	+	=
Hazards and Hazardous Materials	Impacts determined to be less than significant.	-	=	=
Hydrology and Water Quality	Impacts determined to be less than significant.	-	=	=/+
Land Use and Planning	Impacts determined to be less than significant.	=	=	=
Mineral Resources	No impacts determined.	=	=	=
Noise	Impacts determined to be less than significant with mitigation incorporated.	-	=/-	=
Public Services	No impacts determined.	=	=	=
Transportation	Impacts determined to be less than significant.	-	=	=
Tribal Cultural Resources	Impacts determined to be less than significant with mitigation incorporated.	-	+	=/+
Utilities and Service Systems	Impacts determined to be less than significant.	-	=/+	=
Wildfire	Impacts determined to be less than significant.	-	=	=

"-" = less impact than the Project; "+" = greater impact than the Project; "=" = similar impact to the Project

5.2 PROJECT OBJECTIVES

A comparison of the alternatives achievement of Project objectives is presented in Table 5-2 and described in subsequent sections below.

1. Construct and operate a 400-megawatt (MW) battery energy storage system (BESS) in San Joaquin County with an interconnection at the Tesla Substation (located in Alameda County) in a cost-competitive manner.
2. Assist California utilities in meeting their obligations under California's Renewable Portfolio Standard Program and Senate Bill (SB) 100, which calls for 100 percent of all electricity sold in California to come from carbon-free resources by the year 2045, including 60 percent renewables by 2030, and SB 1020, which requires utility providers to supply

90 percent and 95 percent of supplied electricity from renewable sources by 2035 and 2040, respectively.

3. Assist California utilities in meeting their obligations under the CPUC Energy Storage Framework and Design Program.
4. Provide for the economically viable, commercially financeable, and environmentally beneficial use of the site's limited agricultural capacity due to the absence of available irrigation.
5. Develop a site in proximity to transmission infrastructure to minimize environmental impacts.
6. Develop a battery energy storage facility in San Joaquin County, which would support the economy by investing in the local community, creating local construction jobs, and increasing tax and fee revenue to the County.

Table 5-2. Alternatives and Objectives

Project Objective	Project	No Project	Three-Terrace Southeast Corner	Northern Site
1. Construct and operate a 400-MW BESS in San Joaquin County with an interconnection at the Tesla Substation (located in Alameda County) in a cost competitive manner.	Y	N	Y	Y
2. Help to meet SB 100, which would obtain 100 percent electricity by 2045.	Y	N	Y	Y
3. Assist California utilities to meet their obligations under CUPC's Energy Storage Framework and Design Program.	Y	N	Y	Y
4. Provide for the economically viable, commercially financeable, and environmentally beneficial use of the site's limited agricultural capacity.	Y	N	Y	Y
5. Develop a site in proximity to transmission infrastructure to minimize environmental impacts.	Y	N	N	N
6. Develop a battery energy storage facility in San Joaquin County, which would support the economy by investing in the local community, creating local construction jobs, and increasing tax and fee revenue to the County.	Y	N	Y	Y

5.3 NO PROJECT ALTERNATIVE

For the No Project Alternative, the Project site would continue to be used for agricultural grazing and the existing environmental setting would be maintained. Changes to the environmental setting, including changes to visual resources, habitat, and land use/agriculture, would not occur. Project-related impacts, such as construction noise, traffic, and air emissions, would not occur, and potential ground disturbance impacts to cultural and tribal resources and wildlife habitat would not occur. Additionally, the environmental benefits associated with energy resources and GHG reduction related to renewable energy generation would not be realized from solar development of the site. It is reasonable to assume that the land will remain in agricultural production for the foreseeable future if the Project is not approved based on current plans and consistent with available infrastructure and community services.

Under the No Project Alternative, all Project-related impacts would be avoided due to the lack of development of the Project site. There would be no new impacts to the environment. No feasibility issues have been identified, which would eliminate the No Project Alternative from consideration;

however, the No Project Alternative would not meet any of the Project objectives. The No Project Alternatives is being analyzed in this Draft EIR because this analysis is required by CEQA.

5.3.1 Impact Analysis

5.3.1.1 Aesthetics

Under this alternative, there would be no development of battery energy storage facilities on the site or other ground-disturbing activities. No changes in the visual setting would occur; therefore, there would be no impacts to aesthetics.

5.3.1.2 Agriculture and Forestry Resources

Under the No Project Alternative, there would be no need for a Williamson Act contract cancellation. The Project site would continue to be used for grazing and other agricultural uses. As a result, this alternative would not result in any impacts to agriculture or forestry resources.

5.3.1.3 Air Quality

The No Project Alternative would not create new sources of regional air emissions; therefore, there would be no impact to air quality.

5.3.1.4 Biological Resources

Since there would be no changes to land uses under this alternative, no impacts to existing biological resources on or surrounding the proposed Project site would occur.

5.3.1.5 Cultural Resources

Most of the proposed Project area has been disturbed by past agricultural activities. This alternative would not include any new type of ground-disturbing activities or involve removal of any cultural resources. No impacts to cultural resources would occur.

5.3.1.6 Energy

This alternative would not introduce new land uses that would generate construction or operational energy demands. No impacts to existing energy resources would occur; however, the environmental benefits associated with energy resources related to renewable energy generation would not be realized from solar development of the site.

5.3.1.7 Geology, Soils, and Paleontological Resources

This alternative would not include any new development on the site, any new type of ground-disturbing activities, or involve removal of any paleontological resources. No impacts to geology and soil resources would occur.

5.3.1.8 Greenhouse Gas Emissions

This alternative does not include uses that would create new sources of regional air emissions and contribute to global climate change. There would be no impacts due to GHG emissions; however, the environmental benefits associated with energy efficiency and reliability would not be realized.

5.3.1.9 Hazards and Hazardous Materials

This alternative would not include any new development on the site or other ground-disturbing activities. No impacts associated with the accidental release of hazardous substances during

construction and operation or with the potential for disturbing unknown hazardous materials during construction would occur.

5.3.1.10 Hydrology and Water Quality

This alternative would not include any new development on the site or other ground-disturbing activities that would alter the hydrology of the site; therefore, no impacts would occur.

5.3.1.11 Land Use and Planning

This alternative would not include any new development on the site or involve any activities that would not be consistent with the County's general plan policies and Zoning Ordinance. As a result, there would be no impact to land use and planning.

5.3.1.12 Mineral Resources

This alternative would not include any new development on the site or other ground-disturbing activities. There would be no changes to the physical environment that could result in a loss of the availability of a known mineral resource that may be of value to the region or of a locally important mineral resource recovery site; therefore, no impacts would occur.

5.3.1.13 Noise

This alternative would not introduce new land uses that would generate construction or operational noise that would increase the ambient noise levels in the surrounding area. No impacts to existing noise levels would occur.

5.3.1.14 Public Services

Under the No Project Alternative, no new demands on public services would occur; therefore, no impacts would occur.

5.3.1.15 Transportation

Under this alternative, development of the proposed Project site would not occur. The proposed Project site would remain undeveloped and vehicle miles traveled would not increase as a result of this alternative. This alternative would not have any impacts to the existing transportation system or traffic volumes.

5.3.1.16 Tribal Cultural Resources

Most of the proposed Project area has been disturbed by past agricultural activities. This alternative would not include any new type of ground-disturbing-activities or involve removal of any tribal cultural resources. No impacts to tribal cultural resources would occur.

5.3.1.17 Utilities and Service Systems

Under the No Project Alternative, no new utilities would be needed for the operation of the Project site; therefore, no impacts would occur.

5.3.1.18 Wildfire

This alternative would not include any new development on the Project site or involve any activities that would increase risk of wildfire. As a result, there would be no impact associated with wildfire.

5.3.2 Conclusion and Relationship to Project Objectives

The No Project Alternative would result in the continuation of existing conditions on the proposed Project site. This would be the environmentally superior alternative as no impacts would occur if the proposed Project site were to remain undeveloped. However, the six Project objectives would not be met, and the environmental benefits associated with energy reliability and associated GHG reduction would not be realized from development of the Project site as a battery energy storage facility.

5.4 THREE-TERRACE SOUTHEAST CORNER ALTERNATIVE

Under the Three-Terrace Southeast Corner Alternative, the site would be set back from residences along West Patterson Pass to the north and Midway Road to the west. The facilities would be sited on three terraces with approximately the same final footprint as the Project, as shown in Figure 5-1. This alternative would otherwise be as described in Chapter 2, *Project Description*. The Three-Terrace Southeast Corner Alternative was selected for analysis because it would slightly reduce impacts to aesthetics and noise by setting the Project site back farther from public roads and residences.

5.4.1 Impact Analysis

5.4.1.1 Aesthetics

Under the Three-Terrace Southeast Corner Alternative, all visual elements of the Project would remain the same as the Project, except the layout would require three terraces and would be approximately 800 feet to the east, farther from Midway Road and associated residences. The area of the Project site would decrease, removing the northwest parcel and small additional setbacks from the northern, western, and southern boundaries. Visual impacts associated with the Project are less than significant. The Three-Terrace Southeast Corner Alternative would further reduce the less than significant visual impact of the battery energy storage facility, and the visual impact of the Three-Terrace Southeast Corner Alternative would reduce the less than significant impact of the proposed Project.

5.4.1.2 Agriculture and Forestry Resources

Under the Three-Terrace Southeast Corner Alternative, battery energy storage facilities would be installed on agricultural properties under a Williamson Act contract and a Williamson Act contract cancellation would still be required. With the implementation of Mitigation Measure **AGR-1**, impacts would be less than significant. Therefore, under this alternative, the less than significant impact after mitigation due to conflict with an existing Williamson Act contract would be similar to the impact of Project.

5.4.1.3 Air Quality

The Three-Terrace Southeast Corner Alternative would develop battery energy storage facilities on the Project site, but with an alternative site layout that would require three terraces and additional grading. Site preparation would require 472,822 cubic yards of cut (65,898 cubic yards more than the Project) and 476,911 cubic yards of fill (71,270 cubic yards more than the Project). The greater amount of earthwork would require a greater number of construction equipment use, such that the Three-Terrace Southeast Corner Alternative would proportionately increase impacts to air quality from ground disturbance, construction, and decommissioning activities as additional

heavy equipment would be required for construction. Compared to the Project, the air quality impacts of the Three-Terrace Southeast Corner Alternative would be greater.

5.4.1.4 Biological Resources

Under the Three-Terrace Southeast Corner Alternative, potential impacts to special status species during construction and to migratory birds during operation and maintenance of the Project would remain. Mitigation Measures **BIO-1** through **BIO-3** would be required. Impacts would be similar to the Project.

5.4.1.5 Cultural Resources

Under the Three-Terrace Southeast Corner Alternative, potential impacts to cultural resources during construction would be greater than the Project due to the additional earthwork required. Mitigation Measures **CUL-1** and **CUL-2** would be required. Impacts would be greater than the Project.

5.4.1.6 Energy

Compared to the Project, the Three-Terrace Southeast Corner Alternative would result in more earth work, requiring greater consumption of fuel resources. Overall, the Three-Terrace Southeast Corner Alternative would result impacts greater than those identified for the Project.

5.4.1.7 Geology, Soils, and Paleontological Resources

The Three-Terrace Southeast Corner Alternative would result in more earthwork than the Project, such that there would be greater likelihood of an inadvertent discovery of paleontological resources during construction. Accordingly, the implementation of Mitigation Measures **GEO-1** through **GEO-3** would be required for the Three-Terrace Southeast Corner Alternative. Existing regulatory requirements, including the Construction General Permit and the CBC, would still apply. Mitigation Measure **GEO-1** would require preparation of a Stormwater Pollution Prevention Plan (SWPPP) and incorporation of best management practices (BMPs) during construction and decommissioning, consistent with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit Program. Mitigation Measures **GEO-2** and **GEO-3** would reduce this alternative's potential to damage significant paleontological resources. Because of the greater amount of earthwork, impacts related to geology, soils, and paleontological resources would greater than the Project.

5.4.1.8 Greenhouse Gas Emissions

The Three-Terrace Southeast Corner Alternative would develop battery energy storage facilities on the Project site, but with an alternative site layout that would require three terraces and additional grading. Site preparation would require 472,822 cubic yards of cut (65,898 cubic yards more than the Project) and 476,911 cubic yards of fill (71,270 cubic yards more than the Project). The Three-Terrace Southeast Corner Alternative would proportionately increase use of GHG equipment during construction and decommissioning. Compared to the Project, the Three-Terrace Southeast Corner Alternative would have greater impacts to GHG emissions.

5.4.1.9 Hazards and Hazardous Materials

Compared to the Project, the Three-Terrace Southeast Corner Alternative would consist of the same facility equipment in an alternate site layout. Overall, there would be a similar amount of hazardous materials required for construction and operation, although the use of hazardous

materials during operation under the Project would be minimal. The impacts of the Three-Terrace Southeast Corner Alternative would be similar to those of the Project.

5.4.1.10 Hydrology and Water Quality

The Three-Terrace Southeast Corner Alternative would result in more earthwork compared to the Project, resulting in an increased potential for erosion and sedimentation. The NPDES Construction General Permit and other existing regulatory requirements would still apply to this alternative to reduce potential impacts. The Three-Terrace Southeast Corner Alternative would result in greater impacts to hydrology and water quality compared to the Project, due to the greater amount of earthwork.

5.4.1.11 Land Use and Planning

The Three-Terrace Southeast Corner Alternative would include battery energy storage facilities on the same parcels as the Project, such that this alternative would also not physically divide an established community and would not conflict with any applicable land use plan designed to mitigate environmental effects. The Three-Terrace Southeast Corner Alternative would have similar impacts to land use and planning as the Project.

5.4.1.12 Mineral Resources

The Three-Terrace Southeast Corner Alternative would include solar facilities on the same parcel as the Project, such that this alternative would also have no impact on mineral resources.

5.4.1.13 Noise

The Project would include soundwalls to reduce noise impacts at nearby residences, as needed. With implementation of this mitigation, the Project would comply with applicable regulations. The Three-Terrace Southeast Corner Alternative would also include soundwalls as a mitigation measure, as needed; however, this alternative would shift the facility location to the east, away from noise sensitive receptors. Impacts from noise under this alternative would be reduced compared to the Project.

5.4.1.14 Public Services

The Three-Terrace Southeast Corner Alternative would result in similar demand for fire and emergency services, police, schools, parks, and other public services and would result in no impacts to public services, the same as the Project.

5.4.1.15 Transportation

The Three-Terrace Southeast Corner Alternative would require a similar workforce during construction and the same workforce during operations and would impact the same roads as the Project. This alternative would have a similar impact on transportation as the Project.

5.4.1.16 Tribal Cultural Resources

Under the Three-Terrace Southeast Corner Alternative, potential impacts to tribal cultural resources during construction would be greater than the Project due to the additional earthwork required. Mitigation Measures **CUL-1** and **CUL-2** would be required. Impacts would be greater than the Project.

5.4.1.17 Utilities and Service Systems

The Three-Terrace Southeast Corner Alternative would entail additional earthwork, requiring more water to manage construction dust. Generation of sanitary and solid waste would be similar to the Project. There would be no conflict with solid waste reduction statutes or regulations. The Three-Terrace Southeast Corner Alternative would, therefore, have similar but slightly greater impacts related to utilities.

5.4.1.18 Wildfire

The Three-Terrace Southeast Corner Alternative would require more construction equipment operational hours due to the greater amount of earthwork, resulting in greater ignition risks during construction. The potential for ignition risks on-site during the operation and maintenance phase would be the same as for the Project. The impacts of the Three-Terrace Southeast Corner Alternative would be slightly greater, although similar in nature to the Project.

5.4.2 Conclusion and Relationship to Project Objectives

Compared to the Project, the Three-Terrace Southeast Corner Alternative would potentially reduce the Project's impacts to aesthetics and noise due to the increased setback from existing residences. Though none of these Project impacts are significant after mitigation, the Three-Terrace Southeast Corner Alternative, by reducing the proximity of noise-emitting visible facilities to residences, would reduce the potential for aesthetic and noise impacts compared to the Project. The Three-Terrace Southeast Corner Alternative would entail greater amounts of earthwork, generating more construction dust, increased construction and decommissioning emissions associated with earthwork equipment, and increased demand for water for dust suppression. Additionally, this alternative would have a greater potential to disturb cultural resources. The Three-Terrace Southeast Corner Alternative would have greater impacts on air quality, cultural resources, hydrology and water quality, and tribal cultural resources. Compared to the Project, the Three-Terrace Southeast Corner Alternative is anticipated to have similar impacts to agriculture due to the cancellation of the property's Williamson Act contract.

The Three-Terrace Southeast Corner Alternative would meet the Project Objectives to provide 400 MW of energy storage in San Joaquin County in a cost-effective manner (Project Objective 1). It would be feasible and may reduce impacts to aesthetics and noise; however, it would result in greater impacts to air quality, cultural resources, hydrology and water quality, and tribal cultural resources such that it would not be the most efficient and environmentally beneficial use of the site's limited agricultural capacity (Project Objective 4). The generation tie (gen-tie) line to the Tesla Substation would also be approximately 800 feet longer, such that the alternative would not achieve Project Objective 5 to minimize gen-tie length.

5.5 NORTHERN SITE ALTERNATIVE

The Northern Site Alternative would relocate the Project to a parcel north of the Project site and north of West Patterson Pass Road that is approximately 142 acres in size, shown in Figure 5-2. The Northern Site Alternative site size is approximately 36 acres larger than the Project site; however, it is anticipated that the same amount of acreage would be used for battery energy storage facilities as the Project to achieve 400 MW of energy storage. An ephemeral drainage bisects the site (USGS 2023), on which facilities would not be built to avoid impacts to biological

resources. The gen-tie line to the Tesla Substation would be approximately 3,000 feet longer than the gen-tie line required for the Project and would require crossing West Patterson Pass Road. It should be noted that the Applicant does not own the Northern Site and there is no certainty that the property could be purchased or leased for development.

5.5.1 Impact Analysis

5.5.1.1 Aesthetics

The Northern Site Alternative site size is approximately 36 acres larger than the Project site; however, it is anticipated that the same amount of acreage would be used for development of battery energy storage facilities. Similar to the Project site, the Northern Site Alternative is near residences and local roadways, and is anticipated to have similar visibility. Due to the increased gen-tie line length, aesthetic impacts of the Northern Site Alternative site would potentially be greater than the aesthetic impacts of the Project.

5.5.1.2 Agriculture and Forestry Resources

The Northern Site Alternative is classified as Grazing Land under the California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program (FMMP) (DOC 2023), and review of aerial imagery indicates that the site is unirrigated and therefore the agricultural capacity of the site is limited. Under the Northern Site Alternative, battery energy storage facilities would be installed on agricultural properties under a Williamson Act contract and a Williamson Act contract cancellation would still be required. Mitigation Measure **AGR-1** would be implemented to cancel the existing Williamson Act contract, similar to the Project.

5.5.1.3 Air Quality

Ground disturbance area, number of vehicles, and heavy equipment use is anticipated to be the same for the Northern Site Alternative as the Project. Therefore, air quality impacts would be similar to the Project.

5.5.1.4 Biological Resources

The Northern Site Alternative site was not available to access to assess biological resources; however, based on its similar use as grazing land, its proximity to the Project site, and review or aerial imagery to identify vegetative cover, the alternative site is anticipated to have similar biological resources as the Project site. Potential impacts to biological resources from development of the Northern Site Alternative would be mitigated with Mitigation Measures **BIO-1** through **BIO-3**. Because the gen-tie line would be increased in length compared to the Project, impacts to biological resources due to ground disturbance for gen-tie poles and/or underground gen-tie installation would be greater than the Project.

5.5.1.5 Cultural Resources

It is unknown whether there are archaeological or historical resources on the Northern Site Alternative site. Potential impacts to cultural resources from development of the Northern Site Alternative would be anticipated to be mitigated with Mitigation Measures **CUL-1** and **CUL-2**. Because the gen-tie line would be increased in length compared to the Project, impacts due to ground disturbance for gen-tie poles and/or underground gen-tie installation would be greater than the Project.

5.5.1.6 Energy

Under the Northern Site Alternative, battery facility development would occur on approximately the same amount of acreage as the Project such that surface disturbance and construction activities would require approximately the same fuel resources as the Project. The Northern Site Alternative would result in impacts to energy; similar to those identified for the Project.

5.5.1.7 Geology, Soils, and Paleontological Resources

Under the Northern Site Alternative, approximately the same amount of acreage would be developed as the Project. Similar to the Project, the Northern Site Alternative would also require implementation of Mitigation Measure **GEO-1**, which requires preparation of a SWPPP and incorporation of BMPs during construction and decommissioning, consistent with the NPDES General Construction Permit Program. Compared to the Project, the Northern Site Alternative would result in similar surface disturbance and construction activities, and a potential significant impact could result if paleontological resources are encountered and inadvertently destroyed during ground-disturbing activities. Accordingly, the implementation of Mitigation Measures **GEO-2** and **GEO-3** would be required for the Northern Site and the potential impacts related to geology, soils, and paleontological resources would be similar to the Project.

5.5.1.8 Greenhouse Gas Emissions

Under the Northern Site Alternative, the development would occur on approximately the same amount of acreage as the Project, such that this alternative would result in approximately the same construction and decommissioning emissions as the Project. Similar to the Project, the Northern Site Alternative would have less than significant impacts related to generation of GHG emissions and conflicts with plans, policies, or regulations adopted for the purpose of reducing GHG emissions.

5.5.1.9 Hazards and Hazardous Materials

Compared to the Project, the Northern Site Alternative would consist of approximately the same construction disturbance and an equivalent number of battery enclosures and associated infrastructure. The use of hazardous materials during operation under the Project would be minimal and the Northern Site Alternative would have the similar use of hazardous materials as the Project, such that impacts are anticipated to be the same as the Project.

5.5.1.10 Hydrology and Water Quality

Under the Northern Site Alternative, development would occur on approximately the same acreage as the Project, such that the Northern Site Alternative would result in approximately the same amount of surface disturbance during construction activities and the same amount of impervious area after the completion of construction. The NPDES Construction General Permit and other existing regulatory requirements would still apply to this alternative; however, due to a greater gen-tie line length requiring greater ground disturbance resulting in greater potential for erosion and sedimentation, the impacts would be slightly greater than the Project.

5.5.1.11 Land Use and Planning

The Northern Site Alternative would include battery energy storage facilities on agricultural land with limited agricultural capacity with approximately the same acreage and output capacity as the Project. The Northern Site Alternative would also not physically divide an established community and would not conflict with any applicable land use plan designed to mitigate environmental

effects. Similar to the Project, the Northern Site Alternative would have no impact to land use and planning.

5.5.1.12 Mineral Resources

The Northern Site Alternative does not occur in an area that is delineated as a locally important mineral resource (DOC 2000), such that this alternative would also have no impact on mineral resources, similar to the Project.

5.5.1.13 Noise

The Northern Site Alternative is adjacent to residences and, depending on the siting of the substation and BESS, its impacts on noise sensitive areas could be the same as or greater than the Project. With the implementation of Mitigation Measures **NOISE-1** through **NOISE-3**, it is anticipated that the noise impacts of the Northern Site Alternative would be similar to the Project.

5.5.1.14 Public Services

The Northern Site Alternative would result in an approximately equivalent demand for fire and emergency services, police, schools, parks, and other public services as the Project, such that this alternative would result in similar impacts to public services as the Project.

5.5.1.15 Transportation

The same workforce and the same number of vehicle trips would be required for the Northern Site Alternative as for the Project. Traffic and transportation impacts are anticipated to be similar to the Project.

5.5.1.16 Tribal Cultural Resources

Potential impacts to tribal cultural resources from development of the Northern Site Alternative would be anticipated to be mitigated with Mitigation Measures **CUL-1** and **CUL-2**. Because the gen-tie line would be increased in length compared to the Project, impacts to tribal cultural resources due to ground disturbance for gen-tie poles and/or underground gen-tie installation would be greater than the Project.

5.5.1.17 Utilities and Service Systems

The Northern Site Alternative would entail equivalent surface disturbance, water to manage construction dust, and result in the same generation of sanitary and solid waste as the Project. There would be no conflict with solid waste reduction statutes or regulations. The Northern Site Alternative is anticipated to have impacts to utilities equivalent to the Project.

5.5.1.18 Wildfire

The Northern Site Alternative would develop approximately the same amount of acreage as the Project. As a result, there would be the same potential for ignition risks onsite during Project construction. The potential for ignition risks onsite during the operation and maintenance phase would also be the same for the Project once the site was converted from grazing land to another use. The impacts of the Northern Site Alternative to wildfire would be the same as the Project.

5.5.2 Conclusion and Relationship to Project Objectives

The Northern Site Alternative would disturb the same amount of acreage as the proposed Project. Therefore, impacts associated with ground disturbance would be similar to the proposed Project.

Impacts to agriculture would occur due to the Williamson Act contract on the property, and cancellation of the Williamson Act under Mitigation Measure **AGR-1** would be implemented, similar to the proposed Project. The Northern Site Alternative would have increased impacts to aesthetics, biological, cultural, hydrology and water quality, and tribal cultural resources due to the site's greater distance from the point of interconnection identified by Pacific Gas and Electric (PG&E) at the southwest corner of the Tesla Substation and the associated additional ground disturbance and Project footprint associated with a longer gen-tie line.

The Northern Site Alternative would meet the Project Objectives to provide 400 MW of energy storage in San Joaquin County in a cost-effective manner (Project Objective 1). It is unknown if the landowner would be amenable to the Project, such that it may not be commercially financeable. It would also result in greater impacts to aesthetics, biological, cultural, hydrology and water quality, and tribal cultural resources, such that it would not be the most efficient and environmentally beneficial use of the site's limited agricultural capacity (Project Objective 4). The gen-tie line to the Tesla Substation would also be approximately 3,000 feet longer and would require crossing West Patterson Pass Road, such that the alternative would not achieve Project Objective 5 to minimize gen-tie length.

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The CEQA Guidelines define the environmentally superior alternative as that alternative with the least adverse impacts to the project area and its surrounding environment. The No Project Alternative is considered the environmentally superior alternative for CEQA purposes because it would not create any of the localized impacts of the Project, even though it would have less beneficial impacts than that of the Project on energy and GHG emissions. The No Project Alternative would fail to meet the basic objectives of the Project, including constructing and operating a 400-MW BESS in San Joaquin County with an interconnection at the Tesla Substation in a cost-competitive manner (Project Objective 1); assisting California utilities in meeting their obligations under California's Renewables Portfolio Standard Program, SB 100, and SB 1020 (Project Objective 2); assisting California utilities in meeting their obligations under CPUC's Energy Storage Framework and Design Program (Project Objective 3); providing for the economically viable, commercially financeable, and environmentally beneficial use of the site's limited agricultural capacity (Project Objective 4); developing a site in proximity to transmission infrastructure to minimize environmental impacts (Project Objective 5); and supporting the economy by investing in the local community, creating local construction jobs, and increasing tax and fee revenue to the County (Project Objective 6).

Because the environmentally superior alternative is the No Project Alternative, CEQA Guidelines Section 15126.6 requires the EIR also "identify an environmentally superior alternative from among the other alternatives." The County preliminarily has identified the proposed Project as the environmentally superior alternative because of the beneficial effects of energy reliability and associated reduced GHGs of the Project while minimizing environmental impacts compared to the other alternatives. County decision-makers may weigh the relative benefits of the alternatives differently and could identify another alternative as preferred and environmentally superior.

5.7 REFERENCES

DOC (California Department of Conservation). 2000. California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands.

DOC. 2023. California Important Farmland Finder. Available online at: https://maps.conservation.ca.gov/DLRP/CIFF/ (accessed May 2023).

USGS (U.S. Geological Survey). 2023. National Hydrography Dataset. Available online at: https://www.usgs.gov/national-hydrography/national-hydrography-dataset (accessed February 2023).

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Appendix A

Notice of Preparation and Comments

SAN JOAQUIN COUNTY
Greatness grows here.

Community Development Department
Planning · Building · Code Enforcement · Fire Prevention · GIS

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County of San Joaquin
Notice of Preparation of a Draft Environmental Impact Report and Notice of Public Scoping Meeting
Griffith Energy Storage Project

Date:	December 28, 2022
To:	All Interested Agencies, Organizations, Persons, and State Clearinghouse
From:	San Joaquin County
Subject:	Notice of Preparation of a Draft Environmental Impact Report and Notice of Public Scoping Meeting for the Griffith Energy Storage Project Project Title: Griffith Energy Storage Project Project Number: PA-2200137 (SA) Project Address: 20042 W. Patterson Pass Road, Tracy, CA 95377 Project Applicant: Griffith Energy Storage, LLC.
Lead Agency/Contact:	County of San Joaquin Community Development Department Stephanie Stowers, Senior Planner 1810 East Hazelton Avenue Stockton, California 92505 sstowers@sjgov.org 209-468-9653
Comment Period:	December 28, 2022 – January 27, 2023

This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that the County of San Joaquin (County), as Lead Agency, is commencing preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) to evaluate the potential environmental effects associated with the Griffith Energy Storage (Project).

The County is requesting input from interested individuals, organizations, and agencies regarding the scope and content of the environmental analysis to be included in the upcoming draft EIR. In accordance with CEQA, the County requests that agencies provide comments on the environmental issues related to the statutory responsibilities of their particular agency. This NOP contains a description of the Project, its location, and a preliminary determination of the environmental resource topics to be addressed in the draft EIR.

Documents related to the Project will be available for review at the County's website at:

https://www.sjgov.org/commdev/cgi-bin/cdyn.exe/file/APD%20Documents/PA-2200137/Notice%20of%20Preparation.pdf

The 30-day public review period for the NOP is from December 28, 2022 through January 27, 2023. In accordance with the time limits mandated by State law, if there are concerns about the scope and content of the information to be addressed in the EIR, written comments may be submitted via email or by mail to Shawna Brekke-Read, Contract Planner (sbrekkeread@migcom.com). All written comments should be

submitted at the earliest possible date but must be submitted no later than close of business, January 27, 2023. Public agencies should identify the contact person for your agency in your written comments.

Project Location: The Project site is approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy adjacent to Pacific Gas and Electric's (PG&E) Tesla Substation, as shown on Figure 1. The Project site consists of approximately 32 acres of a 160-acre parcel (Assessor Parcel Number 209-100-19).

The approximately 32-acre Project site is located at 20042 W. Patterson Pass Road within unincorporated San Joaquin County, California (see Figure 1, Project Location). Currently, the site is grazing land with existing residences. The Project is bounded to the north by grazing land, rural residences, the West Patterson Pass, and the Union Pacific Railroad. To the east lies grazing land and open space. Rural residences, grazing land, and open space bound the Project to the south. The Project is bounded by rural residences, grazing land, and the PG&E Tesla Substation to the west within Alameda County.

The County of San Joaquin General Plan Land Use Map designates the Project site as General Agricultural, and the County's Zoning Map identifies the site as Agricultural General-160.

Regional access to the Project site is provided by Interstate 580, located approximately 0.9 miles to the northeast.

Project Description: The Project would involve the construction and operation of a 400-megawatt battery energy storage system to provide reliable and flexible power to the local electrical system. The Project would interconnect at the Tesla Substation immediately adjacent to the site in Alameda County via a 230-kilovolt interconnection generation tie (gen-tie) line. The energy storage facility is anticipated to house lithium-ion batteries totaling 400 megawatts of energy (see Figure 2, Site Plan). Project construction would be in 2024 and is anticipated to come online in 2025 or later.

The Project would contain pad-mounted energy storage units, in addition to inverters, supervisory control and data acquisition (SCADA) equipment, a collector substation, and an interconnection gen-tie line to the Tesla Substation. The Project would also include related and supporting facilities such as on-site service roads, gates and security fencing, and temporary laydown and construction areas. Construction is expected to begin as early as 2024 and be completed in approximately 12 months.

ENERGY STORAGE SYSTEM

Batteries

Individual lithium-ion, or similar technology, battery cells form the core of the energy storage system. The battery cells are assembled either in series or parallel connection in sealed battery modules. The battery modules would be installed in self-supporting racks electrically connected either in a series or parallel to each other. The individual battery racks are connected in series or parallel configuration to deliver the energy storage system power rating. At this time, the battery technology for the Project has not yet been finalized; the battery type would be selected based on the technology available at the time of construction.

Enclosure Units and Controller

Multiple self-contained storage system enclosures would house the batteries, described above, as well as the battery storage system controller. The energy storage system controller is a multi-level control system designed to provide a hierarchical system of controls for the battery modules, power conversion system (PCS), medium voltage system, and up to the point of connection with the electrical grid. The controllers ensure that the energy storage system effectively responds to grid emergency conditions and provides a secondary safety system designed to safely shut down the facility. The storage system enclosure would also house required heating, ventilation, and air conditioning (HVAC), and fire protection systems.

Heating, Ventilation, and Air Conditioning Units

Each enclosure would be equipped with HVAC systems for thermal management of the batteries. The power for the HVAC system would be provided through a connection to the on-site station service transformer with connection lines installed above and/or below ground.

Fire Safety

Fire detection measures would be incorporated in the Project design in accordance with National Fire Protection Association safety standards. The fire safety system will include remote monitoring 24 hours per day, 7 days per week.

Power Conversion System

The PCS consists of an inverter, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, filter equipment, equipment terminals, and connection cabling system. Electric energy is transferred from the existing power grid to the Project batteries during a battery charging cycle, and from the Project batteries to the power grid during a battery discharge cycle. The PCS converts electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. The energy conversion is enabled by a bi-directional inverter that connects the DC battery system to the AC electrical grid.

The PCS would also include a transformer that converts the AC side output of the inverter to medium AC voltage to increase the overall efficiency of the energy storage system and to protect the PCS in the event of system electrical faults.

Interconnection Generation Transmission Line

The proposed battery energy storage system would deliver power to the Tesla Substation located adjacent to the Project site in Alameda County through a new 230 kilovolt gen-tie line. The Applicant would construct the gen-tie from the Project substation to the point south of the Tesla Substation shown on Figure 1. The gen-tie line would require new steel, tubular poles up to approximately 165 feet in height. The poles may be A-frame, H-frame, monopole, or a combination thereof. The number and height of the poles would be finalized during detailed design. PG&E would be responsible for siting, design, and construction of the gen-tie line to their property boundary and within the Tesla Substation. As shown on Figure 1, PG&E may elect to install the interconnection via an overhead line or underground from the point of connection to the substation.

Ancillary Facilities

Site Access and Parking

Access, including emergency access, onto the Project site would be provided from Patterson Pass Road to Midway Road to a driveway that leads to the Project site. Internal access roads would be gravel or aggregate base depending on the final site geotechnical report. Site access would comply with the CalFire and/or San Joaquin County Fire Protection District requirements. On-site parking spaces would be provided as needed, in accordance with San Joaquin County requirements.

Perimeter Fence

The perimeter of the Project site would be enclosed by a 6-foot-tall chain-link fence topped with 1 foot of 3-strand barbed wire. The purpose of the fence would be to prevent unauthorized access to the site. In addition, an approximately 8-foot-high perimeter security fence topped with approximately 1 foot of barbed wire would be installed around the on-site substation.

Lighting

Low-elevation, controlled security lighting would be installed at the access gate and the entrance to the energy storage structures. The lighting would only switch on when personnel enter the area (through either motion-sensor or manual activation [switch]). All safety and emergency services signs would be lit when the lights are on. The lighting would be shielded so the light is directed downward. Lighting would be only in areas where it is required for safety, security, or operations. All lighting would be directed on-site and would include shielding as necessary to minimize illumination of the night sky or spillover onto adjacent properties.

Stormwater Facilities

The site drainage is designed to follow the natural drainage pattern of the site. The Project would include swales and armored outlets to direct stormwater, as shown in the preliminary grading and site plan provided as Figure 2, and in accordance with San Joaquin County and state of California standards. Site preparation and construction activities would be performed in accordance with a Stormwater Pollution Prevention Plan (SWPPP), or similar plan that incorporates stormwater best management practices (BMPs) to reduce the adverse effects of erosion and sedimentation. Such practices would include, for example, the use of water trucks to manage dust; silt fencing, straw wattles and temporary catch basins, and inlet

filters to control stormwater; and truck tire muck shakers, or similar devices, to prevent mud and debris from being carried onto roadways.

Landscaping

The Project would not include landscaping.

PROPOSED SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

Based on the Lead Agency's understanding of the environmental issues associated with the proposed project, the topics anticipated to require analysis in the draft EIR will include, but not be limited to, the following: aesthetics, agriculture and forestry resources, air quality, biological resources, tribal and cultural resources, energy, geology and soils, greenhouse gas emissions (GHG), hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, recreation, transportation, utilities and public services, and wildfire. The Lead Agency will not prepare an Initial Study for this project.

In accordance with Section 15082(a)(l)(C) of the State CEQA Guidelines, below is a summary of the potential environmental effects of the proposed project for each environmental resource to be analyzed in the draft EIR.

Aesthetics: The proposed project may result in environmental impacts to aesthetic resources. The EIR will evaluate whether implementation of the project could result in significant alterations to viewsheds and visual character as well as lighting and glare conditions. Visual simulations of the proposed project under post-development conditions will be prepared.

Agriculture and Forestry Resources: The proposed project may result in environmental impacts to agricultural resources. The EIR will evaluate whether implementation of the project could result in adverse impacts or loss of agricultural resources (temporary and permanent) in the County. The extent of potential resource loss will be identified as well as the extent of potential conflict with agricultural operations based on consultation with the County and agricultural stakeholders.

Air Quality: Air quality impacts are anticipated to be primarily limited to construction-related emissions. The EIR will identify current ambient air quality conditions of the County and will review and identify applicable federal, state, San Joaquin Valley Air Pollution Control District, and County policies and regulations. The potential air quality impacts will be described based on the project-specific technical report.

Biological Resources: The proposed project may result in environmental impacts to biological resources. A summary of important biological resources (e.g., habitats, known locations of special-status species, movement corridors, designated critical habitat) will be mapped and provided in the EIR. The extent of potential impacts will be described based on the project-specific technical reports.

Tribal and Cultural Resources: The proposed project may result in environmental impacts to tribal and cultural resources. The cultural resources section of the EIR will describe the known resources on the project site and vicinity, if any, and potential for impacts to those resources. If necessary, mitigation and monitoring measures will be described. This section will be based on a Cultural Resources Technical Report.

Assembly Bill 52 involves formal consultation by the County with the potentially affected tribes. Formal notification by the County to California Native American tribes that have requested such notification of the project offering consultation under Assembly Bill 52 were prepared and sent September 21, 2022.

Energy: The proposed project may result in environmental impacts to energy resources. As part of the preparation of the project-specific Air Quality, Greenhouse Gas, and Energy Technical Report, energy consumed by construction and operation of the proposed project will be estimated and assessed.

Geology and Soils: The proposed project may result in environmental impacts to geology and soils. The EIR will provide mapping and technical information on geologic and seismic stability of the project site including information on soil conditions.

Greenhouse Gases Emissions: The proposed project is anticipated to benefit the County and state efforts to reduce GHG emissions during construction and has the potential for GHG emissions to be reduced as a result of renewable energy storage. Nonetheless, the project-specific Air Quality, Greenhouse Gas, and Energy Technical Report cited above will assess the GHG emissions associated with project construction and operation.

Hazards and Hazardous Materials: The proposed project may result in environmental impacts with regard to hazards and hazardous materials. The extent of potential exposure of County residents to hazards and

hazardous materials will be addressed in the EIR. The EIR will identify and address both natural and human-made hazards (e.g., wildland fires, hazardous materials and exposure to contamination, and potential aviation impacts).

Hydrology and Water Quality: The proposed project may result in environmental impacts to hydrology and water quality resources. The extent of the project's impact to surface water features and groundwater resources will be analyzed. Any areas where groundwater resources are limited, and additional demand may result in overdraft concerns will be identified. Applicable federal, state, and County policies and regulations (e.g., implementation of NPDES permit requirements to protect water quality) will be identified and addressed.

Land Use and Planning: The proposed project may result in environmental impacts to land use and planning. This section of the EIR will address whether the project would result in conflicts with the County's General Plan and associated land use plans and ordinances that could result in physical impacts to the environment. The section will also include the identification of any land use conflicts associated with the project's proximity to adjacent land uses.

Mineral Resources: The proposed project may result in environmental impacts to mineral resources. The EIR will include the identification of important mineral resource sites.

Noise: The proposed project may result in environmental impacts regarding noise during construction and operation. Project construction would adhere to current County noise standards and policies. The extent of potential noise impacts will be described based on the conclusions of the project-specific Noise Analysis Technical Report.

Population and Housing: The project is not expected to result in any significant changes to population or housing in the County.

Public Services: The proposed project may result in environmental impacts to public services. The EIR will address impacts to fire, police, school, and other public services.

Recreation: The project is not expected to result in any significant changes to recreation.

Transportation: Potential traffic impacts are anticipated to be limited to construction activities. The extent of potential traffic impacts will be described in the EIR based on the conclusions of the project-specific Transportation Impact Study.

Utilities: The project may result in environmental impacts to public services and utilities. The EIR will identify where transmission facilities and associated capacity are available for use by the project.

Wildfire: The proposed project may result in environmental impacts to wildfire. The EIR will address potential impacts to wildfire both during construction and operation.

The EIR will also address all other CEQA-mandated topics, including cumulative impacts and Project Alternatives.

A Notice of Availability will be published and circulated at a later date indicating that the draft EIR will be available for public review and comment.

POTENTIAL ALTERNATIVES TO BE EVALUATED IN THE DRAFT ENVIRONMENTAL IMPACT REPORT

In accordance with Section 15126.6 of the State CEQA Guidelines, an EIR must "describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives." As required by CEQA, the draft EIR will evaluate a No Project Alternative. Aside from the No Project Alternative, the County will evaluate alternatives including reduced size and other sites, including areas close to the substation. The alternatives will be analyzed at a qualitative level of detail in the draft EIR for comparison against the impacts identified for the proposed project, consistent with the requirements of CEQA. As required by CEQA Guidelines Section 15126.6 (e)(2), the draft EIR will identify the environmentally superior alternative, including one other than the No Project Alternative.

INTENDED USES OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

The draft EIR will evaluate the environmental effects associated with implementation of the Griffith Energy Storage Project. The draft EIR is intended for public participation and disclosure, and ultimately for consideration by the County in deciding about whether or not to approve the Conditional Use Permit, as well as for use by other agencies, as needed. Upon incorporation of public and agency comments on the

draft EIR, the County anticipates preparing and publishing a final EIR. The Planning Commission will then determine whether to certify the EIR in compliance with the CEQA Statute and Guidelines; and the County and other agencies, as needed, will determine whether to issue permits for the project. It is expected that these approvals could include, but are not limited to, the following:

- Site Approval to operate an electricity storage facility
- San Joaquin County Building Code, including:
    - 2019 California Building Code
    - 2019 California Mechanical Code
    - California Plumbing Code
    - 2019 California Electrical Code
- California Energy Code
- California Green Building Standards Code
- California Fire Code
- San Joaquin County Municipal Code and Zoning Ordinance
- Tracy Rural Fire District requirements
- California Department of Forestry and Fire Protection Title 14
- San Joaquin County Office of Emergency Services
- Alameda County Environmental Protection Department requirements
- San Joaquin Valley Air Pollution Control District requirements

Responsible Agencies

For the purposes of CEQA, the term "Responsible Agency" includes all public agencies (other than federal agencies) beyond the Lead Agency that have discretionary approval power over the project (CEQA Guidelines Section 15381). Discretionary approval power may include such actions as issuance of a permit, authorization, or easement needed to complete some aspect of the Project. Responsible Agencies may include, but are not limited to, the following:

- San Joaquin Regional Transit District: Potential roadway encroachment permits for transporting large pieces of equipment and other activities.
- California Department of Transportation: Potential special permit for the movement of vehicles and loads exceeding statutory size and weight limitations (California Vehicle Code Division 15).
- Central Valley Regional Water Quality Control Board: A Construction General Permit for management of stormwater during decommissioning and construction activities and a Notice of Intent as required under Clean Water Act Section 402 of the NPDES program.
- San Joaquin Valley Air Pollution Control District: Authority to construct, permit to operate.
- San Joaquin Council of Governments: Approval of participation and certificate of payment confirming participation in the San Joaquin Multi-Species and Habitat Conservation Plan.

Public Scoping Comment Period and Meeting

Public Scoping Comment Period: The County has established a 30-day public scoping period from December 28, 2022 through January 27, 2023. During the scoping period, the County's intent is to disseminate Project information to the public and solicit comments from agencies, organizations, and interested parties, including nearby residents and business owners, regarding the scope and content of the environmental information to be included in the EIR, including mitigation measures or Project alternatives to reduce potential environmental effects. During this period, this NOP may be accessed electronically at the following website:

https://www.sjgov.org/commdev/cgi-bin/cdyn.exe/file/APD%20Documents/PA-2200137/Notice%20of%20Preparation.pdf

A hard copy of the NOP is available for review at the San Joaquin County Community Development Department on Monday through Friday from 8:00 a.m. to 12 p.m. and 1 p.m. to 5:00 p.m. (except during office closures):

San Joaquin County Community Development
Department 1810 East Hazelton Avenue
Stockton, CA 95205

Scoping Meeting: Rather than conducting an in-person meeting, Executive Order N-80-20 allows local governments to hold meetings via teleconferencing while still meeting state transparency requirements. Therefore, the Project's Scoping Meeting will be held online, through a webinar type format. The Scoping Meeting will involve a presentation about the Project and the environmental review process and schedule. The purpose of the meeting is to facilitate the receipt of written comments about the scope and content of the environmental analysis to be addressed in the draft EIR. No decisions about the Project will be made at the Scoping Meeting. A separate public hearing for entitlement requests will be scheduled after the completion of the draft EIR. The date, time, and website of the Project's Scoping Meeting are as follows:

Date and Time: January 19, 2023 at 4:00 PM – 6:00 PM

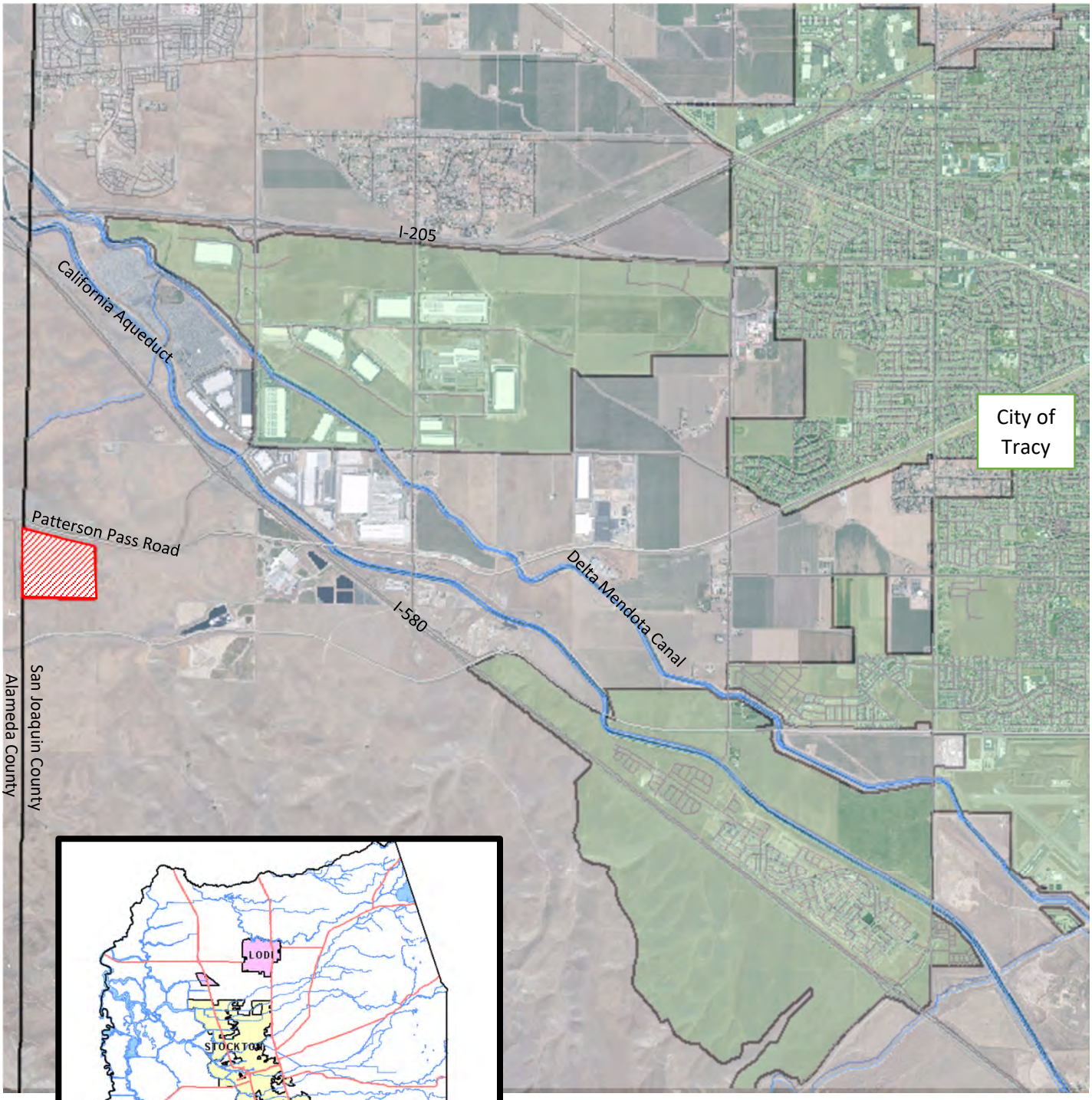
Scoping Meeting Link:: https://teams.microsoft.com/l/meetup-join/19%3ameeting_NjQwMWQwNzItMjNhOC00OWJlLWEzYjMtMzAzOTNkZmQ5OGIy%40thread.v2/0?context=%7b%22Tid%22%3a%223cff5075-176a-400d-860a-54960a7c7e51%22%2c%22Oid%22%3a%2281590104-8f6f-42be-bc35-ca42fc23f771%22%7d

Scoping Comments: All scoping comments must be received in writing by 5:00 p.m. on January 27, 2022, which marks the end of the 30-day public scoping period. All written comments should indicate an associated contact person for the agency or organization, if applicable, and reference the Project name in the subject line. Pursuant to CEQA, responsible agencies are requested to indicate their statutory responsibilities in connection with the Project when responding. Please mail or email comments and direct any questions to the following contact person:

Shawna Brekke-Read, Contract Planner
MIG, Inc.
800 Hearst Avenue
Berkeley, CA 94710
Phone: 510.845.7549
Email: sbrekkeread@migcom.com

Attachments: Figure 1. Project Location
Figure 2. Site Plan

Exhibit A


I-205
California Aqueduct
City of Tracy
Patterson Pass Road
Delta Mendota Canal
I-580
San Joaquin County
Alameda County
LODI
STOCKTON
LATHROP
MANTECA
ESCALON
RIPON
TRACY
Vicinity Map

EXISTING BUILDING (1,245 SF)
EXISTING BUILDING
EXISTING WELL
PATTERSON PASS RD.
PROPERTY LINE
200' PROPERTY LINE OFFSET
PROPERTY LINE
MIDWAY RD.
EXISTING TWO-TRACK ROAD
FILL SLOPE (2H:1V)
BATTERY STORAGE LAYOUT (TYP.)
SITE FENCING (SEE NOTE 6) APPROX. 23 ACRES
EXISTING BUILDINGS
20.0' (TYP.) ACCESS ROAD
STEEP HILL
CUT SLOPE (2H:1V)
PROPERTY LINE
CUT SLOPE (2H:1V)
FILL SLOPE (2H:1V)
SUBSTATION AND TEMPORARY LAYDOWN YARD (APPROX. 3.5 AC)
FILL SLOPE (2H:1V)
EXISTING BUILDING
SITE ENTRANCE ROAD (SEE NOTE 3)
CUT SLOPE (2H:1V)
24' WIDE DOUBLE-SWING GATE
100' TRANSMISSION LINE OFFSET
PROPERTY LINE
406.10
© 2022 Microsoft Corporation © 2022 Maxar ©CNES (2022) Distribution Airbus DS



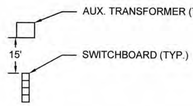
VICINITY MAP
SCALE: 1" = 5000'

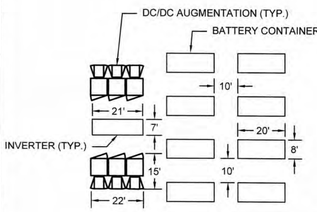
SITE PLAN
Application # PA2200137
Received By SHJ On 8/2/22

CUT/FILL TABLE

CUT (CY)	FILL (CY)	NET (CY)
406,924	405,641	1,283 CUT

NOTES:
1. ALL CUT AND FILL SLOPES 2H:1V.
2. BESS PAD AND SUBSTATION AT ELEVATION 406.1 FT.
3. ALL GRAVEL ACCESS ROADS ARE 20' WIDE.
4. THE LAYDOWN YARD WILL BE COVERED IN GRAVEL.
5. NO TREES OR EXISTING STRUCTURES WILL BE REMOVED FOR THIS PROJECT.
6. CALIFORNIA AQUEDUCT LOCATED APPROXIMATELY 1 MILE NORTHEAST OF PROJECT.
7. STANDARD 7 FOOT CHAIN LINK FENCE (NO BARBED WIRE) TO BE INSTALLED AROUND PERIMETER OF SITE WITH ENTRANCE AND PERSONNEL GATES.





NOT FOR CONSTRUCTION

TETRA TECH
www.tetratech.com
350 INDIANA STREET, SUITE 500
GOLDEN, CO 80401

C 93404
Exp. 6/30/24
CIVIL
STATE OF CALIFORNIA
WALTER C. BELL
REGISTERED PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION	BY
A	07/15/22	ISSUED FOR REVIEW	AML

NEXTERA ENERGY RESOURCES, LLC
ALAMEDA COUNTY, CALIFORNIA
KOLA-GRIFFITH SITE DEVELOPMENT

SITE PLAN

PROJ:
DESN: AML
DRWN: CAN
CHKD: JPP

C-01

Copyright: Tetra Tech

Bar Measures 1 inch, otherwise drawing not to scale

7/15/2022 4:51:54 PM - P:\DENVER OFFICE\ENGINEERING\NEXTERA\KOLA GRIFFITH SOLAR PROJECT\CAD\KG SITE PLAN 20220712.DWG - LINTZ, ANDREW

24 January 2023

Stephanie Stowers
San Joaquin County Community Development
Department
1810 East Hazelton Avenue
Stockton, CA 95205
sstowers@sjgov.org

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, GRIFFITH ENERGY STORAGE (PA-2200137) PROJECT, SCH#2022120675, SAN JOAQUIN COUNTY

Pursuant to the State Clearinghouse's 29 December 2022 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the Griffith Energy Storage (PA-2200137) Project, located in San Joaquin County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore, our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has

adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the

State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website

at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter Minkel

Peter Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

January 17, 2023

Stephanie Stowers, Project Planner
San Joaquin County
Community Development Department
1810 East Hazelton Avenue
Stockton, California 95205

Dear Ms. Stowers:

This is in response to your request for comments regarding Griffith Energy Storage Project Notice of Preparation Draft Environmental Impact Report and Notice of Public Scoping Meeting PA 2200137 (SA), (APN/Address: 20042 W. Patterson Pass Road, Tracy) (Supervisorial District).

Please review the current effective Flood Insurance Rate Maps (FIRMs) for the County of San Joaquin ((Community Number 060299), Maps revised October 20, 2016, and City of Tracy (Community Number 060303), Maps revised October 16, 2009. Please note that the City of Tracy, San Joaquin County, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Tracy floodplain manager can be reached by calling Kevin Jorgensen, Chief Building Official, at (209) 831-6415. The San Joaquin County floodplain manager can be reached by calling Shayan Rehman, Senior Engineer, Flood Control Water District, at (209) 468-9360.

If you have any questions or concerns, please do not hesitate to contact Antoinette Stein at antoinette.stein@fema.dhs.gov of the Mitigation staff.

Sincerely,

Michael Nakagaki, Branch Chief
Floodplain Management and Insurance Branch

cc:
Kevin Jorgensen, Chief Building Official, City of Tracy
Shayan Rehman, Senior Engineer, Flood Control Water District, San Joaquin County
Alex Acosta, State of California, Department of Water Resources, North Central Region Office
Kelly Soule, State of California Department of Water Resources, Sacramento Headquarters Office
Antoinette Stein, NFIP Floodplain Planner, DHS/FEMA Region IX
Kenneth Sessa, Acting Environmental Officer, DHS/FEMA Region IX

Email addresses: Stephanie Stowers sstower@sjgov.org
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Alex Acosta alex.acosta@water.ca.gov
Kelly Soule kelly.soule@water.ca.gov
Antoinette Stein antoinette.stein@fema.dhs.gov
Kenneth Sessa kenneth.sessa@fema.dhs.gov

Tracy Rural County Fire Protection District

(209) 834-7269 793 S. Tracy Blvd. #298 Tracy, CA 95376 www.tracyruralfire.org

January 27, 2023

Via Email Sbrekkeread@mig.com
and U.S. Mail

Shawna Brekke-Read, Contract Planner
MIG, Inc.
800 Hearst Avenue
Berkeley, CA 94710

Re: Comments on NOP for Griffith Energy Storage Project PA-2200137

Dear Ms. Brekke-Read:

Thank you for providing the Tracy Rural Fire Protection District ("District") the opportunity to comment on the Notice of Preparation for the above-referenced project ("NOP"). We anticipate our comments together with any from CAL FIRE will address the issues associated with fire protection and environmental impacts involved with the still new technologies in the proposed project. Below are the comments from the District. We do appreciate that the proposed scope of the Environmental Impact Report includes the impacts to fire services and the important issue of wildfires, especially critical given the location of the proposed facility.

Project Scoping Meeting. As a preliminary matter, two representatives of the District attended the online public Scoping Meeting on January 19. Both had difficulty accessing the meeting and only were able to join it some time after the posted meeting starting time. We wanted to let you know of those occurrences as we are unsure if other members of the public or representatives from agencies had similar difficulties and thus might have been dissuaded from attending.

Site Approval. The NOP indicates that the project is zoned Agriculture General-160 and will be permitted through "Site Approval to operate an electricity storage facility." We cannot ascertain which land use is being utilized from Table 9-605.2 in the County's Development Title to conclude that the "Site Approval" is appropriate. Please let the District know how the Site Approval status is being determined. Also, we failed to locate "electricity storage facility" as a term or defined term in the Development Title and would appreciate you providing that if available. We would appreciate this information in the near term in case this information leads to additional comments we would like the County to consider.

Study of All Alternative Technologies. The NOP states that "(i)individual" lithium-ion, or similar technology, battery cells from the core of the energy storage system." We expect that the EIR will study the environmental impacts and fire service requirements of each different battery/energy storage technology that could be a part of the "core of the energy storage system." Different technologies (i.e., other than lithium-ion batteries) could have different fire hazard and environmental impacts and different mitigation requirements.

Study of Fire Hazards Associated with Battery/Storage Technologies and Mitigation. Determinations of levels of fire hazards of battery/energy storage technologies still are in the early stages. There have been catastrophic fires associated with such facilities using lithium-ion batteries, such as a major 2019 incident in Surprise, Arizona. Since we have limited information and details about the technology proposed for the project, it is difficult at this point to identify all potential fire hazards and risks. As an example of the seriousness of the fire hazard posed by Energy Storage Systems, enclosed for your reference is a bulletin from the International Association of Fire Chiefs (IAFC Bulletin, "Recommended Fire Department Responses to Energy Storage Systems (ESS) Part 1" dated August 1, 2022). The bulletin suggests that battery fires should be allowed to burn themselves out while applying water spray to neighboring battery enclosures and exposures in efforts to limit the spread of the fire. The environmental impacts of such an approach should be addressed. It is obviously vital that the County actually identify the precise fire hazards associated with the various technologies in order to properly mitigate fire risk. The facility will require an appropriate fire suppression plan. The facility will require an adequate and reliable water supply to fight fires as well as roads for fire apparatus to reach the facility. Since addressing fire risk in ESS is a still-evolving matter, the County should build in requirements that state-of-the-art conditions and mitigation measures can be imposed on an ongoing basis to properly address the significant health and safety risks.

Wildfires. The new map of the State Responsibility Area Fire Hazard Severity Zones for San Joaquin County dated November 21, 2022 (copy attached) states the project location is in the High Fire Hazard Severity Zone. The hazard severity seems to have increased from the previous hazard ranking of "Moderate" which still appears on the San Joaquin County parcel data information when using the information at the www.sjmap.org/DistrictViewer/ website. The EIR should study wildland fire issues as delineated in Section IX of Appendix G of the state's CEQA Guidelines and also whether introduction of the proposed battery storage use in the High Fire Hazard Zone functionally transforms it into a Very High Fire Hazard Zone requiring additional study under Section XX of Appendix G. The dry nature of the terrain in the summer with its flammable vegetation and high winds should be part of the analysis.

Need for New Emergency Plans. Study should be made of whether introduction of such an energy storage facility requires amendment to existing or creation of new emergency response or emergency evacuation plans.

Adverse Effects on Human Beings. The EIR should determine if a mandatory finding of significance is required due to the project causing an environmental effect or effects causing "substantial adverse effects on human beings, either directly or indirectly." CEQA Guidelines §15065(a)(4). This includes not just fire risk but any risk from the burning of hazardous materials.

Fire Stations. The closest District fire station to the site is Fire Station 94 located at 16502 W. Schulte Road near the Prologis International Park of Commerce. Station 94 is located on a site adjacent to CAL Fire, Santa Clara Unit, Station 26. If you require more information about the District's facilities, please let us know.

To the extent the County concludes that any of the issues raised in this letter are inappropriate for inclusion in an EIR, we respectfully request that the County meet and confer with the District to arrange for the proper study of those issues separate from the EIR process.

The NOP requested that we identify a contact person for the District. The contact person for the District for this project is:

Raychel Jackson, Clerk of the Board
Tracy Rural County Fire Protection District
793 S. Tracy Blvd. #298, Tracy, CA 95376
Office (209) 834-7269
Email: raychel.jackson@tracyruralfire.org

Thank you again for the opportunity to comment on the NOP. Please contact me if you have any questions.

Sincerely,

Raychel Jackson

Raychel Jackson, Board Clerk

Encl.

JANUARY 23, 2023

VIA EMAIL: SSTOWERS@SJGOV.ORG
County of San Joaquin
Community Development Department
Stephanie Stowers, Senior Planner
1810 East Hazelton Avenue
Stockton, CA 92505

Dear Ms. Stowers:

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE GRIFFITH ENERGY STORAGE PROJECT, SCH# 2022120675

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation of an Environmental Impact Report for the Griffith Energy Storage Project (Project). The Division monitors farmland conversion on a statewide basis, provides technical assistance regarding the Williamson Act, and administers various agricultural land conservation programs. We offer the following comments and recommendations with respect to the project's potential impacts on agricultural land and resources.

Project Description

The proposed project would involve the construction and operation of a 400-megawatt battery energy storage system to provide reliable and flexible power to the local electrical system. The project would interconnect at the Tesla Substation immediately adjacent to the site in Alameda County via a 230- kilovolt interconnection generation tie line. The energy storage facility is anticipated to house lithium-ion batteries totaling 400 megawatts of energy. The project would contain pad-mounted energy storage units, in addition to inverters, supervisory control and data acquisition equipment, a collector substation, and an interconnection gen-tie line to the Tesla Substation. The Project would also include related and supporting facilities such as on-site service roads, gates and security fencing, and temporary laydown and construction areas.

The approximately 32-acre project site is located at 20042 W. Patterson Pass Road within unincorporated San Joaquin County, California and is approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy adjacent to Pacific Gas and Electric's Tesla Substation.

Department Comments

The conversion of agricultural land represents a permanent reduction and significant impact to California's agricultural land resources. CEQA requires that all feasible and reasonable mitigation be reviewed and applied to projects. Under CEQA, a lead agency should not approve a project if there are feasible alternatives or feasible mitigation measures available that would lessen the significant effects of the project.

All mitigation measures that are potentially feasible should be included in the project's environmental review. A measure brought to the attention of the lead agency should not be left out unless it is infeasible based on its elements.

Consistent with CEQA Guidelines, the Department recommends the consideration of agricultural conservation easements, among other measures, as potential mitigation. (See Cal. Code Regs., tit. 14, § 15370 [mitigation includes "compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements."])

Mitigation through agricultural easements can take at least two forms: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence, the search for replacement lands should not be limited strictly to lands within the project's surrounding area.

A helpful source for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

California Council of Land Trusts

Of course, the use of conservation easements is only one form of mitigation that should be considered. Any other feasible mitigation measures should also be considered. Indeed, the recent judicial opinion in King and Gardiner Farms, LLC v. County of Kern (2020) 45 Cal.App.5th 814 ("KG Farms") holds that agricultural conservation easements on a 1 to 1 ratio are not alone sufficient to adequately mitigate a project's conversion of agricultural land. KG Farms does not stand for the proposition that agricultural conservation easements are irrelevant as mitigation. Rather, the holding suggests that to the extent they are considered, they may need to be applied at a greater than 1 to 1 ratio, or combined with other forms of mitigation (such as restoration of some land not currently used as farmland).

Conclusion

The Department recommends further discussion of the following issues:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the proposed project.
- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects.
- Proposed mitigation measures for all impacted agricultural lands within the proposed project area.
- Projects compatibility with lands within an agricultural preserve and/or enrolled in a Williamson Act contract.
- If applicable, notification of Williamson Act contract non-renewal and/or cancellation.

Thank you for giving us the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for the Griffith Energy Storage Project. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Associate Environmental Planner via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Monique Wilber

Monique Wilber

Conservation Program Support Supervisor

SAN JOAQUIN COUNTY
Greatness grows here.

Environmental Health Department

Jasjit Kang, REHS, Director
Muniappa Naidu, REHS, Assistant Director

PROGRAM COORDINATORS
Jeff Carruesco, REHS, RDI
Willy Ng, REHS
Steven Shih, REHS
Michelle Henry, REHS
Elena Manzo, REHS
Natalia Subbotnikova, REHS

January 26, 2023

To: San Joaquin County Community Development Department
Attention: Shawna Brekke-Read

From: Aldara Salinas; 209-616-3019.
Environmental Health Specialist

RE: **PA-2200137 (SA), Referral, SU0015098**
20042 W. Patterson Pass Rd., Tracy

The Environmental Health Department has no comments or recommendation for the submitted preparation of the Environmental Impact Report at this time.

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING

January 23, 2023

Stephanie Stowers
County of San Joaquin
Community Development Department
1810 E. Hazelton Avenue
Stockton, CA 95205

Project: Notice of Preparation of Draft Environmental Impact Report for the Griffith Energy Storage Project PA-2200137 (SA)

District CEQA Reference No: 20230003

Dear Ms. Stowers:

The San Joaquin Valley Air Pollution Control District (District) has reviewed the early consultation application from the County of Joaquin (County) for the above mentioned project. Per the Notice of Preparation, the project consists of an unmanned 400-megawatt energy storage battery facility on 40 acres (Project). The Project is located at 20042 W. Patterson Pass Road in Tracy, CA (APN: 209-100-19).

The District offers the following comments regarding the Project:

1) Project Related Emissions

The significance thresholds for annual criteria pollutant emissions are identified in the District's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI): https://www.valleyair.org/transportation/GAMAQI.pdf.

1a) Construction Emissions

The District recommends, to reduce impacts from construction-related diesel exhaust emissions, the Project should utilize the cleanest available off-road construction equipment, including the latest tier equipment.

Samir Sheikh
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585

www.valleyair.org www.healthyairliving.com

Printed on recycled paper.

2) Voluntary Emission Reduction Agreement

When a project is expected to have a significant impact, the District recommends the Draft Environmental Impact Report also include a discussion on the feasibility of implementing a Voluntary Emission Reduction Agreement (VERA) for this Project. A VERA is a mitigation measure by which the project proponent provides pound-for-pound mitigation of emissions increases through a process that develops, funds, and implements emission reduction projects, with the District serving a role of administrator of the emissions reduction projects and verifier of the successful mitigation effort. To implement a VERA, the project proponent and the District enter into a contractual agreement in which the project proponent agrees to mitigate project specific emissions by providing funds for the District's incentives programs. The funds are disbursed by the District in the form of grants for projects that achieve emission reductions. Thus, project-related impacts on air quality can be mitigated. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors.

In implementing a VERA, the District verifies the actual emission reductions that have been achieved as a result of completed grant contracts, monitors the emission reduction projects, and ensures the enforceability of achieved reductions. After the project is mitigated, the District certifies to the Lead Agency that the mitigation is completed, providing the Lead Agency with an enforceable mitigation measure demonstrating that project-related emissions have been mitigated. To assist the Lead Agency and project proponent in ensuring that the environmental document is compliant with CEQA, the District recommends the environmental document includes an assessment of the feasibility of implementing a VERA.

3) District Rules and Regulations

The District issues permits for many types of air pollution sources, and regulates some activities that do not require permits. A project subject to District rules and regulations would reduce its impacts on air quality through compliance with the District's regulatory framework. In general, a regulation is a collection of individual rules, each of which deals with a specific topic. As an example, Regulation II (Permits) includes District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), Rule 2520 (Federally Mandated Operating Permits), and several other rules pertaining to District permitting requirements and processes.

The list of rules below is neither exhaustive nor exclusive. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm. To identify other District rules or regulations that apply to future projects, or to obtain information about

District permit requirements, the project proponents are strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (209) 557-6446.

3a) District Rule 9510 - Indirect Source Review (ISR)

The Project is subject to District Rule 9510 because it will receives a project-level discretionary approval from a public agency and will equal or exceed 9,000 square feet of space.

The purpose of District Rule 9510 is to reduce the growth in both NOx and PM emissions associated with development and transportation projects from mobile and area sources; specifically, the emissions associated with the construction and subsequent operation of development projects. The ISR Rule requires developers to mitigate their NOx and PM emissions by incorporating clean air design elements into their projects. Should the proposed development project clean air design elements be insufficient to meet the required emission reductions, developers must pay a fee that ultimately funds incentive projects to achieve off-site emissions reductions.

Per Section 5.0 of the ISR Rule, an Air Impact Assessment (AIA) application is required to be submitted no later than applying for project-level approval from a public agency. As of the date of this letter, the District has not received an AIA application for this Project. Please inform the project proponent to immediately submit an AIA application to the District to comply with District Rule 9510. One AIA application should be submitted for the entire Project. It is preferable for the applicant to submit an AIA application as early as possible in the County's approval process so that proper mitigation and clean air design under ISR can be incorporated into the County's analysis.

Information about how to comply with District Rule 9510 can be found online at: http://www.valleyair.org/ISR/ISRHome.htm.

The AIA application form can be found online at: http://www.valleyair.org/ISR/ISRFormsAndApplications.htm.

District staff is available to provide assistance and can be reached by phone at (559) 230-5900 or by email at ISR@valleyair.org.

3b) District Regulation VIII (Fugitive PM10 Prohibitions)

The project proponent may be required to submit a Construction Notification Form or submit and receive approval of a Dust Control Plan prior to commencing any earthmoving activities as described in Regulation VIII, specifically Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities.*

Should the project result in at least 1-acre in size, the project proponent shall provide written notification to the District at least 48 hours prior to the project proponents intent to commence any earthmoving activities pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). Also, should the project result in the disturbance of 5-acres or more, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials, the project proponent shall submit to the District a Dust Control Plan pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). For additional information regarding the written notification or Dust Control Plan requirements, please contact District Compliance staff at (559) 230-5950.

The application for both the Construction Notification and Dust Control Plan can be found online at:
https://www.valleyair.org/busind/comply/PM10/forms/DCP-Form.docx

Information about District Regulation VIII can be found online at:
http://www.valleyair.org/busind/comply/pm10/compliance_pm10.htm

3c) Other District Rules and Regulations

The Project may also be subject to the following District rules: Rule 4102 (Nuisance) and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).

4) District Comment Letter

The District recommends that a copy of the District's comments be provided to the Project proponent.

If you have any questions or require further information, please contact Harout Sagherian by e-mail at Harout.Sagherian@valleyair.org or by phone at (559) 230-5860.

Sincerely,

Brian Clements
Director of Permit Services



For: Mark Montelongo
Program Manager

Appendix B

Land Evaluation and Site Assessment Technical Memorandum

TETRA TECH

Technical Memorandum

Date: November 11, 2022

To: Craig Lawrence, Project Manager, NextEra Energy Resources

From: Jessica Taylor, Soil Conservationist/Ecologist, Tetra Tech

Subject: Land Evaluation and Site Assessment for the Griffith Energy Storage Project in San Joaquin County, California

1.0 Introduction

The Land Evaluation and Site Assessment (LESA) model is an approach for rating the relative quality of land resources based upon specific measurable features. The LESA model was first developed by the federal Natural Resource Conservation Service (NRCS) in 1981. It was subsequently adopted in 1990 by the California Department of Conservation to evaluate land use decisions that affect the conversion of agricultural lands in California (Public Resources Code Section 21095). The formulation of the California Agricultural LESA Model is intended to provide lead agencies under the California Environmental Quality Act (CEQA) with a methodology to ensure that agricultural land conversions are quantitatively and consistently considered in the environmental review process.

The Griffith Energy Storage Project (Project), which includes an energy storage system, will be located on land that has historically been used for low-intensity cattle grazing. Nine acres of the impacted area are considered prime farmland if irrigated, however the land is not currently irrigated, according to the Water Provision Declaration signed by the landowner as part of the Project application (NRCS 2022; Griffith 2022). Average precipitation in the immediate vicinity of the Project is 10.73 inches a year (NOAA 2022). The Project will lease 106 acres; however, the Project will only convert approximately 32 acres to battery storage, as shown on Figure 1.

The assessment concludes that the conversion of the approximately 32 acres of agricultural land by the Project **will not result in a significant loss of farmland** according to the LESA Model.

2.0 California Land Evaluation and Site Assessment Model

The following sections align with the California LESA Model worksheets published by the NRCS. Each section is built on the information in the previous section and results in a final score that is the basis for the final determination. The scores for each section are derived from the tables within the LESA manual.

Land Capability Classification and Storie Index Scores

The Land Capability Classification (LCC) indicates the suitability of soils for most kinds of crops. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating. Subclasses

designated with a lower-case letter (identified as e, w, s, or c) are typically used in conjunction with the roman numerals to further describe soil limitations. The letter "e" indicates that the main limitation of the soil is erosion; "w" indicates that the presence of water either within or on the soil causes limitation in plant growth; "s" indicates that the soil is shallow, droughty, or stony; and "c" indicates that the limitation is a climate that is generally too cold or hot for many plants. The LCC has separate scales used independently for irrigated and non-irrigated lands.

The NRCS supplied Storie Index provides a numeric rating (based upon a 100-point scale) of the relative degree of suitability or value of a given soil for intensive agriculture use. The rating is based only on soil characteristics, such as depth, texture of the surface soil, density of the subsoil, drainage, salts and alkalinity, and relief. Other factors, such as availability of water for irrigation and climate are not considered in the Storie Index.

Table 1 shows the LCC and Storie Index Scores for the three soil types found within the Project area. The soils within the Project are considered prime farmland if irrigated; however, according to the Water Provision Declaration signed by the landowner as part of the Project application, there is no irrigation system installed on the property (Griffith 2022). The LESA model scores are based on irrigated farmland which is not directly applicable for this particular property. The non-irrigated LCC score for the soils are 114- IVe, 115- VIe and 123-IIe. All soils with the subclass e are prone to erosion and recommended to have vegetative cover at all times (NRCS 2022). Soils classified as IIe are considered to have moderate limitations that restrict the types of crops that can be grown. Soils classified as IVe are severely limited in the type of crop that can be grown and requires intense management and soils classified as VIe are considered to have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat (NRCS 2022).

Table 1. Land Capability Classification and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit[1]	Project Acres	Proportion of Project Area	LCC[1] (irrigated)	LCC Rating[2] (irrigated)	LCC Score (C x E)	Storie Index[1]	Storie Index Score (C x G)
114	15.7	0.488	IVe	50	24.38	61	29.74
115	6.9	0.214	VIe	20	4.29	41	8.79
123	9.6	0.298	IIe	90	26.83	81	24.15
Totals	32.20	1		LCC Total Score	55.50	Storie Index Total Score	62.68

[1] The Soil Map Unit information and acreage, LCC and Storie Index information were determined from the current soil survey information available at the U.S. Department of Agriculture Natural Resources Conservation Service website: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

[2] The LCC Rating for irrigated land was determined from the LCC Point Rating Table 2 from the LESA Instruction Manual (CDC 1997).

Project Size Scores

The Project Size rating recognizes the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions. Larger operations tend to have greater impacts upon the local economy through direct employment. In terms of agricultural productivity, the size of the farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater diversity in crop selection and the potential for greater

economic return per acre unit. The Project Size rating is determined by summing the acres in a project that fall within one of three consolidated LCC categories.

Under the Project Size Score rating (Table 2), relatively fewer acres of high-quality soils are required to achieve a maximum Project Size Score. The proposed Project area received scores of 0 in all categories.

Table 2. Project Size Scores

	LCC Class I-II	LCC Class III	LCC Class IV-VIII
Total Acres	9.6	0	22.6
Project Size Scores[1]	0	0	0
Highest Project Size Score	0		

[1] Project Size Score was determined from the Project Size Scoring Table from the LESA Instruction Manual (CDC 1997).

Water Resources Availability

The Water Resources Availability rating for the proposed Project is based upon identifying the various sources that may supply the Project area, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought. Table 3 summarizes the limited water availability in the proposed Project area.

The Water Resources Availability Score is scored on a scale of 1–100. The land is not irrigated and therefore only suited for grazing in the wet season.

Table 3. Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score[1]	Weighted Availability Score (C x D)
All	None	1	20	20
		Total Water Resource Score		20

[1] Water Resources Availability Score was determined from the scoring table from the LESA Instruction Manual (CDC 1997).

Surrounding Agricultural Land Rating

The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands within the Zone of Influence of the Project area. The California Agricultural LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production.

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating and is scored in a similar manner. Protected resource lands are those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land including: publicly owned lands

maintained as park, forest, or watershed resources; Williamson Act contracted lands; and lands with natural resource easements that restrict the conversion of such land to urban or industrial uses.

The Zone of Influence is the amount of surrounding lands up to a minimum of one-quarter mile from the project boundary. Table 4 summarizes the findings for the proposed Project.

Table 4. Surrounding Agricultural Land Rating

A	B	C	D	E	F	G
Zone of Influence					Surrounding Agricultural Land Score2	Surrounding Protected Resource Land Score2
Total Acres	Acres in Agriculture1	Acres of Protected Resource Land1	Percent in Agriculture (B/A)	Percent Protected Resource Land (C/A)		
862.00	842	106	98%	0.1	90	0

[1] Land use was determined based on data from San Joaquin County District Viewer (San Joaquin County 2022).
[2] Score was determined from the scoring table from the LESA Instruction Manual (CDC 1997).

Final LESA Score Sheet

The California LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors, and 50 percent from the Site Assessment factors. Table 5 provides the calculation of a final LESA score of 46.04 for the proposed Project.

Table 5. Final LESA Score Sheet

	Factor Scores	Factor Weight	Weighted Factor Scores
Land Evaluation Factors			
Land Capability Classification	55.50	0.25	13.87
Storie Index	62.68	0.25	15.67
Land Evaluation Subtotal		0.5	29.54
Site Assessment Factors			
Project Size	0	0.15	0.00
Water Resource Availability	20	0.15	3.00
Surrounding Agricultural Land	90	0.15	13.50
Protected Resource Land	0	0.05	0.00
Site Assessment Total		0.5	16.50
		Final LESA Score	46.04

3.0 Final Result

According to the California Agricultural LESA Model Instruction Manual, a final LESA score ranging from 40–59 points is considered significant only if both the land evaluation and site assessment weighted factor subscores are each greater than 20 points (CDC 1997). For the proposed Project, the land evaluation score exceeds 20 points; however, the site assessment score is below the 20-point threshold. The proposed Project will not have a significant impact on agricultural land use within the Project area or Zone of Influence (Table 6).

Table 6. LESA Model Significance Determination

Total LESA Score	Scoring Decision
0-39 Points	Not considered significant
40-59 Points	Considered significant *only* if both the Land Evaluation and Site Assessment (found in Table E) weighted factor subscores are each *greater* than or equal to 20 points.
60-70 Points	Considered significant *unless* either of the Land Evaluation and Site Assessment weighted factor subscores is *less* than 20 points.
80-100 Points	Considered significant

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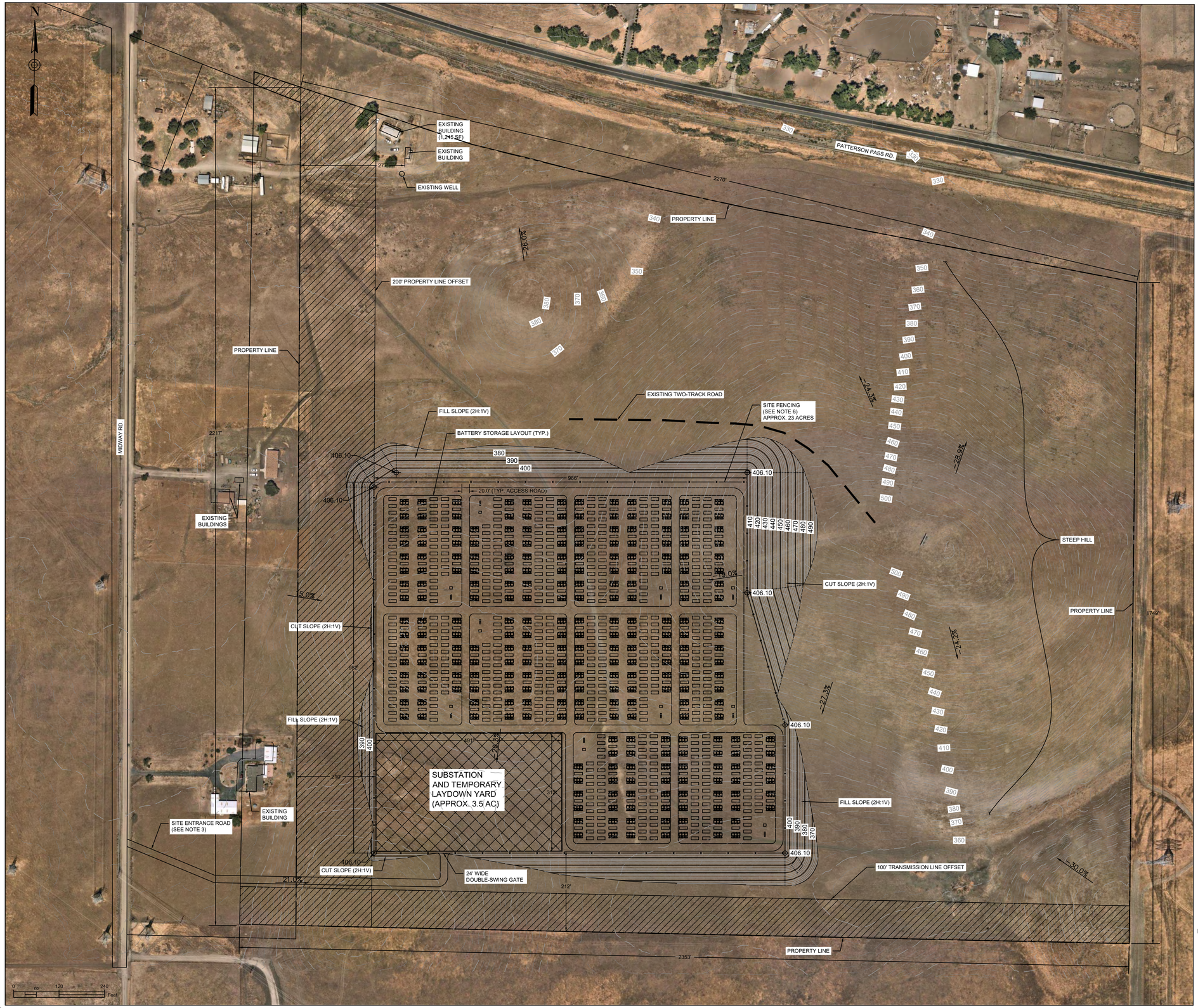
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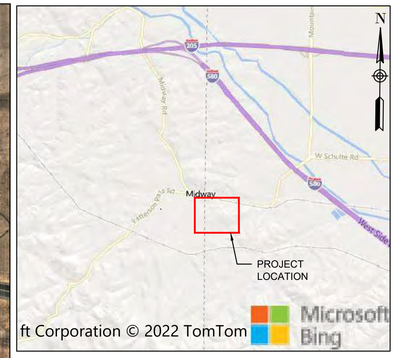
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FIGURE



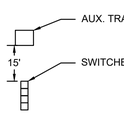


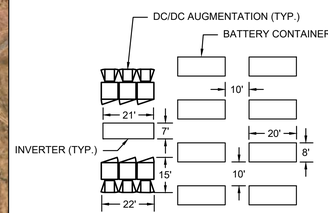
VICINITY MAP
SCALE: 1" = 5000'

CUT/FILL TABLE

CUT (CY)	FILL (CY)	NET (CY)
406,924	405,641	1,283 CUT

NOTES:
1. ALL CUT AND FILL SLOPES 2H:1V.
2. BESS PAD AND SUBSTATION AT ELEVATION 406.1 FT.
3. ALL GRAVEL ACCESS ROADS ARE 20' WIDE.
4. THE LAYDOWN YARD WILL BE COVERED IN GRAVEL.
5. NO TREES OR EXISTING STRUCTURES WILL BE REMOVED FOR THIS PROJECT.
6. CALIFORNIA AQUEDUCT LOCATED APPROXIMATELY 1 MILE NORTHEAST OF PROJECT.
7. STANDARD 7 FOOT CHAIN LINK FENCE (NO BARBED WIRE) TO BE INSTALLED AROUND PERIMETER OF SITE WITH ENTRANCE AND PERSONNEL GATES.





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TETRA TECH
www.tetratech.com
350 INDIANA STREET, SUITE 500
GOLDEN, CO 80401

PROFESSIONAL ENGINEER
LICENSED
CAITLIN M. BELL
C 93404
Exp. 6/30/24
CIVIL
STATE OF CALIFORNIA

MARK	DATE	DESCRIPTION	BY
A	07/15/22	ISSUED FOR REVIEW	AML
B	10/18/22	REVISED WITH BETTER RESOLUTION	WB

NEXTERA ENERGY RESOURCES, LLC
ALAMEDA COUNTY, CALIFORNIA

KOLA-GRIFFITH SITE DEVELOPMENT

SITE PLAN

PROJ:	
DESN:	AML
DRWN:	CAN
CHKD:	JPP

C-01

Copyright: Tetra Tech

Bar Measures 1 inch, otherwise drawing not to scale

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Appendix C

Visual Impact Assessment

VISUAL IMPACT ASSESSMENT

Griffith Energy Storage Project
San Joaquin County, California

August 2023



Prepared for

Griffith Energy, LLC
700 Universe Blvd.
Juno Beach, FL 33408

Prepared by

TETRA TECH

17885 Von Karman Avenue, Suite 500
Irvine, CA 92614

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Acronyms and Abbreviations

AC	alternating current
AG	General Agricultural
Applicant	Griffith Energy Storage, LLC
BESS	battery energy storage system
BLM	U.S. Bureau of Land Management
DC	direct current
gen-tie	generation tie
HVAC	heating, ventilation, and air conditioning
I-205	Interstate 205
I-580	Interstate 580
KOP	Key Observation Point
MW	megawatt
PCS	power conversion system
PG&E	Pacific Gas and Electric
Project	Griffith Energy Storage Project
Property	106-acre property on which the Project would be built
VRI	Visual Resource Inventory
ZVI	Zone of Visual Influence

1.0 OVERVIEW

Griffith Energy Storage, LLC (Applicant), is proposing to construct and operate the 400-megawatt (MW) Griffith Energy Storage Project (Project) to provide reliable and flexible power to the local electrical system. The property on which the Project would be built consists of 106 acres (Property) of land in San Joaquin County. The Project would interconnect at the Tesla Substation immediately adjacent to the site in Alameda County via a 230-kilovolt interconnection generation tie (gen-tie) line. The energy storage facility is anticipated to house lithium-ion batteries totaling 400 MW of energy. Project construction would be in 2023 and 2024 and is anticipated to come online in 2024 or later.

Tetra Tech, Inc. (Tetra Tech), was retained by the Applicant to perform a Visual Impact Assessment for the Project. This Visual Impact Assessment was prepared to identify and evaluate the potential visual and aesthetic impacts associated with construction and operation of the Project.

2.0 PROJECT LOCATION AND SETTING

2.1 Location

The Property is approximately 0.9 mile southwest of Interstate 580 (I-580) and approximately 5 miles southwest of the city of Tracy, adjacent to Pacific Gas and Electric's (PG&E) Tesla Substation, as shown on Figure 1. The proposed Project would be located on one parcel (Assessor Parcel Number 209-10-19) totaling 106 acres of private property in San Joaquin County, California.

2.2 Existing Setting

2.2.1 Onsite Land Uses

Land uses on the Project site consist of private land used for grazing and include two rural residences. The Project site is designated as General Agricultural (AG) and zoned AG-160 by San Joaquin County. The Project site includes Grazing Land and Farmland of Local Importance, as classified by the California Department of Conservation. However, the Project site is not considered to be Prime or Unique Farmland.

2.2.2 Surrounding Land Uses

The surrounding land use is rural. The Project is bounded to the north by grazing land, rural residences, the West Patterson Pass, and the Union Pacific Railroad. To the east lies grazing land and open space. Rural residences, grazing land, and open space bound the Project to the south. The Project is bounded by rural residences, grazing land, and the PG&E Tesla Substation to the west.

The PG&E Tesla Substation is located approximately 0.25 mile to the west. Transmission towers and lines are located approximately 0.1 mile southwest and 0.17 mile northwest of the Project site. The closest residences on land not owned by the current property owner are approximately 0.2 mile north of the Project site on the other side of West Patterson Pass and 0.2 mile southwest of the Project site at the southern terminus of Midway Road.

I-580 is located approximately 1 mile to the northeast. Midway Road is located approximately 0.12 mile to the west. West Patterson Pass Road is located approximately 0.17 mile to the north. Midway Road is located approximately 0.12 mile to the west. The Union Pacific Railroad is located approximately 0.18 mile north and 0.25 mile south of the Project site.

Griffith Energy Project

Figure 1
Project Site Location

SAN JOAQUIN COUNTY, CA

- Project Boundary
- Gen-Tie Line
- Gen-Tie Structure
- Underground PG&E Tie-in Option
- Overhead PG&E tie-in option
- County Boundary
- Interstate Highway
- County Highway
- Local Roads

TETRA TECH

NEXTera ENERGY RESOURCES

Reference Map



1:15,000

WGS 1984 UTM Zone 10N

0 0.13 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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3.0 PROJECT DESCRIPTION

3.1 Description of the Project

The Applicant proposes to construct and operate a 400-MW battery energy storage system (BESS), substations, and associated infrastructure on approximately 20 acres of a 106-acre site of privately owned land (Figure 2*, Site Plan*).

The Project would contain pad-mounted energy storage units, in addition to inverters, supervisory control and data acquisition equipment, a collector substation, and an interconnection gen-tie line to the Tesla Substation. The Project would also include related and supporting facilities, such as onsite service roads, gates and security fencing, and temporary laydown and construction areas. Construction is expected to begin as early as 2023 and be completed in approximately 12 months.

3.1.1 Battery Energy Storage System

3.1.1.1 Batteries

Individual lithium-ion, or similar technology, battery cells form the core of the BESS. The battery cells are assembled either in series or parallel connection in sealed battery modules. The battery modules would be installed in self-supporting racks electrically connected either in a series or parallel to each other. The individual battery racks are connected in series or parallel configuration to deliver the BESS power rating. At this time, the battery technology for the Project has not yet been finalized; the battery type would be selected based on the technology available at the time of construction.

Enclosure Units and Controller

Multiple self-contained storage system enclosures would house the batteries, described above, as well as the BESS controller (Figure 3). The BESS controller is a multi-level control system designed to provide a hierarchical system of controls for the battery modules, power conversion system (PCS), medium-voltage system, and up to the point of connection with the electrical grid. The controllers ensure that the BESS effectively responds to grid emergency conditions and provides a secondary safety system designed to safely shut down the facility. The storage system enclosure would also house required heating, ventilation, and air conditioning (HVAC) and fire protection systems.

Heating, Ventilation, and Air Conditioning Units

Each enclosure would be equipped with HVAC systems for thermal management of the batteries. The power for the HVAC system would be provided through a connection to the onsite station service transformer with connection lines installed above and/or below ground.

Fire Suppression Systems

Fire detection measures would be incorporated in the Project design in accordance with National Fire Protection Association safety standards.

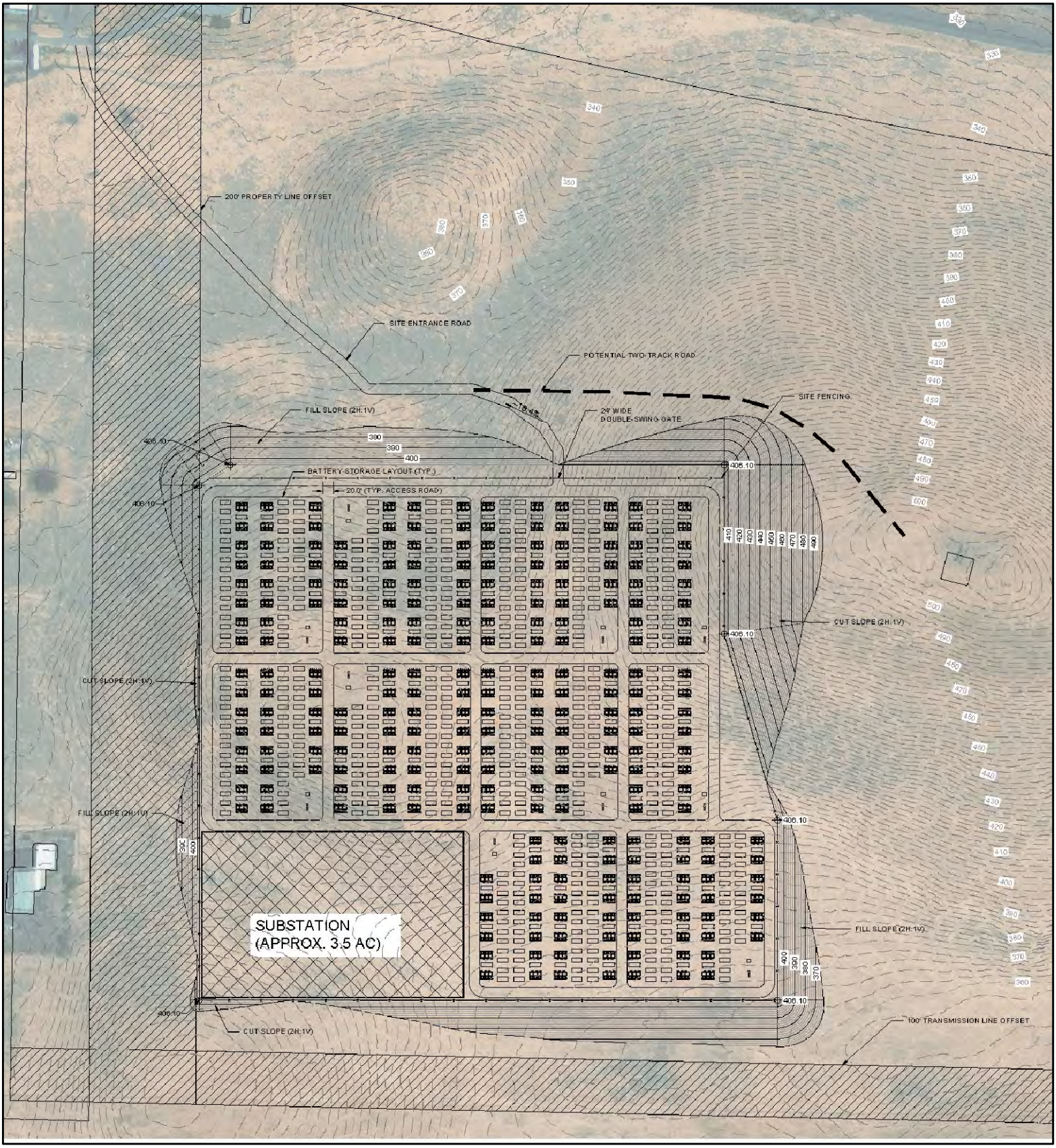




Figure 2
Preliminary Grading and Site Plan

Kola Griffith Battery Storage Site
San Joaquin County, California

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Figure 3
Typical Battery and
Energy Storage Unit

Kola Griffith Battery Storage Site
San Joaquin County, California

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Power Conversion System

The PCS consists of an inverter, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, filter equipment, equipment terminals, and connection cabling system. Electric energy is transferred from the existing power grid to the Project batteries during a battery charging cycle, and from the Project batteries to the power grid during a battery discharge cycle. The PCS converts electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. The energy conversion is enabled by a bidirectional inverter that connects the DC battery system to the AC electrical grid.

The PCS would also include a transformer that converts the AC side output of the inverter to medium AC voltage to increase the overall efficiency of the BESS and to protect the PCS in the event of system electrical faults.

3.1.2 Interconnection Generation Tie Transmission Line

The proposed BESS would deliver power to the Tesla Substation located adjacent to the Project site in Alameda County through a new 230-kilovolt gen-tie line. The Applicant would construct the gen-tie line from the Project substation to the point south of the Tesla Substation shown on Figure 1. The gen-tie line would require new steel tubular poles up to approximately 165 feet in height. The poles may be A-frame, H-frame, monopole, or a combination thereof. The number and height of the poles would be finalized during detailed design. PG&E would be responsible for siting, design, and construction of the gen-tie line to its property boundary and within the Tesla Substation. As shown on Figure 1, PG&E may elect to install the interconnection via an overhead line or underground from the point of change of ownership to the substation.

3.1.3 Ancillary Facilities

3.1.3.1 Site Access and Parking

Access, including emergency access, onto the Project site would be provided from Patterson Pass Road to Midway Road to a driveway that leads to the Project site. Internal access roads would be gravel or aggregate base depending on the final site geotechnical report. Site access would comply with the California Department of Forestry and Fire Protection and/or San Joaquin County Fire Protection District requirements. Onsite parking spaces would be provided as needed, in accordance with San Joaquin County requirements.

3.1.3.2 Perimeter Fence/Soundwall

The perimeter of the Project site would be enclosed by a 6-foot-tall chain-link fence topped with 1 foot of three-strand barbed wire. The purpose of the fence would be to prevent unauthorized access to the site. In addition, an approximately 8-foot-high perimeter security fence topped with approximately 1 foot of barbed wire would be installed around the onsite substation.

If soundwalls are required as a form of mitigation to reduce the sound levels at the nearby residential receivers, they are estimated to have a height up to 15 feet above grade and border the Project to the

north, west, and south. The exact height and locations of the walls will be determined upon final equipment selection.

3.1.3.3 Lighting

Low-elevation, controlled security lighting would be installed at the access gate and the entrance to the energy storage structures. The lighting would only switch on when personnel enter the area (through either motion-sensor or manual activation [switch]). All safety and emergency services signs would be lit when the lights are on. The lighting would be shielded so the light is directed downward. Lighting would be only in areas where it is required for safety, security, or operations. All lighting would be directed on site and would include shielding as necessary to minimize illumination of the night sky or spillover onto adjacent properties.

3.1.3.4 Stormwater Facilities

The site drainage is designed to follow the natural drainage pattern of the site. The Project would include swales and armored outlets to direct stormwater, as shown in the preliminary grading and site plan provided as Figure 2, and in accordance with San Joaquin County and State of California standards. Site preparation and construction activities would be performed in accordance with a Stormwater Pollution Prevention Plan, or similar plan that incorporates stormwater best management practices to reduce the adverse effects of erosion and sedimentation. Such practices would include, for example, the use of water trucks to manage dust; silt fencing, straw wattles, temporary catch basins, and inlet filters to control stormwater; and truck tire muck shakers, or similar devices, to prevent mud and debris from being carried onto roadways.

3.1.3.5 Landscaping

The Project would not include landscaping.

3.1.4 Construction

Construction is anticipated to begin as early as 2023 and last for a 12-month period. Construction would generally consist of the following activities:

- Site Preparation;
- Fencing; and
- Electrical Work.

Grading and Site Preparation

The site would be prepared for construction. Rough grading may be performed where required to accommodate the support structures and access roads. Grubbing and grading would occur onsite to achieve the required surface conditions. Site preparation may include application of pre-emergent herbicides formulated to minimize impacts on wildlife. Application would be in accordance with federal, state, and San Joaquin County regulations and would be applied by a California state-licensed pesticide applicator.

Retention basins, if required, would be created for hydrologic control. Access roads would be gravel or aggregate base depending on the final site geotechnical report. A temporary staging area, anticipated to be located on the southwest end of the site, would be constructed to hold materials and construction equipment.

Due to the sloped topography of the Project site, site preparation would require approximately 407,000 cubic yards of cut and 406,000 cubic yards of fill, to create a single terrace on which the batteries would be installed. The balance of fill would be transported offsite. Slopes of all cuts and fills would be no steeper than is safe for the intended use and shall be no steeper than one unit vertical in two units horizontal (50 percent slope). Transition slopes between terraces would occur at a one unit vertical to four units horizontal. The top of a cut slope would not be made nearer to a site boundary line than one-fifth of the vertical height of cut with a minimum of 2 feet and a maximum of 10 feet, and the toe of fill slope would be made not nearer to the site boundary line than one half the height of the slope with a minimum of 2 feet and a maximum of 20 feet, consistent with the San Joaquin County Grading Ordinance (San Joaquin County 2021).

Additionally, no grading which may obstruct, impede, or interfere with the natural flow of storm waters would occur. The Project would include swales and armored outlets to direct stormwater, as shown in the preliminary grading and site plan provided as Figure 2.

Fencing

A perimeter security fence would be installed around the BESS facility. Trash would be removed from the fencing as required. A security fence would also be installed around the Project substation.

Electrical Work

A substation pad for the step-up transformer would be poured, followed by the installation of the medium-voltage stations, wiring of the modules through combiner boxes, and construction of the Project substation and grid interconnection. The medium-voltage stations would sit on concrete foundations or driven piles, pending final design.

3.1.5 Operations and Maintenance

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be operated by the Applicant or an affiliated company remotely. Periodic augmentation of batteries within the Project site may occur. Only occasional onsite maintenance is expected following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

During operation of the Project substation, operations and maintenance staff would visit the substation periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including, but not limited to, equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance.

Routine operations would require one or two workers in a light utility truck to visit the facility on a weekly basis. Typically, one major maintenance inspection would take place annually.

3.1.6 Decommissioning and Site Reclamation

The Project has an expected useful life of 30 years. If operations at the site are terminated, the facility would be decommissioned. The Property would be returned to a stable condition comparable to pre-Project conditions in accordance with applicable land use regulations in effect at the time of decommissioning. During decommissioning and site reclamation, the Project would require approximately 15 acre-feet of water for uses similar to those needed during construction. Many of the Project components, including the BESS and onsite substation, would be recycled when the Project's operating life is over.

3.2 Methodology

3.2.1 Visual Impact Criteria

For this analysis, the significance criteria outlined in Appendix G of the California Environmental Quality Act Guidelines, as amended, are applied to determine the Project's impact to existing visual resources. The California Environmental Quality Act-defined aesthetic issues of concern are:

- Would the proposed Project cause substantial adverse effects on a scenic vista?
- Would the proposed Project cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway?
- In non-urbanized areas, would the proposed Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.)
- Would the proposed Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

3.2.2 Visual Change Criteria

Visual impacts are generally defined in terms of a project's physical characteristics and potential visibility, as well as the extent to which the project's presence would change the perceived visual character and quality of the environment in which it would be located. Tetra Tech followed the contrast rating system used by the U.S. Bureau of Land Management (BLM) to objectively measure potential changes to the visual environment (BLM 1986). The BLM's contrast rating system is commonly used by federal agencies to assess potential visual resource impacts from proposed projects.

Potential visual impacts were characterized by determining the level of visual contrast introduced by the Project based on comparing existing conditions and photograph simulations. Visual contrast is a means to evaluate the level of modification to existing landscape features. Existing landscape is defined by the visual characteristics (e.g., form, line, color, and texture) associated with the landform (including water), vegetation, and existing development.

The BLM's Visual Resource Inventory (VRI) classification system is a baseline description of the existing scenic values in the environment. The VRI developed by the BLM identifies the visual resources of a given area and, based upon specific standards, assigns an inventory class to each area. This process,

further described in detail in BLM Manual H-8410-1 (BLM 2010), involves rating the resource's visual qualities, measuring public concern and determining the extent to which an area is visible from travel routes and other observation points. Those three factors then determine which of the four VRI classes are assigned to each area of BLM-administered lands based on visual sensitivity level (i.e., high, medium, and low), scenic quality, and distance. These four VRI classes represent the relative values of the existing visual resources. VRI Classes I and II represent the highest visual value, Class III represents moderate value, and Class IV represents relatively low visual value.

Specific terminology used in describing the existing visual environment is provided below.

- **Contrast.** Opposition or unlikeness of different forms, lines, colors, or textures in a landscape. Contrast rating: a method of analyzing the potential visual impacts of proposed management activities.
- **Form**. The mass or shape of an object or objects that appears unified, such as a vegetative opening in a forest, a cliff or mountain formation, a water tank, or a highway overpass.
- **Key Observation Point (KOP).** One or a series of points on a travel route or at a use area or potential use area, where the view of a management activity would be most revealing.
- **Landscape Visibility.** Perception of details (e.g., form, line, color, and texture) diminishes with increasing distance. The distance zone is dependent on the location of the observer relative to the Project. These distance zones are:
    - Foreground and middle ground: zero to 5 miles from point of interest
    - Background: remaining area up to 15 miles away from the point of interest
    - Seldom seen: over 15 miles from the point of interest
- **Scenic quality** is a measure of the visual appeal of a tract of land. In the visual resource inventory process, the apparent scenic quality is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.
- **Sensitivity level.** Sensitivity levels are a measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels by analyzing the various indicators of public concern.
- **Simulation.** A realistic visual portrayal that demonstrates the perceivable changes in landscape features caused by a proposed management activity. This is done using photography, artwork, computer graphics, and other such techniques.
- **Texture.** The visual manifestations of the interplay of light and shadow created by the variations in the surface of an object or landscape.
- **Viewshed**. A landscape unit seen from a KOP.
- **Visual quality.** The relative worth of a landscape from a visual perception point of view.
- **Visual resource.** The visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features).

Scenic quality is a measure of the visual appeal of a tract of land. The apparent scenic quality of the land is determined using seven key factors: landform, vegetation, water, color, adjacent scenery,

scarcity, and cultural modifications. During the rating process, each of these factors are ranked on a comparative basis with similar features within the project area. The BLM Visual Resource Management approach allows the various landscape elements that comprise visual quality to be quantified and rated with a minimum of ambiguity or subjectivity, which can be easily understood and compared by the reader.

According to this method, visual quality is rated according to the presence and characteristics of seven key components of the landscape. These components include landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications, defined as follows:

1. The ***landform*** component of the visual quality rating criteria takes into account the fact that topography becomes more interesting visually as it gets steeper or more massive, or more severely or universally sculptured. Outstanding landforms may be monumental (as found in Yosemite Valley), or they may be exceedingly artistic and subtle (such as certain ridgelines, pinnacles, peaks, and other extraordinary formations).
2. The ***vegetation*** component of the rating criteria gives primary consideration to the variety of patterns, forms, and textures created by plant life. Short-lived displays are given consideration when they are known to be recurring or spectacular. Consideration also is given to smaller scale vegetational features that add striking and intriguing detail elements to the landscape (e.g., hedgerows or trees, native grasses, etc.).
3. The ***water*** component of the rating criteria recognizes that visual quality is largely tied to the presence of water in scenery, as it is that ingredient which adds movement or serenity to a scene. The degree to which water dominates the scene is the primary consideration in selecting the rating score for the water component.
4. The ***color*** component of the visual quality rating criteria considers the overall color(s) of the basic components of the landscape (e.g., soil, rock, vegetation, etc.). Key factors that are used when rating the color of scenery are variety, contrast, and harmony.
5. The ***adjacent scenery*** component of the rating criteria takes into account the degree to which scenery outside the view being rated enhances the overall impression of the scenery under evaluation. The distance of influence for adjacent scenery normally ranges from zero to 5 miles, depending upon the characteristics of the topography, the vegetation cover, and other such factors. This factor generally is applied to views that normally would rate very low in score, but the influence of the adjacent high visual quality would enhance the visual quality and raise the score.
6. The ***scarcity*** component of the visual quality rating criteria provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique or rare within a region. There may also be cases where a separate evaluation of each of the key factors does not give a true picture of the overall scenic quality of an area. Often, it is a number of not so spectacular elements in the proper combination that produces the most pleasing and memorable scenery; the scarcity factor can be used to recognize this type of area and give it the added emphasis it should have.

7. The ***cultural modifications*** component of the visual quality rating criteria takes into account any humanmade modifications to the landform, water, vegetation, and/or the addition of humanmade structures. Depending on their character, these cultural modifications may detract from the scenery in the form of a negative intrusion, or they may complement and improve the scenic quality of a view.

Based on the criteria above, views are rated numerically and a total score of visual quality can be tabulated. Table 1 summarizes the point associated with the various criteria. Based on this rating system, there are a total of 32 points possible. Views that score a total of 19 points or more are typically considered very high in visual quality (Class I). Views that score a total of 12 to 19 points typically are considered to have a high to above average level of visual quality (Classes II and III). Finally, views that score a total of 11 points or less typically are considered to have average or lower visual quality (Class IV). Table 2 summarizes the point associated with the various criteria. Table 2 summarizes the point associated with the various criteria.

Using the criteria below, the visual quality of the existing visual conditions and the post-Project ("simulated" condition) visual conditions will be rated. The scores will determine the Project site's existing visual class and evaluate whether the Project will result in a lower visual class and the degree of change between the existing and post-Project visual conditions.

Table 1. Visual Quality Rating System—Scenic Quality Inventory and Evaluation Chart

Key Factors	Rating Criteria and Score		
Landform	High vertical relief as expressed in prominent cliffs, spires, or massive rock outcrops, or severe surface variation or highly eroded formations (including major badlands or dune systems); or detail features dominant and exceptionally striking and intriguing, such as glaciers. Score 5	Steep canyons, mesas, buttes, cinder cones, and drumlins; or interesting erosional patterns or variety in size and shape of landforms; or detail features which are interesting though not dominant or exceptional. Score 3	Low rolling hills, foothills, or flat valley bottoms; or few or no interesting landscape features. Score 1
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns. Score 5	Some variety of vegetation, but only one or two major types Score 3	Little or no variety or contrast in vegetation. Score 1
Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape. Score 5	Flowing or still, but not dominant in the landscape. Score 3	Absent or present, but not noticeable. Score 0
Color	Rich color combinations, variety, or vivid color; or pleasing contrasts in the soil, rock, vegetation, water, or snow fields. Score 5	Some intensity or variety in colors and contrast of the soil, rock, and vegetation, but not a dominant scenic element. Score 3	Subtle color variations, contrast, or interest; generally mute tones. Score 1
Influence of adjacent scenery	Adjacent scenery greatly enhances visual quality Score 5	Adjacent scenery moderately enhances overall visual quality. Score 3	Adjacent scenery has little or no influence on overall visual quality. Score 0

Key Factors	Rating Criteria and Score		
Scarcity	One of a kind; or unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc. *Score 5+	Distinctive, though somewhat similar to others within the region. Score 3	Interesting within its setting, but fairly common within the region. Score 1
Cultural modifications	Modifications add favorably to visual variety while promoting visual harmony. Score 2	Modifications add little or no visual variety to the area, and introduce no discordant elements. Score 0	Modifications add variety, but are very discordant and promote strong disharmony. Score -4

* A rating of greater than 5 can be given, but must be supported by written justification.

Source: BLM 2010

The Project will also be evaluated as to the level of contrast Project elements exhibit to the existing visual character of the Project site and area, as shown in Table 2.

Table 2. Degree of Contrast Rating System

Degree of Contrast	Rating Criteria
None	The element contrast is not visible or perceived.
Weak	The element contrast can be seen but does not attract attention.
Moderate	The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Source: BLM 2010

Contrast ratings for the expected condition with the Project were prepared for each representative viewpoint using a form adapted from BLM's Visual Contrast Rating Worksheet (Form 8400-4); the results are included in Attachment A.

In general, visual impacts are determined based on the level of contrast the Project introduces to the existing visual character of the Project site and area, the sensitivity of the viewers, and the visibility of the Project site. If these factors result in a change in visual class and/or a significant change in visual quality ratings, the impacts are likely to be adverse.

3.2.3 Viewshed

The viewshed is generally the area that is visible from an observer's viewpoint and includes the screening effects of intervening vegetation and/or physical structures. Although some portion of the Project site may be visible from a relatively large area, the degree of visibility would depend on distance and view angle. Generally, the Project site would be most visible from viewpoints within 1 mile, while site visibility would diminish as distance increases and view angle decreases. Air quality, including dust and other visible particulates, can affect visibility in the area. Distance is only one of the factors that determine visibility of a site from a viewpoint. Terrain, vegetation, and structural features can obscure views that might otherwise be available at a certain distance.

A viewshed analysis is a graphic representation of locations that may have views of all or portions of the Project based on topography within the Project Zone of Visual Influence (ZVI). A viewshed analysis is a graphic representation of the seen and unseen areas adjacent to the Project based on topography within the Project ZVI. The viewshed analysis was conducted using Esri ArcGIS geographic information

system software with the Spatial Analyst extension to process 10-meter digital elevation models and the height of the battery storage enclosures and the gen-tie line above ground surface (Figure 4). The viewshed assumed "bare earth" conditions and was run from the Project area looking out to determine areas with potential visibility. The assumed "bare earth" conditions mean identification of areas with potential views of the Project were based on topography only. The analysis is also conservative because it does not account for screening by intervening structures, vegetation, curvature of the earth, small terrain changes, atmospheric conditions and attenuation, or other features. The ZVI was used to assist with the identification of potential KOPs.

3.2.4 Key Observation Points

Based on the ZVI and the identification of publicly accessible routes and viewpoints, potential KOPs were identified and further assessed during the field assessment. KOPs were identified based on locations from which the Project infrastructure would potentially be visible and noticeable to the casual observer. The "casual observer" is considered an observer who is not actively looking or searching for the Project, but who is engaged in activities at locations with potential views of the Project, such as hiking or driving along a scenic road. If the Project infrastructure is not noticeable to the casual observer, visual impacts can be considered minor to negligible.

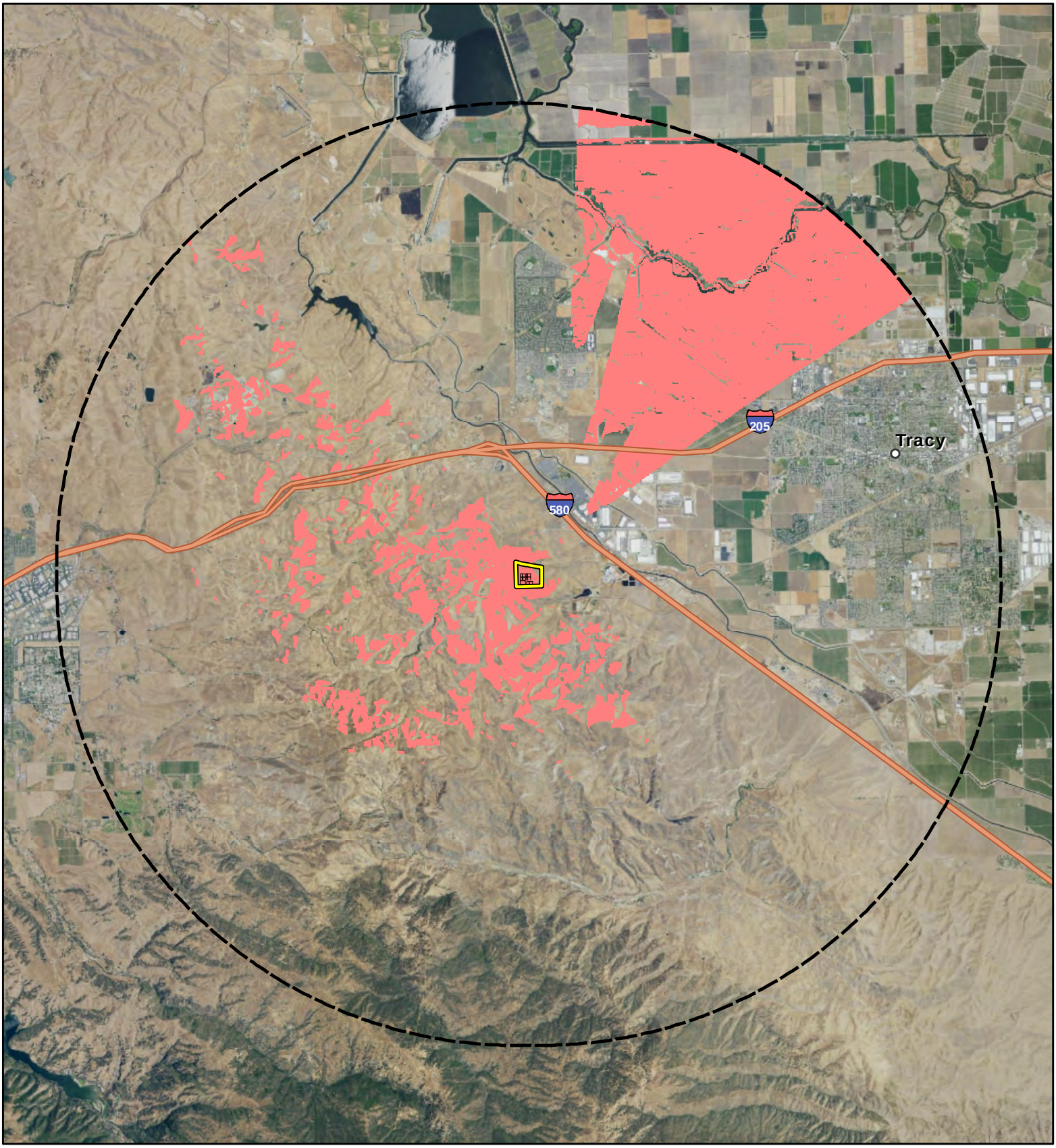
Six KOPs were selected as representative vantage points in the landscape that offer motorists traveling on area roadways and local residents' views of the proposed Project site (Figure 5). These KOPs provide views from the closest roadways to the Project site from publicly accessible areas.

Factors considered in the selection of KOPs included locations with sensitive viewers (e.g., local residences, motorists on nearby roadways) and potential for the Project site to be visible (e.g., distance and view angle). The KOPs were selected to capture representative vantages from I-580, local roadways, and residences.

Digital photographs were taken from the selected KOP locations to support the discussion on existing visual setting and the analysis of potential visual impacts associated with the proposed Project site (Figures 6 through 11). Photographs of existing conditions were taken on May 24, 2022, using a digital, single-lens reflex, Canon 5D Mark III camera.

3.2.5 Visual Simulations

Three-dimensional visual simulations from representative KOP photographs were rendered to approximate the visual conditions resulting with Project implementation. Using the photographs acquired at each KOP, a three-dimensional physical massing model was created that incorporated the photovoltaic scale model, placed in array configurations as shown in Figure 2. The model was then georeferenced and placed on global positioning system–controlled, site-specific photographs to create simulations that demonstrate visual changes from the Project. Figures 6 through 11 present simulated views of Project features.





Project Area

8-mile Buffer

Project Potentially Visible

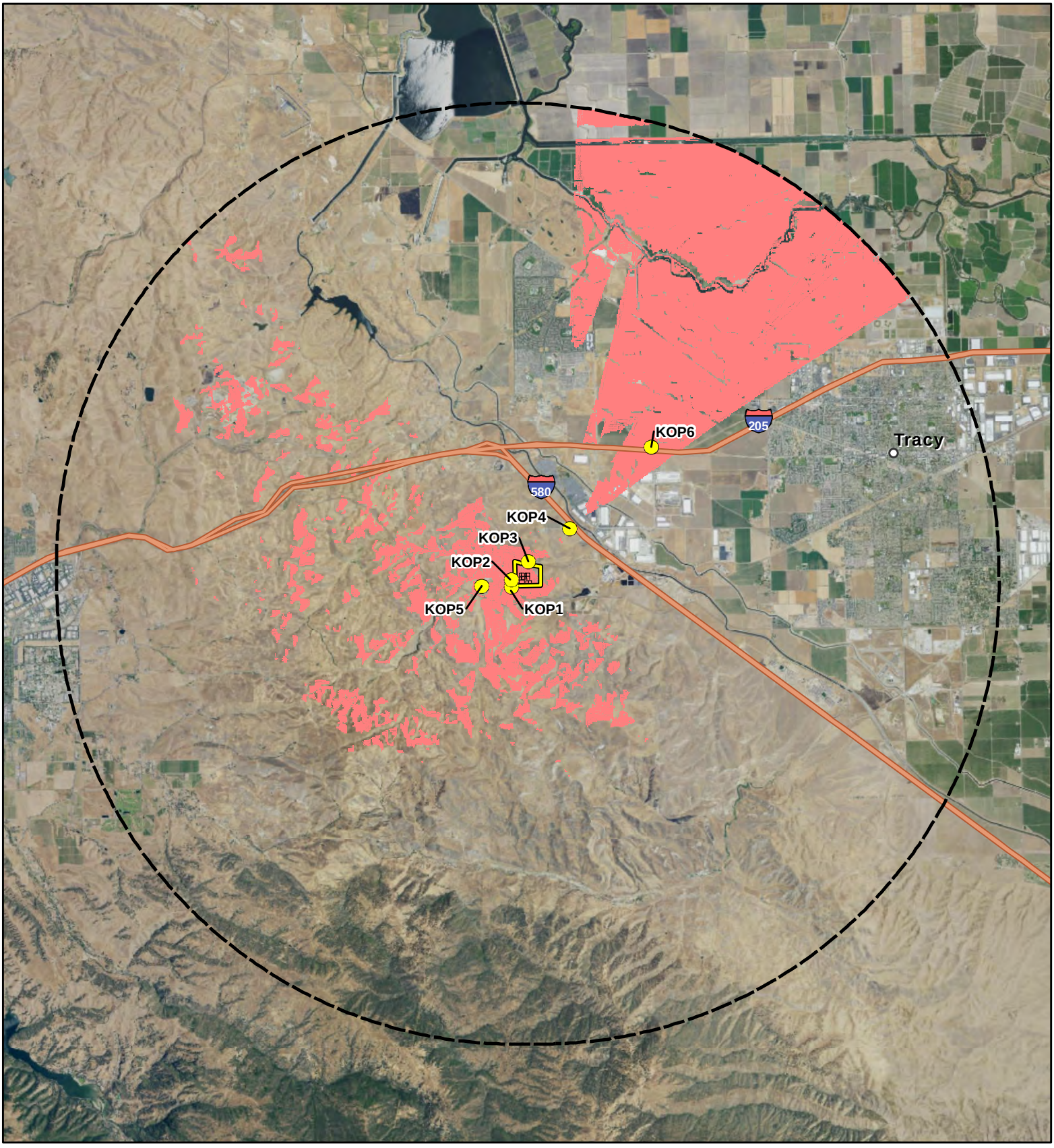
N

0 1 2 Miles

Figure 4
Project Potential
Visibitlity

Griffith Battery Storage Project
San Joaquin County, California

R:\PROJECTS\KOLA_1109-0068\VISUAL\MAPS\Kola_Griffith_Figure_4_VS_8mi.mxd





Project Area
8-mile Buffer
Project Potentially Visible
KOPs

N

0 1 2 Miles

Figure 5
KOP Locations

Griffith Battery Storage Project
San Joaquin County, California

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3.2.6 Viewer Types and Characteristics

The term “sensitive viewers” refers to specific user groups associated with various land uses that have a sensitivity to landscape change and, therefore, could be adversely affected by the construction and operation of a project. In this regard, potentially sensitive viewing locations are typically associated with key travel routes, recreation areas, and residential areas. Viewpoints represent critical or typical viewpoints within, or along, an identified viewing location and are used to assess visual impacts of a proposed project. The sensitivity of viewers at each viewpoint is based on the type of use, expected concern for aesthetics, and special status or designation. Identifying groups of individuals that would likely be sensitive to visual changes is an important part of the visual assessment process and helps to define specific locations from which to assess changes to the visual character of the landscape. An inventory of sensitive viewers considers 1) the most critical viewpoints (i.e., views from communities, residential areas, or recreational areas); 2) views from scenic areas specifically identified in local planning documents; and 3) views that represent the general area or landscape setting.

Distinctions among user groups and their expected sensitivity to landscape changes, based on activity types and viewing characteristics, are standard components of a visual assessment. For example, residential viewers are generally expected to have high concern for changes in views from their residences. Motorists’ concerns generally depend on when and where travel occurs, and the type of travel involved (e.g., commuting versus recreational travel). However, because their focus is on driving to their destination and because the time they view the landscape as they drive through is more limited, they may have lower visual sensitivity.

Scenic views designated in land use plans adopted by federal, state, or local government entities typically formalize a recognized visual value of a resource and the public’s desire to protect that value (e.g., a designated wilderness or scenic area). Where such officially designated lands exist, the public expectation is that the view at the location of the identified resource would be preserved, and the viewer concern is considered high.

4.0 ENVIRONMENTAL SETTING

4.1 Regional Character

San Joaquin County is set within the greater San Joaquin Valley, with the Delta and large expanses of level, agricultural lands and urban development framed by the foothills of the Diablo Range to the west and the foothills of the Sierra Nevada to the east (San Joaquin County 2014). The foothills of the Diablo Range define the southwest corner of the county, and separate San Joaquin County from Alameda County to the west. Agricultural uses are the predominate land use in the unincorporated lands within the county. Urban development is concentrated in the seven incorporated cities of the county, especially Stockton and Tracy.

4.2 Local Setting

The Project site consists of grazed non-native grassland, several hills, three residential uses, and agricultural buildings. In addition to the grasses, a few trees are found near the residential uses. Energy related uses are found adjacent to the Project site, including PG&E's Tesla Substation to the west and transmission towers and lines to the southwest and northwest of the Project site. A cluster of residential uses are found directly to the north of the Project site, on the other side of West Patterson Pass. Industrial uses located near the Project site are located on the western edge of Tracy, mostly on the eastern side of I-580. The terrain on the Project site and the immediate area ranges from relatively flat to hilly.

4.3 Scenic Routes

According to the California Department of Transportation (Caltrans) Scenic Highway System Lists, the segment of I-580, south of the Interstate 205 (I-205) interchange to State Route 152, is an officially designated state scenic highway. This segment is located 1 mile to the northeast of the Project site. The segment of I-580 west of the I-205 interchange to the city of San Leandro is an eligible state scenic highway (Caltrans 2022). This segment is located approximately 2.2 miles to the north of the Project site. Corral Hollow Road, located 5 miles to the south of the Project site, is identified as a local scenic road (San Joaquin County 2014).

4.4 Scenic Vistas

The foothills of the Diablo Range are identified as a key visual resource that adds contrast to the county's predominately flat terrain and views of the Diablo Range from I-580 are identified as a major scenic vista. Other scenic vistas identified near the Project site include the viewing lands under agricultural production while driving on two-lane roads through rural portions of the county (San Joaquin County 2014). The Top of the World Scenic Lookout is located along Patterson Pass Road, approximately 4.3 miles to the west of the Project site.

4.5 Viewer Groups

In general, the types of viewers present within the viewshed of the Project are classified as local residents and motorists. The following discussion summarizes the composition of the groups identified within the viewshed of the Project and their characteristics that are relevant to the visual assessment.

Local Residents

The local resident viewer group consists of people who live within the viewshed of the Project. Residences within the Project viewshed are found along West Patterson Pass to the north, Midway Road to the west, the frontage road south of the PG&E Tesla Substation, and near I-580 and I-205 northeast of the Project site. The closest residences are located along Midway Road adjacent to the Project site.

Local residents may be more sensitive to changes in their specific views and may have adverse reactions to views of the Project facilities. The existing landscape already includes the PG&E Tesla Substation and numerous transmission towers and lines and, as a result, the addition of the Project would not be as significant a change as it would if the landscape had no development. For example, residents with a view across the open grasslands within the Project viewshed who have views of the PG&E Tesla Substation and multiple transmission towers and lines may be less sensitive to landscape changes than those with just a view of open grasslands.

Travelers

Travelers passing through an area typically view the landscape from motor vehicles on their way to work or other destinations. Travelers include people engaged in various types of business or personal travel. Commuters do not tend to stop along their travel routes, have a relatively narrow field of view because they are focused on road and traffic conditions, and are destination oriented. Passengers in commuter vehicles would have greater opportunities for prolonged off-road views toward landscape features and, accordingly, may have greater perception of changes in the visual environment. Through travelers are typically moving, have a relatively narrow field of view, and are destination oriented. Generally, drivers in this group are focused on driving and on the road and traffic conditions, but do have the opportunity to observe roadside scenery.

4.6 Existing Visual Character

Six KOPs were selected to assess the level of visual change resulting from the Project energy storage facility as described in Section 3, *Project Description*, on the existing environment. The locations of the six KOPs are presented in Figure 5. The KOPs were selected to capture representative vantages from Midway Road, West Patterson Road and I-580, and residences southwest and north of the Project site. Photographs from each KOP under existing conditions are presented in Figures 6 through 11.

EXISTING CONDITIONS



SIMULATED CONDITIONS



GRIFFITH ENERGY STORAGE, LLC

Griffith Energy Storage Project



Photograph Information

Time of photograph: 11:51 a.m.
Date of photograph: 05/24/2022
Weather condition: Sunny
Viewing direction: Northeast
Latitude: 37.707430°
Longitude: -121.558793°
Photo Location: This photo is taken from the end of public access of Midway Road (south end)

Printing/Viewing Instructions

This sheet should be printed at at 11 by 17 inches; full size with no scaling; and viewed at a distance of 16 inches. If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at a distance of 16 inches.

PHOTO SIMULATION

Viewpoint 1 - Figure 6

17950 Midway Road

EXISTING CONDITIONS



SIMULATED CONDITIONS



GRIFFITH ENERGY STORAGE, LLC

Griffith Energy Storage Project



Photograph Information

Time of photograph: 12:37 p.m.
Date of photograph: 05/24/2022
Weather condition: Sunny
Viewing direction: Northeast
Latitude: 37.709279°
Longitude: -121.558834°
Photo Location: This photo is taken near driveway of 20044 Midway Rd.

Printing/Viewing Instructions

This sheet should be printed at at 11 by 17 inches; full size with no scaling; and viewed at a distance of 16 inches. If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at a distance of 16 inches.

PHOTO SIMULATION

Viewpoint 2 - Figure 7

20044 Midway Road

EXISTING CONDITIONS

SIMULATED CONDITIONS



GRIFFITH ENERGY STORAGE, LLC

Griffith Energy Storage Project



Photograph Information

Time of photograph: 10:44 a.m.
Date of photograph: 05/24/2022
Weather condition: Sunny
Viewing direction: Southwest
Latitude: 37.713773°
Longitude: -121.553434°
Photo Location: This photo is taken near entrance of residence at 19785 and 19880 W. Patterson Pass Rd.

Printing/Viewing Instructions

This sheet should be printed at at 11 by 17 inches; full size with no scaling; and viewed at a distance of 16 inches. If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at a distance of 16 inches.

PHOTO SIMULATION

Viewpoint 3 - Figure 8
19785 and 19880 West Patterson Pass Rd.

EXISTING CONDITIONS

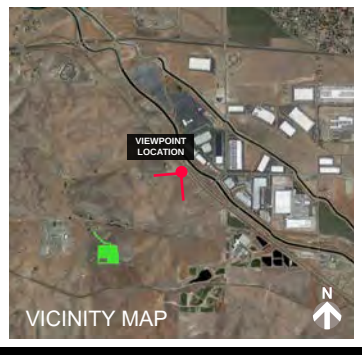


SIMULATED CONDITIONS



GRIFFITH ENERGY STORAGE, LLC

Griffith Energy Storage Project



Photograph Information

Time of photograph: 9:33 a.m.
Date of photograph: 05/24/2022
Weather condition: Sunny
Viewing direction: Southwest
Latitude: 37.722028°
Longitude: -121.540177°
Photo Location: This photo is taken from entrance at Patterson Pass Road and unnamed private road, sign “Cantori Spark Ranch.

Printing/Viewing Instructions

This sheet should be printed at at 11 by 17 inches; full size with no scaling; and viewed at a distance of 16 inches. If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at a distance of 16 inches.

PHOTO SIMULATION

Viewpoint 4 - Figure 9

Residential Road

EXISTING CONDITIONS



SIMULATED CONDITIONS



GRIFFITH ENERGY STORAGE, LLC

Griffith Energy Storage Project



Photograph Information

Time of photograph: 1:27 p.m.
Date of photograph: 05/24/2022
Weather condition: Sunny
Viewing direction: East
Latitude: 37.707671°
Longitude: -121.568455°
Photo Location: This photo is taken from 17257 Patterson Pass Road and MluQueeny Ranch driveway.

Printing/Viewing Instructions

This sheet should be printed at at 11 by 17 inches; full size with no scaling; and viewed at a distance of 16 inches. If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at a distance of 16 inches.

PHOTO SIMULATION

Viewpoint 5 - Figure 10

MulQueen Ranch Driveway

EXISTING CONDITIONS

SIMULATED CONDITIONS



GRIFFITH ENERGY STORAGE, LLC

Griffith Energy Storage Project



Photograph Information

Time of photograph: 2:06 p.m.
Date of photograph: 05/24/2022
Weather condition: Sunny
Viewing direction: Southwest
Latitude: 37.742281°
Longitude: -121.513670°
Photo Location: This photo location is adjacent to the Delta-Mendota Canal, just off Hansen Road and canal and residential road access.

Printing/Viewing Instructions

This sheet should be printed at at 11 by 17 inches; full size with no scaling; and viewed at a distance of 16 inches. If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at a distance of 16 inches.

PHOTO SIMULATION

Viewpoint 6 - Figure 11

Near Hansen Road

4.6.1 Key Observation Point 1

KOP 1 is located on Midway Road, approximately 0.14 mile southwest of the Project site. This KOP depicts views oriented northeast toward the Project site. As shown in Figure 6, the existing landscape setting is characterized by agricultural land relatively flat to hilly terrain. Existing structural features include an agricultural building, Midway Road, fencing, transmission towers and lines, and utility poles and lines. Vegetation includes grasses, ruderal vegetation, and a few stands of trees. Dominant colors for the landscape are tans, browns, and greens while the structures are gray, white, green, and brown. The vegetation consists of irregular organic forms: grasses are continuous with irregularly shaped ruderal vegetation and trees. The linear and horizontal lines associated with the structures are visible and prominent from this viewpoint. This KOP provides a typical view for drivers traveling along Midway Road. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residence south of this KOP at the end of Midway Road. Considering the frequent viewing by local residents and the proximity to the Project, viewers would have moderate to high sensitivity to the visual changes on the Project site.

4.6.2 Key Observation Point 2

KOP 2 is located on Midway Road, approximately 0.12 mile west of the Project site. This KOP depicts views oriented east toward the Project site. As shown in Figure 7, the existing landscape setting is characterized by agricultural land ranging from relatively flat to hilly terrain. Existing structural features include a residential building and garage, fencing, transmission towers and lines, and utility poles and lines. Vegetation includes grasses, ruderal vegetation, and a few stands of trees. Dominant colors for the landscape are tans, browns, and greens while the structures are gray, white, and brown. The vegetation consists of irregular organic forms: grasses are continuous with irregularly shaped ruderal vegetation and trees. The linear and horizontal lines associated with the structures are visible and prominent from this viewpoint. This KOP provides a typical view for drivers traveling along Midway Road. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residence east of this KOP off Midway Road. Considering the frequent viewing by local residents and the proximity to the Project, viewers would have a moderate to high sensitivity to the visual changes on the Project site.

4.6.3 Key Observation Point 3

KOP 3 is located on West Patterson Pass Road, approximately 0.2 mile north of the Project site. This KOP depicts views oriented south toward the Project site. As shown in Figure 8, the existing landscape setting is characterized by agricultural land with hilly terrain. Existing structural features include West Patterson Pass Road. Vegetation includes grasses and ruderal vegetation. Dominant colors for the landscape are tan and green while the structures are gray and yellow. The vegetation consists of irregular organic forms: grasses are continuous with irregularly shaped ruderal vegetation. The linear and horizontal lines associated with West Patterson Pass Road are visible and prominent from this viewpoint. This KOP provides a typical view for drivers traveling along West Patterson Pass Road, likely at high speeds. Considering the short duration of viewing, viewers would have a low viewer

sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residences north of West Patterson Pass Road. Considering the frequent viewing by local residents, viewers would have a moderate sensitivity to the visual changes on the Project site.

4.6.4 Key Observation Point 4

KOP 4 is located near I-580, approximately 1 mile northeast of the Project site. This KOP depicts views oriented southwest toward the Project site. As shown in Figure 9, the existing landscape setting is characterized by agricultural land with gently rolling to hilly terrain. Existing structural features include fencing, transmission towers and lines, utility poles and lines, and wind turbines. Vegetation includes grasses. The dominant color for the landscape is tan while the structures are gray, white, brown, and green. The vegetation consists of irregularly shaped, organic forms of grasses. The linear and horizontal lines associated with the structures are visible from this viewpoint. This KOP provides a typical view for drivers traveling along I-580, likely traveling at a high rate of speed. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residence near this KOP. Considering the frequent viewing by local residents, viewers would have a moderate sensitivity to the visual changes on the Project site.

4.6.5 Key Observation Point 5

KOP 5 is located on the Tesla Substation frontage road, approximately 0.65 mile west of the Project site. This KOP depicts views oriented east toward the Project site. As shown in Figure 10, the existing landscape setting is characterized by agricultural land with hilly terrain. Existing structural features include fencing, transmission towers and lines, and utility poles and lines. Vegetation includes grasses and ruderal vegetation. Dominant colors for the landscape are tans and greens while the structures are gray and brown. The vegetation consists of irregular organic forms: grasses are continuous with irregularly shaped ruderal vegetation. The linear and horizontal lines associated with the structures are visible and prominent from this viewpoint. This KOP provides a typical view for drivers traveling along this frontage road. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residence south of this KOP at the end of the frontage road. Considering the frequent viewing by local residents, viewers would have a moderate sensitivity to the visual changes on the Project site.

4.6.6 Key Observation Point 6

KOP 6 is located off Hansen Road near I-205, approximately 3.1 miles northeast of the Project site. This KOP depicts views oriented southwest toward the Project site. This KOP is located on the western boundary of the city of Tracy. As shown in Figure 11, the existing landscape setting is characterized by agricultural land and industrial development with flat terrain and hilly terrain in the background. Existing structural features include I-205, highway signage, fencing, industrial buildings, utility poles and lines, transmission towers and lines, and wind turbines. Vegetation includes grasses, ruderal vegetation, and a few stands of trees. Dominant colors for the landscape are green and tan while the structures are gray, white, and brown. The vegetation consists of irregular organic forms: grasses are continuous with irregularly shaped ruderal vegetation and trees. The linear and horizontal lines

associated with the structures are visible from this viewpoint. This KOP provides a typical view for drivers traveling along Hansen Road, likely traveling at a high rate of speed. Considering the short duration of viewing, viewers would have a low viewer sensitivity to the visual changes in the area. This KOP also provides a typical view for the occupants of the residences near this KOP. Considering distance and multiple intervening structures, local residential viewers would have a low sensitivity to the visual changes on the Project site.

5.0 REGULATORY SETTING

5.1 Federal

5.1.1 National Scenic Byways Program

The National Scenic Byways Program, a part of the Federal Highway Administration, recognizes, preserves, and enhances selected roads throughout the U.S. as All-American Roads or National Scenic Byways based on one or more archaeological, cultural, historic, natural, recreational, and scenic qualities. There are no officially designated National Scenic Byways in the vicinity of the Project site (FHWA 2022; Caltrans 2022).

5.2 State

5.2.1 Caltrans Scenic Highway Program

State scenic highways are those that are either officially designated as state scenic highways by Caltrans or are eligible for such designation. The scenic designation is based on the amount of natural landscape visible by motorists, the scenic quality of the landscape, and the extent to which development intrudes on the motorist's enjoyment of the view. I-580 is an officially designated state scenic highway from south of the I-205 interchange to State Route 152 and is eligible state scenic highway from west of the I-205 interchange to the city of San Leandro (Caltrans 2022).

5.3 Local

5.3.1 San Joaquin County

Natural and Cultural Resources Element
Scenic Resources

Goal NCR-7: To protect and enhance the unique scenic features of San Joaquin County.

Policies:

NCR-7.1: Scenic Roadways. The County shall protect the visual character of designated scenic roadways.

NCR-7.2: Views from Public Lands and Roadways. The County shall ensure that views of waterways, hilltops, and oak groves from public land and public roadways are protected and public access is provided to them whenever possible.

NCR-7.3: Designate Scenic Routes. The County shall preserve scenic views from roadways by designating scenic routes based on the following criteria:

- leads to a recreational area;
- provides a representative sampling of the scenic diversity within the County;
- exhibits unusual natural or man-made features of interest;
- provides opportunities to view activities outside the normal routine of most people;

- provides a route for people to view the Delta waterways; and
- links two scenic routes or connects with scenic routes of cities or other counties.

NCR-7.4: Visually Complementary Development. The County shall require new development adjacent to scenic resources to be sited and designed to visually complement those resources, except in MR-Z designated areas.

NCR-7.5: Require Landscape Plans. The County shall require landscape plans for new development along State- or County-designated scenic routes.

NCR-7.6: Preservation of Ridgelines and Hill Tops. The County shall ensure that ridgelines and major hill tops remain undeveloped.

NCR-7.7: Reducing Light Pollution. The County shall encourage project designs, lighting configurations, and operational practices that reduce light pollution and preserve views of the night sky.

NCR-7.8: Underground Utility Lines. The County shall require all new electric and communication distribution facilities adjacent to scenic routes to be placed underground, whenever feasible. Where overhead utility lines are unavoidable, every effort should be made to reduce the visual impact through elements of design.

Goal LU-3: Preserve and enhance the character and scale of San Joaquin County's communities and rural areas, including their architectural heritage and historic character.

Policies:

LU-3.1: Contextual and Compatible Design. The County shall ensure that new development respects San Joaquin County's heritage by requiring that new development respond to its context, be compatible with the traditions and character of each community, and develop in an orderly fashion which is compatible with the scale of surrounding structures.

LU-3.3: Transitions in Scale. The County shall encourage a balance of the scale and massing of new development to the physical and visual character of adjoining uses to provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods.

LU-3.10: Visual Access. The County shall encourage new development to maintain views of hillsides, creeks, and other distinctive natural areas by regulating building orientation, height, and bulk.

Goal LU-8: Protect open space for its recreational, agricultural, safety, and environmental value and provide adequate parks and open space areas throughout the County.

Policies:

LU-8-1: Open Space Preservation. The County shall limit, to the extent feasible, the conversion of open space and agricultural lands to urban uses and place a high priority on preserving open space lands for recreation, habitat protection and enhancement, flood hazard management, public safety, water resource protection, and overall community benefit.

LU-8-2: Open Space Character. The County shall require new development in Resource Conservation designated areas to be planned and designed to maintain the scenic open space character of the surrounding area, including view corridors from highways. New development should use natural landforms and vegetation in the least visually disruptive manner possible, and use design, construction, and maintenance techniques that minimize the visibility of structures.

5.3.2 Alameda County

General Plan Scenic Route Element

Objective:

To conserve, Enhance, and protect scenic Views observable for scenic areas.

Principles That Apply to Scenic Route Corridors:

Locate Transmission Towers and Lines Outside of Scenic Route Corridors When Feasible. New overhead transmission towers and lines should not be located within scenic corridors when it is feasible to locate them elsewhere.

Provide for Normal Uses of Land but Limit Overhead Utilities and Outdoor Advertising Structures. In both developed and undeveloped areas, outdoor advertising structures, utility and communication towers, poles and wires should be located only where they will not detract from significant scenic views. All other structures and use of land should be permitted as specified in the local zoning ordinance as supplemented by special height regulations.

East County Area Plan
Sensitive Viewsheds

Policies:

Visual Protection

Policy 108: To the extent possible, including by clustering if necessary, structures shall be located on that part of a parcel or on contiguous parcels in common ownership on or subsequent to the date this ordinance becomes effective, where the development is least visible to persons on public roads, trails, parks and other public viewpoints. This policy does not apply to agricultural structures to the extent it is necessary for agricultural purposes that they be located in more visible areas.

Landscaping

Policy 114: The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.

Policy 115: In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent

practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located.

Alteration of Landforms

Policy 116: To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public viewpoints.

Grading

Policy 117: The County shall require that where grading is necessary, the offsite visibility of cut and fill slopes and drainage improvements is minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.

Policy 118: The County shall require that grading avoid areas containing large stands of mature, healthy vegetation, scenic natural formations, or natural watercourses.

Policy 119: The County shall require that access roads be sited and designed to minimize grading.

Utilities

Policy 120: The County shall require that utility lines be placed underground whenever feasible. When located above ground, utility lines and supporting structures shall be sited to minimize their visual impact.

Implementation Programs:

Landscaping

Program 53: The County shall establish landscape guidelines for both urban and rural development. The guidelines shall include a list of extremely invasive non-native plants not suitable for use in landscaping.

Grading

Program 54: The County shall establish grading guidelines for the development of both structures and access roads.

6.0 IMPACT ANALYSIS

6.1 Scenic Vistas

Would the proposed Project cause substantial, adverse effects on a scenic vista?

Views of the Diablo Range from I-580 and views of lands under agricultural production while driving on two-lane roads through rural portions of the county are identified as scenic vistas (San Joaquin County 2014). The Project would be barely visible, if at all, from I-580, and would not block views for the Diablo Range from I-580. No impacts to views of the Diablo Range from I-580 are expected.

The Project site is rural in character with a wide variety of visual encroachments, including scattered ranch structures, agricultural buildings and infrastructure, fencing, local electrical distribution lines and high-voltage transmission lines, and roadways. The Project would add energy storage facilities and infrastructure and reduce the amount of land under agricultural production. The Project facilities would have a consistent visual character with the existing local electrical distribution lines, high-voltage transmission lines, and the nearby Tesla Substation. Due to the surrounding terrain, views of the Project from Patterson Pass Road and Midway Road would be limited to a short distance. Due to the terrain and distance, there are no views of the Project from the Top of World Scenic Lookout. In addition, the Project will be separated from the roadways by lands under agricultural production. Therefore, the impacts are expected to be less than significant.

Level of Significance: Less than significant impact.

6.2 Scenic Highways

Would the proposed Project cause substantial damage to scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway?

Corral Hollow Road, located five miles to the south of the Project site, is identified as a local scenic road (San Joaquin County 2014). Due to terrain and distance, the Project site is not visible from this roadway, therefore, no impact to this scenic roadway will occur.

The officially designated state scenic highway segment of I-580 located one mile to the northeast of the Project site. The eligible state scenic highway segment of I-580 is located approximately 2.2 miles to the north of the Project site (Caltrans 2022). Due to terrain and structures, the Project is either not visible or barely visible (see Figures 4 and 9). The Project will not involve substantial damage to scenic resources, such as trees, rock outcroppings, and historic buildings. The Project facilities would appear as a continuation of the existing electrical distribution infrastructure. Based on general lack of visibility of the Project site, no significant impacts to a scenic highway are expected.

Level of Significance: No significant impact.

6.3 Visual Character

In non-urbanized areas, would the proposed Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.)

6.3.1 Construction

The proposed Project would involve both temporary and permanent changes to the visual character of the site. Temporary changes are associated with construction activities, including construction equipment, staging, and Site construction. These visual impacts would be short-term in nature and are not considered to be significant.

Level of Significance: No significant impact.

6.3.2 Operation

6.3.2.1 KOP 1

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The soundwall is a neutral earth-tone color. The Project would be visible from this location by a casual observer; see Figure 6. The regular geometric forms and horizontal and vertical lines associated with the battery storage enclosures, gen-tie line, and associated infrastructure would result in a visual contrast with the irregular, organic forms of the existing landform and vegetation. The earth tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. As shown in the simulation, the surrounding fields are tan in color and the Project blends into the landscape setting. The existing structures in the vicinity possess horizontal and vertical lines (agricultural building, Midway Road, fencing, transmission towers and lines, and utility poles and lines). Particularly, the transmission towers and the fencing in the foreground and the agricultural building demand attention and are dominant in the landscape. An analysis of potential visual impacts is summarized in Table 3.

Table 3. Visual Quality Rating Analysis – KOP 1

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Project site and surrounding land are flat to hilly.	Post-development the Project site would remain flat to hilly.	
Detail	No substantial change to the landforms on the Project site would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses with few scattered trees.	Low-lying grasses on the Project site would be reduced. No trees removed.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Color	1	1	0
Explanation	Muted color with little variation: tan and green associated with vegetation; gray, brown and white associated with structures.	Muted color with little variation: tan and green associated with vegetation; gray, brown and white associated with structures. Project would add tan and gray structures.	
Detail	The dominate colors from this viewpoint are tan (low-lying grasses), gray (energy facilities), and white (residential structure). The Project would increase the amount of tan and gray, adding similar muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Adjacent scenery consists of hilly grasslands. The Project would replace views of grasslands on the Project site with energy storage facilities, however, adjacent scenery will still be visible.		
Scarcity	1	1	1
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	The Project would replace views of grasslands on the Project site with energy storage facilities, however, site terrain will not change significantly.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	-1	-3	2
Explanation	Manmade modifications in this view include utility and transmission lines and structures, fencing, residential structure. These features are somewhat discordant with the surrounding landscape but common.	The Project would increase manmade modifications in this view with the introduction of energy storage facilities that would replace the grasslands.	
Detail	The existing view exhibits manmade modifications to the landscape of hilly grasslands. The Project would introduce views of energy storage facilities. The Project would be discordant with the grasslands but due to the utility and transmission lines and structures in the immediate area would not be an unexpected modification.		
Totals	4	2	2

This viewpoint reflects the views of drivers traveling along Midway Road. These impacts would be short term for travelers because they would only be paralleling the Project site for a limited time and their focus would be on the road ahead. For views from the residence, while appearing as new and visible features, the Project would be consistent with the horizontal and vertical lines and geometric shapes of the other structures visibly prominent throughout the landscape. The muted colors of the Project would be consistent with and contribute to blending into the landscape. Project elements begin to demand attention of the casual viewer and would begin to dominate currently undeveloped portion of the landscape setting, introducing a moderate contrast. However, the existing transmission and residential structures dominate the view and demand attention over the Project. The scenic quality of KOP 1, both under existing conditions and post development of the Project, is identified as low (Class IV). The only key visual quality factor that would change is Cultural Modifications, as the Project elements would add variety consistent with the surrounding built environment but would be discordant and introduce a moderate degree of disharmony with the undeveloped portion of the setting. As shown in Table 3, visual quality would be reduced from a rating of 4 to 2, remain low, and not result in a change in visual class. In addition, the Project will implement Mitigation Measure AES-1. Therefore, with mitigation, the Project would not substantially degrade the existing visual character

or quality of public views of the site and its surroundings and would result in a less than significant visual impact.

6.3.2.2 KOP 2

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The soundwall is a neutral earth-tone color. The Project would be visible from this location by a casual observer; see Figure 7. The regular geometric forms and horizontal and vertical lines associated with the Project features would result in a visual contrast with the irregular, organic forms of the existing landform and vegetation. The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. The structures in the vicinity also possess horizontal and vertical lines (residential building and garage, fencing, transmission towers and lines, and utility poles and lines). The residential building and garage in the foreground demand attention and are dominant in the landscape. An analysis of potential visual impacts is summarized in Table 4.

Table 4. Visual Quality Rating Analysis – KOP 2

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Project site and surrounding land are flat to hilly.	Post-development the Project site would remain flat to hilly.	
Detail	No substantial change to the landforms on the Project site would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses with few scattered trees.	Low-lying grasses on the Project site would be reduced. No trees removed.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		
Color	1	1	0
Explanation	Muted color with little variation: tan and green associated with vegetation; gray, brown and white associated with structures.	Muted color with little variation: tan and green associated with vegetation; gray, brown and white associated with structures. Project would add tan and gray structures.	
Detail	The dominate colors from this viewpoint are tan (low-lying grasses), gray (energy facilities), and white (residential structure). The Project would increase the amount of tan and gray, adding similar muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Adjacent scenery consists of hilly grasslands. The Project would replace views of grasslands on the Project site with energy storage facilities, however, adjacent scenery will still be visible.		
Scarcity	1	1	1
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly	The Project would replace views of grasslands on the Project site with energy	

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
	terrain less common that county's predominately flat terrain.	storage facilities, however, site terrain will not change significantly.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	-1	-3	2
Explanation	Manmade modifications in this view include residential structure, utility and transmission lines and structures, fencing. These features are somewhat discordant with the surrounding landscape but common.	The Project would increase manmade modifications in this view with the introduction of energy storage facilities that would replace the grasslands.	
Detail	The existing view exhibits manmade modifications to the landscape of hilly grasslands. The Project would introduce views of energy storage facilities. The Project would be discordant with the grasslands but due to the utility and transmission lines and structures in the immediate area would not be an unexpected modification.		
Totals	4	2	2

This viewpoint reflects the views of drivers traveling along Midway Road. These impacts would be short term for travelers because they would only be paralleling the Project site for a limited time and their focus would be on the road ahead. For views from residence, while appearing as new and visible features, the Project would be consistent with other horizontal and vertical lines and geometric shapes visibly prominent throughout the landscape. The muted colors of the Project would be consistent with and contribute to blending into the landscape. Project elements would demand attention of the casual viewer and would co-dominate landscape setting, introducing a moderate to strong contrast. However, the existing residential structures dominate the view and demand attention over the Project. The scenic quality of KOP 2, both under existing conditions and post development of the Project is identified as low (Class IV). The only key visual quality factor that would change is Cultural Modifications, as the Project elements would add variety consistent with the surrounding built environment but would be discordant and introduce a moderate to strong degree of disharmony with the undeveloped portion of the setting. As shown in Table 4, visual quality would be reduced from a rating of 4 to 2, remain low, and not result in a change in visual class. In addition, the Project will implement Mitigation Measure AES-1. Therefore, with mitigation, the Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings and would result in a less than significant visual impact.

6.3.2.3 KOP 3

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The Project would be barely visible from this location because of the screening of the Project site by rolling terrain and would not attract the attention of a casual observer, see Figure 8. The agricultural land with hilly terrain dominates the view. The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. As shown in the simulation, the surrounding fields are tan in color and what little can be seen of the Project blends into the landscape setting. An analysis of potential visual impacts is summarized in Table 5.

Table 5. Visual Quality Rating Analysis – KOP 3

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Visible land is hilly.	Post-development visible land is hilly.	
Detail	No change to the visible landforms would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses and ruderal vegetation.	Little variation in low-lying grasses and ruderal vegetation.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		
Color	1	1	0
Explanation	Muted color with little variation: tan and green associated with vegetation. Gray and yellow color associated with roadway.	Muted color with little variation: tan and green associated with vegetation would remain; where visible Project would add tan and gray structures.	
Detail	The dominate colors from this viewpoint are tan and green of vegetation and gray and yellow of the roadway. Where visible, the Project would increase the amount of tan and gray, adding similar muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Views of adjacent scenery would remain with Project.		
Scarcity	1	1	0
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	0	0	0
Explanation	Manmade modifications in this view include West Patterson Pass Road. These features are somewhat discordant with the surrounding landscape but common.	The Project would barely increase manmade modifications in this view.	
Detail	As the Project is barely visible, the Project's contribution to discordancy is very limited.		
Totals	5	5	0

This viewpoint reflects the views of drivers traveling along West Patterson Pass Road, likely at high speeds. These impacts would be short term for travelers because they would only be paralleling the Project site for a limited time and their focus would be on the road ahead. For views from residence, while appearing as new and visible features, the Project would be barely visible and would not attract attention of the casual viewer, resulting in a weak contrast and no change in visual quality ratings. Therefore, the impacts would be less than significant.

6.3.2.4 KOP 4

The Project would introduce neutral colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The Project would be barely visible from this location because of the screening of the Project site by rolling terrain and would not attract the attention of a casual observer, see Figure 9. The agricultural land with hilly terrain dominates the view. The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. As shown in the simulation, the surrounding fields are tan in color and what little can be seen of the Project blends into the landscape setting. An analysis of potential visual impacts is summarized in Table 6.

Table 6. Visual Quality Rating Analysis – KOP 4

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Visible land is flat to hilly.	Post-development visible land is flat to hilly.	
Detail	No change to the visible landforms would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses.	Little variation in low-lying grasses.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		
Color	1	1	0
Explanation	Muted color with little variation: tan associated with vegetation. Gray and brown colors associated with fencing, transmission towers and lines, utility poles and lines, roadway.	Muted color with little variation: tan and green associated with vegetation would remain; Gray and brown colors associated with fencing, transmission towers and lines, utility poles and lines, roadway. Where visible Project would add tan and gray structures.	
Detail	The dominate colors from this viewpoint are tan and green of vegetation and gray and brown of structures. Where visible, the Project would increase the amount of tan and gray, adding similar muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Views of adjacent scenery would remain with Project.		
Scarcity	1	1	0
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	-1	-1	0

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Explanation	Manmade modifications in this view include West Patterson Pass Road. These features are somewhat discordant with the surrounding landscape but common.	The Project would barely increase manmade modifications in this view.	
Detail	As the Project is barely visible, the Project's contribution to discordancy is very limited.		
Totals	4	4	0

This viewpoint reflects the views of drivers traveling along I-580, likely traveling at a high rate of speed. These impacts would be short term for travelers because they would only be paralleling the Project site for a limited time and their focus would be on the road ahead. For views from residence, while appearing as new and visible features, the Project would be barely visible and would not attract attention of the casual viewer, resulting in a weak contrast and no change in visual quality ratings. Therefore, the impacts would be less than significant.

6.3.2.5 KOP 5

The Project would not be visible from this location because of the screening of the Project site by rolling terrain, see Figure 10. This viewpoint reflects the views of drivers traveling along the frontage road and for the occupants of the residence south of this KOP. As the Project would not be visible from this location, there would be no visual impacts from Viewpoint 5.

6.3.2.6 KOP 6

The Project would introduce tan and gray color, geometric shapes, and horizontal and vertical lines into the landscape setting. The Project would be barely visible from this location because of the screening of the Project site by rolling terrain and distance and would not attract the attention of a casual observer, see Figure 11. The earth-tone color of the sound wall would blend in with the landscape, especially during the drier months when the surrounding vegetation is predominantly tan. As shown in the simulation, the surrounding fields are tan in color and what little can be seen of the Project blends into the landscape setting. An analysis of potential visual impacts is summarized in Table 7.

Table 7. Visual Quality Rating Analysis – KOP 6

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Landform	1	1	0
Explanation	Visible land is flat to hilly.	Post-development visible land is flat to hilly.	
Detail	No change to the visible landforms would result from Project implementation.		
Vegetation	1	1	0
Explanation	Little variation in low-lying grasses and ruderal vegetation.	Little variation in low-lying grasses and ruderal vegetation.	
Detail	Both the existing and simulated view show little contrast in vegetation.		
Water	0	0	0

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores
Explanation	No water is present on the Project site or in the Project area.	The Project would not introduce water to the Project site.	
Detail	Neither existing nor simulated views include any water features.		
Color	1	1	0
Explanation	Muted color with little variation: tan associated with vegetation. Gray, white and brown colors associated with fencing, transmission towers and lines, utility poles and lines, roadway, buildings.	Muted color with little variation: tan and green associated with vegetation would remain; Gray and brown colors associated with fencing, transmission towers and lines, utility poles and lines, roadway, buildings. Where visible Project would add tan and gray structures.	
Detail	The dominate colors from this viewpoint are tan and green of vegetation and gray, white, and brown of structures. Where visible, the Project would increase the amount of tan and gray, adding similar muted colors.		
Adjacent Scenery	1	1	0
Explanation	Adjacent scenery provides views of hilly grasslands.	Adjacent scenery provides views of hilly grasslands.	
Detail	Views of adjacent scenery would remain with Project.		
Scarcity	1	1	0
Explanation	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	Similar viewsheds throughout the region. No unique or unusual aspects however, hilly terrain less common that county's predominately flat terrain.	
Detail	Existing views of hilly grasslands are typical of the area and are not unique or unusual.		
Cultural Modifications	-1	-1	0
Explanation	Manmade modifications in this view include fencing, transmission towers and lines, utility poles and lines, roadway, buildings. These features are somewhat discordant with the surrounding landscape but common.	The Project would barely increase manmade modifications in this view.	
Detail	As the Project is barely visible, the Project's contribution to discordancy is very limited.		
Totals	4	4	0

This viewpoint reflects the views of drivers traveling along Hansen Road, likely traveling at a high rate of speed. These impacts would be short term for travelers because they would only be approaching the Project site for a limited time and their focus would be on the road ahead. For views from residences, while appearing as new and visible features, the Project would be barely visible and would not attract attention of the casual viewer, resulting in a weak contrast and no change in visual quality ratings. Therefore, the impacts would be less than significant.

Level of Significance: With implementation of Mitigation Measure AES-1, the Project would have a less than significant impact on aesthetics.

6.3.3 Decommissioning

Decommissioning will be conducted in accordance with the county-approved decommissioning plan for this Project. Temporary changes are associated with the removal of all equipment associated with the Project. These visual impacts would be short-term in nature and are not considered to be

significant. After the equipment removal activities, the Project site will be returned to substantially the same condition as that which existed prior to Project development.

Level of Significance: No significant impact.

6.4 Light and Glare

Would the proposed Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

The Project is not expected to create a substantial new source of nighttime lighting or daytime glare. The proposed Project will provide external safety lighting for both normal and emergency conditions at the primary access points. Lighting will be designed to provide the minimum illumination needed to achieve safety and security and will be downward facing and shielded to focus illumination in the immediate area. All lighting associated with the proposed Project will be subject to county approval and compliance with San Joaquin County requirements. With the application of anti-reflective coatings, the Project would display overall low reflectivity. Therefore, the Project will have a less than significant impact associated with lighting and glare.

Level of Significance: No significant impact.

4.1.1 Mitigation Measures

The following mitigation measure is recommended to reduce significant impacts to aesthetics:

AES-1. The following measures will be implemented as feasible to reduce visual impacts for Project components and activities:

- Use and maintain, as feasible, non-reflective materials, finishes, surface treatments.
- Maintain painted, treated, stained, or coated surfaces properly.
- Direct lights properly to eliminate light spill and trespass.
- Use timers or motion sensors, as feasible, on all project lighting to minimize unnecessary lighting.
- Minimize lighting usage, as feasible, during construction and operations.

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Appendix D

Air Quality and Greenhouse Gas Technical Report

AIR QUALITY AND GREENHOUSE GAS TECHNICAL REPORT

Griffith Energy Storage Project

San Joaquin County, California



July 5, 2023

Griffith Energy Storage, LLC

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Appendix A. Detailed CalEEMod Output

ACRONYMS AND ABBREVIATIONS

AAQA	Ambient Air Quality Analysis
AB	Assembly Bill
ABAG	Association of Bay Area Governments
BAAQMD	Bay Area Air Quality Management District
BPS	best performance standards
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAP	Climate Action Plan
CCAA	California Clean Air Act
CCAP	Community Climate Action Plan
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
$CO2_e$	CO_2 equivalent
DPM	Diesel Particulate Matter
EPA	U.S. Environmental Protection Agency
gen-tie	interconnection generation tie
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutants
HFC	hydrofluorocarbon
HRA	health risk assessment
ISR	Indirect Source Review
lbs/day	pounds per day

LOS	level of service
MT	metric tons
MTC	Metropolitan Transportation Commission
MW	megawatt
NAAQS	National Ambient Air Quality Standards
N_2O	nitrous oxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
O_3	Ozone
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric's (
PM_{10}	Particulate Matter less than 10 microns
$PM_{2.5}$	Particulate Matter less than 2.5 microns
Project	Griffith Battery Storage Project
Property	106-acre property which the Project would be built on
ROG	reactive organic gases
RPS	Renewable Portfolio Standard
RTP/SCS	Regional Transportation Plan and Sustainable Communities Strategy
SB	Senate Bill
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SJCOG	San Joaquin Council of Governments
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	Sulfur Dioxide
TAC	Toxic Air Contaminants

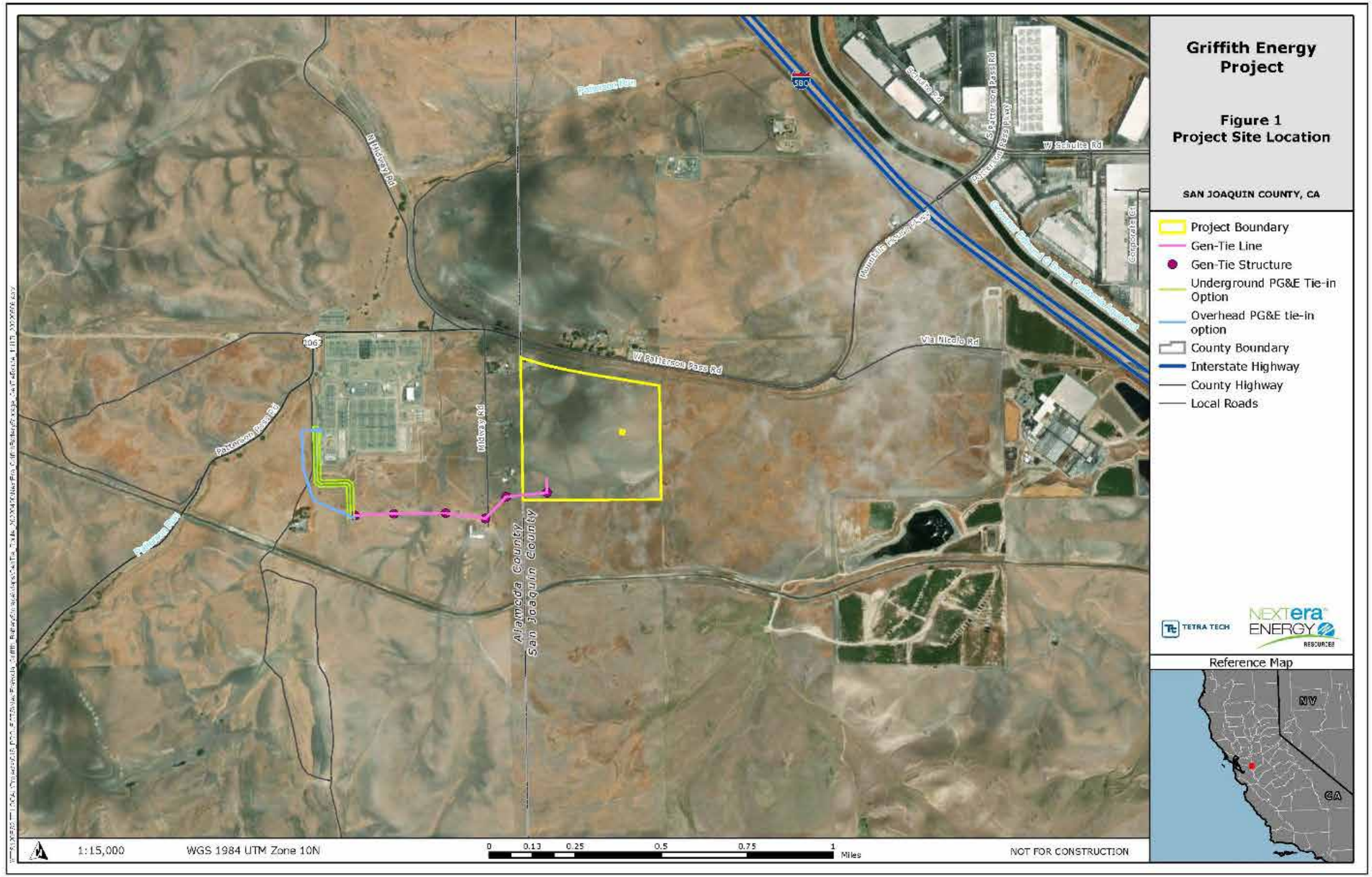
OVERVIEW

Griffith Energy Storage, LLC is proposing to construct and operate the 400-megawatt (MW) Griffith Energy Storage Project (Project) to provide reliable and flexible power to the local electrical system. The property which the Project would be built on consists of 106 acres (Property) of land in San Joaquin County. The site is owned by a private landowner in unincorporated San Joaquin County. To avoid environmental constraints, only an estimated 32 acres of the 106-acre site would be used for the Project. The southwestern corner of the project site will be used for the battery storage project. The Project would interconnect at the Tesla Substation immediately adjacent to the site in Alameda County via a 230-kilovolt interconnection generation tie (gen-tie) line. The energy storage facility is anticipated to house lithium-ion batteries totaling 400 MW of energy. Project construction would commence as early as 2024 and is anticipated to come online as early as 2025.

The Property is approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy, adjacent to Pacific Gas and Electric's (PG&E) Tesla Substation, as shown on Figure 1. The Project site is private land zoned as Agricultural General-160 and designated as General Agriculture. Division 14, Section 9-115.580 of the San Joaquin County Municipal Ordinance Code allows any major utilities on Agricultural General zoned land through a Site Approval application (San Joaquin County 2021).

The air quality analysis presented in this report evaluates the potential air quality impacts associated with the proposed Project. The proposed schedule for construction begins as early as 2024 for a duration of 15 months. Because the majority of the Project is located within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD), the air quality analysis follows SJVAPCD's guidelines. A segment of the gen-tie line is located in Alameda County. Emissions from this segment of the gen-tie line will also be compared to the SJVAPCD's significance thresholds as these are more stringent than the Bay Area Air Quality Management District's (BAAQMD 2017a) significance thresholds, with the exception of particulate matter less than 2.5 microns ($PM_{2.5}$). The BAAQMD construction significance threshold of 10 tons per year (tpy) will be used for $PM_{2.5}$. This report also provides estimates of greenhouse gas (GHG) emissions from the combustion of fossil fuels, primarily from construction of the proposed facility.

In summary, the air quality and GHG analysis concludes that emissions during short-term construction and during long-term operation of the Project will not exceed the California Environmental Quality Act (CEQA) significant thresholds established by the SJVAPCD and BAAQMD. A health risk assessment (HRA) was not conducted for this Project due to the low level of emissions and the distances to the nearest non-participating sensitive receptors of 1,000 feet. Therefore, the Project does not pose significant adverse impacts on local air quality or global climate change.



PROJECT SITE LOCATION
FIGURE 1

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

Tetra Tech has prepared an air quality analysis report to evaluate potential air quality and GHG impacts associated with the proposed energy storage Project. This analysis was prepared in accordance with the SJVAPCD *Guide for Assessing and Mitigating Air Quality Impacts* (SJCAPCD 2015a). This report has been prepared to support an environmental review with San Joaquin County as lead CEQA agency for the Project. The California Air Resources Board (CARB) and the SJVAPCD's methods, standards, and significance thresholds used in this analysis are considered appropriate for determining whether impacts require mitigation measures to be implemented. A segment of the gen-tie line (less than 0.25 miles) is located in Alameda County. This segment of the gen-tie line will also be compared to the SJVAPCD's significance thresholds as these are more stringent than the BAAQMD's significance thresholds, with the exception of $PM_{2.5}$. The BAAQMD construction significance threshold of 10 tons per year will be used for $PM_{2.5}$.

Air quality impacts from grading and construction sources were analyzed based on the equipment used, length of time for a specific construction task, equipment power type (gasoline or diesel engine), equipment emission factors, horsepower, load factor, and percentage of time in use. Exhaust and dust emissions from worker commutes and travel were calculated based on available information regarding these activities. Fugitive dust (particulate matter less than 10 microns [PM_{10}] and $PM_{2.5}$) emissions would result from wind erosion of exposed soil and soil storage piles, grading operations, and vehicles traveling on paved and unpaved roads. These emissions were calculated based on U.S. Environmental Protection Agency (EPA; AP-42 handbooks) emissions factors contained in the California Emissions Estimator Model (CalEEMod; CAPCOA 2021) and construction information available and provided to Tetra Tech. Motor vehicle pollutant emissions associated with the Project operation were estimated for future conditions, utilizing information on facility operations. CalEEMod was used to calculate the emissions associated with on-site construction activities and off-site vehicle trips to and from the Project site. Emissions associated with operations and maintenance of the facility were also quantified using CalEEMod. The total Project construction and operational emissions were compared to the SJVAPCD threshold criteria, and a determination of significance was made.

A discussion of GHGs and their potential effects on global climate change is included. Emissions of carbon dioxide (CO_2), a key GHG identified in Assembly Bill (AB) 32, and other major GHGs such as methane (CH_4) and nitrous oxide (N_2O) from direct and indirect Project-related sources were calculated. Tetra Tech calculated the construction related GHG emissions commensurate with available Project specific information. Standard measures for construction activities recommended by the SJVAPCD were identified and incorporated as part of the Project's standard conditions. Potential GHG impacts and benefits associated with the proposed energy storage Project were calculated.

1.2 PROJECT DESCRIPTION

The Project consists of constructing and operating a 400-MW Energy Storage Project to provide reliable and flexible power to the local electrical system. The Project would contain pad-mounted energy storage units, in addition to inverters, supervisory control and data acquisition equipment, a collector substation, and an interconnection gen-tie line to the Tesla Substation. The Project would also include related and supporting facilities such as on-site service roads, gates and security fencing, and temporary laydown and construction areas. Each enclosure would be equipped with heating, ventilation, and air conditioning systems for thermal management of the batteries. The power for the heating, ventilation, and air

conditioning system would be provided through a connection to the on-site station service transformer with connection lines installed above and/or below ground.

The Project would support the state policies necessary to meet the California renewable energy standards. California has proceeded to advance energy storage uses to support the grid, including the passage of AB 2514, as well as the resulting California Public Utilities Commission decision for energy procurement targets for each of the investor-owned utilities. The proposed Project would substantially increase local energy storage capacity and address the limitations of the electrical grid by the increasing demand for renewable energy. Layering energy storage systems into the energy grid improves grid reliability and makes it more resilient to disturbances and peaks in energy demand. The Project and other energy storage systems are used to supply power during brief disturbances, reduce outages and associated impacts to the community, and substitute for certain large footprint transmission and disruption upgrades.

The proposed battery energy storage system would deliver power to the Tesla Substation located adjacent to the Project Site in Alameda County through a new 230 kilovolt gen-tie line. The Applicant would construct the gen-tie from the Project substation to the point south of the Tesla Substation shown on Figure 1. PG&E would be responsible for siting, design, and construction of the gen-tie line to their property boundary and within the Tesla Substation. As shown on Figure 1, PG&E may elect to install the interconnection via an overhead line or underground from the Point of Change of Ownership to the substation.

Access, including emergency access, onto the Project site would be provided from Patterson Pass Road to Midway Road to an access road that would lead to the Project site. Internal access roads would be gravel or aggregate base depending on the final site geotechnical report. The perimeter of the Project site would be enclosed by a 6-foot-tall chain-link fence topped with 1 foot of 3-strand barbed wire. The purpose of the fence would be to prevent unauthorized access to the site. In addition, an approximately 8-foot-high perimeter security fence topped with approximately 1 foot of barbed wire would be installed around the on-site substation.

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be operated by the Applicant or an affiliated company remotely. Periodic augmentation of batteries within the Project site may occur. Only occasional, on-site maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

During operation of the Project substation, operation and maintenance staff would visit the substation periodically for switching and other operation activities. Routine operations would require one or two workers in a light utility truck to visit the facility on a weekly basis. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one major maintenance inspection would take place annually.

1.3 REGIONAL AND LOCAL SETTING

The Property is approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy, adjacent to PG&E Tesla Substation, as shown on Figure 1. The Project site is private land zoned as Agricultural General-160 and designated as General Agriculture. Division 14, Section 9-115.580 of the San Joaquin County Municipal Ordinance Code allows any major utilities on Agricultural General zoned land through a Site Approval application (San Joaquin County 2021). Land uses on the Project site consist of private land used for grazing and includes two rural residences.

The Project is bounded to the north by grazing land, rural residences, the West Patterson Pass, and the Union Pacific Railroad. To the east lies grazing land and open space. Rural residences, grazing land, and open space bound the Project to the south. The Project is bounded by rural residences, grazing land, and the PG&E Tesla Substation to the west.

The PG&E Tesla Substation is located approximately 0.25 miles to the west. Transmission towers and lines are located approximately 0.1 miles southwest and 0.17 northwest of the Project site. The closest residences on land not owned by the current property owner are approximately 0.2 miles (approximately 1,000 feet) north of the Project site on the other side of West Patterson Pass and 0.2 miles (approximately 1,000 feet) southwest of the Project site at the southern terminus of Midway Road.

The onsite topography consists of four distinct hilled areas. The elevational range of the Project site is approximately 300 to 500 feet above mean sea level. The Project site is used for cattle grazing and the surrounding land uses consist of agriculture, open space, and developed land.

Figure 1 above displays the Project location. Figure 2 shows the proposed site plan for the Project.



SITE PLAN
FIGURE 2

2.0 AIR QUALITY

2.1 ENVIRONMENTAL SETTING

2.1.1 Climate and Topography

The San Joaquin Valley Air Basin (SJVAB) is comprised of eight counties, representing 16 percent of California's geographic area. It is approximately 250 miles long and 35 miles wide (average) and has a bowl-shaped topography with surrounding mountains on three sides. The Sierra Nevada Mountains are to the east, the Coast Ranges to the west, and the Tehachapi mountains to the south. At the northwest end, the SJVAB opens to the San Francisco Bay.

The SJVAB is in a Mediterranean Climate Zone, characterized by hot and dry summers with maximum temperatures that often exceed 100 degrees Fahrenheit, and winters with sparse rainfall. High pressure events can lead to temperature inversions, inhibiting vertical mixing and trapping air pollutants.

Winds in the SJVAB most frequently blow from the northwest, channeling air towards the southeastern end of the SJVAB. Marine air occasionally flows from the San Joaquin River Delta toward the south, over the Tehachapi pass. The Coastal Range and the Sierra Nevada range restrict air movement to the west and east, respectively. During winter, weak winds can lead to limited transport of pollutants (SJVAPCD 2015a).

As previously noted, a small portion of the Project is located in eastern Alameda County, adjacent to the San Joaquin County line. This area is more represented by the San Joaquin County climate and topography than the coastal area of the San Francisco Bay Area Air Basin.

2.1.2 Pollutants and Effects

The Clean Air Act (CAA) requires EPA to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants. EPA calls these "criteria" air pollutants because it regulates them by developing health-based (primary) or environmentally based (secondary) standards. These pollutants are summarized below.

Ozone (O_3) is a secondary pollutant that is formed from the reaction of nitrogen oxides and volatile organic compounds in the presence of sunlight. Ozone exists naturally in the stratosphere, shielding Earth from harmful ultraviolet radiation. However, at ground-level, ozone causes adverse health effects and is a major component of smog. High concentrations have been tied to respiratory ailments and cardiovascular disease, as well as damage to natural ecosystems, agricultural crops, and materials such as rubber, paint, and plastics.

Reactive organic gases (ROG) are composed of hydrocarbon compounds that contribute to the formation of smog through atmospheric chemical reactions. ROG are emitted from fuel combustion and industrial and agricultural processes. Compounds that make up ROG are often evaluated as part of a toxic risk assessment under AB 2588 provisions.

Nitrogen Oxides (NO_x) are a family of gaseous nitrogen compounds that result primarily from the combustion of fossil fuels. It is a precursor to the formation of ozone and particulate matter, and nitrogen dioxide (NO_2) is assigned with NAAQS and California Ambient Air Quality Standards (CAAQS).

Particulate Matter (PM) is comprised of solid particles and liquid droplets, made up of acids, organic chemicals, metals, and soil or dust particles. Particles that are 10 micrometers in diameter or smaller are a potential human health concern because they can enter the lungs, which can affect the heart and cause adverse health effects. They can be emitted directly to the atmosphere as well as formed in the

atmosphere by chemical reactions among precursors. Particulate matter can be categorized based on their size:

Inhalable coarse particles ($PM_{2.5}$-PM_{10}) are between 2.5 and 10 micrometers in diameter. Sources include roads, farming activities, windblown dust as well as combustion sources.

Fine particles ($PM_{2.5}$) are 2.5 micrometers in diameter or smaller, generally emitted by combustion sources like vehicles, power generation, industrial processes and wood burning.

Carbon Monoxide (CO) is an odorless, colorless gas formed by the incomplete combustion of fuels emitted directly into the air. The main source of CO in the SJVAB is on-road motor vehicles. Therefore, CO problems tend to be localized with nonattainment areas designated in urban areas rather than the entire basin. With the introduction of new automotive emission controls and fleet turnover, emissions from motor vehicles have been declining.

Sulfur Dioxide (SO_2) is a colorless gas formed by the combustion of fossil fuels that contain sulfur. The SJVAB is in attainment of both the Federal and California standards for SO_2. The use of low-sulfur fuel has minimized problems with this pollutant.

2.1.3 Valley Fever

Valley Fever is an infection caused by inhalation of *Coccidioides immitus* (*C. immitus*) fungus spores. The fungus grows in the soil in areas of California and the southwestern United States. It is prevalent in the San Joaquin Valley and particularly during conditions of high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils. Fungus spores lie dormant in the soil until they are disturbed by wind, vehicles, or other ground-disturbing activities and become airborne. Agricultural workers, construction workers, and other people who are exposed to wind and dust outdoors are most prone to contracting Valley Fever. Infections can result in mild influenza-like symptoms, such as fever, cough, chest pain, muscle or joint aches, night sweats, and rash. Rarely, in more serious cases, it can infect the brain, joints, bone, skin or other organs, or cause death. Approximately 60 percent of people exposed to fungal spores are asymptomatic and show no signs of infection (CDC 2021).

2.1.4 Sensitive Receptors

Sensitive receptors are segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems related to respiratory distress). Land uses often identified as sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The greatest potential for exposure to air pollutants would occur during construction, when the ground would be disturbed from grading and delivery of materials. The construction emissions presented in this analysis are based on worst-case conditions, assuming maximum construction activity would occur simultaneously. In reality, exposure to emissions would vary substantially throughout construction, and would depend on the staging of the work being conducted, location of work relative to receptors, and weather conditions.

Land use in the area is agricultural interspersed with sparse rural residential development, the Musco Family Olive Company, and several warehouses/distribution centers. The closest residences are located between 300 and 650 feet west of the Project boundary. However, these residences are owned by landowners who are participating in the Project and, therefore, are not considered in the analysis of impacts. The closest residences on land not owned by the current property owner are approximately 0.2 miles (approximately 1,000 feet) north of the Project site on the other side of West Patterson Pass and 0.2 miles (approximately 1,000 feet) southwest of the Project site at the southern terminus of Midway Road. As previously noted, the community of Tracy is approximately 5 miles northeast of the Project. Due to the remote nature of the area, impacts to sensitive receptors are expected to be limited.

2.2 REGULATORY SETTING

Ambient air quality standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and safety. They are designed to protect those people most susceptible to respiratory distress (i.e., sensitive receptors), such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research suggests however, that long-term exposure to air pollution at levels that meet air quality standards may nevertheless have adverse health effects. For example, ozone exposure even at levels close to the ambient air quality standard may lead to adverse respiratory health.

The following discussion describes the regulatory authority of the federal, state, and local jurisdictions. The federal CAA, the California Clean Air Act (CCAA), and the Air Quality Management Plan, prepared and adopted by the SJVAPCD, regulate air quality in the air basin. Federal and state standards are shown in Table 1, State and Federal Ambient Air Quality Standards.

2.2.1 Federal Regulations

2.2.1.1 Criteria Air Pollutants

The federal CAA (42 United States Code Section 7401-7671q) is a comprehensive Federal law that regulates air emissions from area, stationary, and mobile sources and requires the adoption of the NAAQS to protect public health and welfare from the effects of air pollution. The federal CAA Amendments of 1990 required that the EPA review all NAAQS with respect to health impacts and propose modifications or new rules as appropriate. In addition, the amendments of the 1990 federal CAA are associated with the attainment and maintenance of air quality standards, permits and enforcement, toxic air pollutants, acid deposition, stratospheric ozone protection and motor vehicles and fuels.

Current NAAQS are assigned to SO_2, CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and Lead. These pollutants are designated criteria pollutants.

2.2.1.2 Hazardous Air Pollutants

The 1977 federal CAA amendments required the EPA to identify National Emission Standards for hazardous air pollutants (HAPs) to protect public health and welfare. HAPs include certain volatile organic compounds, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. The 1990 federal CAA Amendments, which expanded the control program for HAPs, identified 189 substances and chemical families as HAPs. Over the years, the list has been modified. Currently, there are 187 federally regulated HAPs.

2.2.2 State Regulations

2.2.2.1 Criteria Air Pollutants

The CCAA, passed by the California Legislature and signed into law by the Governor in 1988, assigns state-specific ambient air quality standards. The California standards are, in most cases, more stringent than federal standards. The goal of the CCAA is to attain state air quality standards by the earliest practical date. Because California established Ambient Air Quality Standards several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology in much of California, there can be a considerable difference between state and national clean air standards. Those standards currently in effect in California are shown on Table 1, State and Federal Ambient Air Quality Standards.

Table 1. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3, 5]	Secondary [3, 6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[9]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)[9]	—	
	Annual Arithmetic Mean	—		0.30 ppm (for certain areas)[9]	—	
Lead (Pb)[10, 11]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[9]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates (SO4)	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	24 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

µg/m^3 – microgram per cubic meter; ppb – parts per billion; ppm – parts per million

Source: California Air Resources Board (https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf,updated 5/4/2016 and U.S. Environmental Protection Agency (http://www.epa.gov/air/criteria.html, accessed September 2021]

1 *California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter (PM_{10}, and $PM_{2.5}$) and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.*

2 *National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the EPA for further clarification and current national policies.*

3 *Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Centigrade and a reference pressure of 760 torr. The torr (symbol: Torr) is a non-SI unit of pressure with the ratio of 760 to 1 standard atmosphere, chosen to be roughly equal to the fluid pressure exerted by a millimeter of mercury, i.e., a pressure of 1 Torr is approximately equal to one millimeter of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25 degrees Centigrade and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.*

4 *Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.*

5 *National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect public health.*

6 *National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.*

7 *Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.*

8 *To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.*

9 *On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.*

10 *CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects that are determined. These actions allow implementing control measures at levels below the ambient concentrations specified for these pollutants.*

11 *The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.*

12 *In 1989, the Air Resources Board converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.*

The CCAA requires each air pollution control district of an air basin designated as nonattainment of state ambient air quality standards to prepare and submit a plan for attaining and maintaining state standards. After further review of the relationship between fine particulate matter and human health effects, the CARB adopted new state standards on June 20, 2002, for $PM_{2.5}$ that are more stringent that the federal standards. No specific control programs are in place to achieve this much more stringent standard. However, it does represent an air quality goal to dramatically reduce the adverse health effects from small-particle air pollution.

2.2.2.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California Toxic Air Contaminants (TAC) list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, facilities are required to communicate the results to the public in the form of notices and public meetings.

The mixture of solid particles from equipment with diesel engines are collectively known as diesel particulate matter (DPM). These include many known or suspected cancer-causing substances, such as benzene, arsenic, and formaldehyde. Long-term exposure to diesel exhaust particles poses the highest cancer risk of any toxic air contaminant evaluated by the Office of Environmental Health Hazard Assessment . ARB estimates that about 70 percent of the cancer risk that the average Californian faces from breathing toxic air pollutants stems from diesel exhaust particles. It also contains other harmful pollutants, including NO_x. Diesel exhaust particles and gases are suspended in the air, so exposure to this pollutant occurs whenever a person breathes air that contains these substances. Exposure to this pollutant is highest near roads and freeways, truck loading and unloading operations, diesel-powered machinery operations. Exposure to diesel exhaust can have immediate health effects such as irritation to the eyes, nose, throat, and lungs. It can also cause coughs, headaches, light-headedness, and nausea (OEHHA 2023).

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. In 2020, CARB adopted the Advanced Clean Truck Regulations that requires truck manufacturers to transition from diesel trucks and vans to electric zero-emission trucks beginning in 2024. By 2045, every new truck sold in California will be zero-emission.

Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, On-Road Heavy Duty (New) Vehicle Program, In-Use Off-Road Diesel Vehicle Regulation, and New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 California Code of Regulations [CCR] 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose,

health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.2.2.3 Valley Fever

In 2019, Safety Training on Valley Fever AB 203 added Section 6709 to the Labor Code and requires employers to provide effective Valley Fever awareness and prevention training for all construction employees at risk of prolonged exposure to dust in Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Santa Barbara, Tulare, and Ventura Counties annually and again before an employee begins work that is reasonably anticipated to cause exposure to substantial dust disturbance.

2.2.3 Local Regulations

2.2.3.1 San Joaquin Valley Air Pollution Control District

The CARB coordinates and oversees both state and federal air pollution control programs in California and has divided the state into 15 air basins. Significant authority for air quality control within each basin has been given to local Air Pollution Control Districts or Air Quality Management Districts that regulate stationary source emissions and develop local non-attainment plans. The SJVAPCD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SJVAB. The SJVAPCD jurisdiction includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings, and Tulare counties, and the western portion of Kern County.

The SJVAPCD has developed plans to attain state and federal standards for ozone and particulate matter. The following attainment plans are currently in effect:

1-Hour Ozone. Although the EPA revoked the 1-hour ozone standard in 2005, the SJVAB was required to demonstrate that this standard had been met. The SJVAPCD requested an EPA finding of attainment based on 2012-2014 ozone data. On July 18, 2016 (81 FR 46609), EPA determined that the SJVAB had achieved the 1-hour ozone NAAQS.

8-Hour Ozone. The SJVAPCD developed the *2016 Ozone Plan* (SJVAPCD 2016) to address EPA's 2008 8-hour ozone standard, which the SJVAB must attain by 2032. While substantial progress has been made to improve air quality in the SJVAB through the implementation of existing plans and clean air investments by businesses and residents, the SJVAB continues to experience unique and significant air quality challenges in attaining the increasingly stringent federal air quality standards. The SJVAB is classified as an "extreme" nonattainment area for the 2015 ozone standard. On June 18, 2020, the District published *2020 RACT Demonstration for the 2015 8-Hour Ozone Standard*. The 2022 attainment plan for the 2015 8-hour ozone standard was adopted in December 2022. SJVAPCD's current regulations reflect technologies and methods that are beyond control levels established under the Clean Air Act. The control strategy included in the 2022 Ozone Plan will reduce NO_x emissions by 72 percent between 2018 and 2037, which will help the Valley's progress toward attaining the 2015 8-hour ozone standard. The district and state's incentive programs will also reduce emissions from mobile sources in the coming years. The 2022 Plan for the 2015 8-hour Ozone Standard demonstrates that reductions being achieved will ensure expeditious attainment of the 2015 8-hour ozone standard by the 2037 attainment deadline (SJVACPD 2022).

PM_{10}. The SJVAPCD adopted the *2007 PM_{10} Maintenance Plan and Request for Redesignation* (SJVAPCD 2007), which demonstrated that the SJVAB has reached and will continue to meet the PM_{10} standard. EPA approved the document in 2008 and SJVAB was redesignated to attainment/maintenance.

$PM_{2.5}$. The SJVAPCD's 2008 $PM_{2.5}$ Plan demonstrated attainment of the 1997 $PM_{2.5}$ standard in 2014. EPA lowered the $PM_{2.5}$ standard in 2006 and again in 2012, and the SJVAPCD's *2018 Plan for the 1997,*

2006, and 2012 $PM_{2.5}$ Standards (SJVAPCD 2018) sets an attainment deadline of 2024. This plan was approved by EPA on June 30, 2020.

The SJVAPCD's primary means of implementing air quality plans is by adopting and enforcing rules and regulations. Stationary sources within the jurisdiction are regulated by the SJVAPCD's permit authority and through its review and planning activities. Unlike stationary source projects, which encompass very specific types of equipment, process parameters, throughputs, and controls, air emissions sources from land use development projects are mainly mobile sources (traffic) and area sources (small dispersed stationary and other non-mobile sources), including exempt (i.e., no permit required) sources such as consumer products, landscaping equipment, furnaces, and water heaters. Mixed-use land development projects may include nonexempt sources, including devices such as small to large boilers, stationary internal combustion engines, gas stations, or asphalt batch plants.

Notwithstanding nonexempt stationary sources, which would be permitted on a case-by-case basis, SJVAPCD regulations VIII and IX generally apply to land use development projects and are described as follows:

Regulation VIII - Fugitive PM_{10} Prohibition. Rule 8021 Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities. Pursuant to Rule 8021 Section 6.3, the Project would be required to develop, prepare, submit, obtain approval of, and implement a Dust Control Plan, which would reduce fugitive dust impacts to less than significant for all construction phases of the Project. Table 8021-1 provides control measure options for construction, excavation, extraction, and other earth moving activities.

Regulation IX - Mobile and Indirect Sources. Rule 9510 Indirect Source Review (ISR). The ISR rule went into effect March 1, 2006, and requires developers of new residential, commercial, and some industrial projects to reduce NO_x and PM_{10} emissions generated by their projects. Pursuant to Rule 9510, the purpose of the ISR program is to reduce emissions of NO_x and PM_{10} from new land development projects. Section 6.0 of the ISR rule outlines general mitigation requirements for developments that include reduction in construction emissions of 20 percent of the total construction NO_x emissions, and 45 percent of the total construction PM_{10} exhaust emissions. The rule also requires the Project to reduce operational NO_x emissions by 33.3 percent and operational PM_{10} emissions by 50 percent, as compared to the unmitigated baseline. Section 7.0 of the ISR rule includes fee schedules for construction or operational excess emissions of NO_x or PM_{10} if those emissions are above the goals identified in Section 6.0 of the rule. Monies collected from this fee are used by the SJVAPCD to fund emission reduction projects in the SJVAB on behalf of the Project.

Rule 9610 State Implementation Plan Credit for Emission Reductions Generated through Incentive Programs. Rule 9610 provides an administrative mechanism for the SJVAPCD to receive credit towards California State Implementation Plan (SIP) requirements for emission reductions achieved in the SJVAB through incentive programs administered by the SJVAPCD, United States Department of Agriculture Natural Resources Conservation Service, or CARB. On April 9, 2015, EPA finalized a limited approval and limited disapproval (for a minor administrative error) of Rule 9610 as a revision to the California SIP. Additional documentation regarding the effectiveness of the SJVAPCD's incentive programs can be found in 2015 Annual Demonstration Report SIP Credit for Emission Reductions Generated Through Incentive Programs (SJVAPCD 2015b).

2.2.3.2 San Joaquin County General Plan

In 2016, San Joaquin County published their 2035 County General Plan (San Joaquin County 2016). The 2035 General Plan for San Joaquin County (the General Plan) presents a vision for the County's future and provides strategies to implement the plan. The General Plan addresses geographic areas in the County that are unincorporated. The Plan serves as the County's "blueprint" for future land use,

development, preservation, and conservation in the County. Air quality is addressed in the Public Health and Safety Element (Chapter 3.3 of the General Plan) and specifies the following policies that are relevant to the Project:

Goal PHS-5: To protect public health, agricultural crops, scenic resources, and the built and natural environments from air pollution.

- **PHS-5.2 San Joaquin Valley Air Pollution Control District Coordination.** Requires the County to coordinate with the SJVAPCD during review of new development projects which have the potential to cause adverse air quality impacts.
- **PHS-5.4: Innovative Mitigation Measures.** The County shall encourage innovative mitigation measures and project redesign to reduce air quality impacts by coordinating with SJVAPCD, project applicants, and other interested parties.
- **PHS-5.5 Air District Best Performance Standards.** The County shall consider the Best Performance Standards adopted by SJVAPCD during the review of new development proposals.
- **PHS-5.6 Toxic Air Contaminants.** The County shall require effective buffers between residential areas and other sensitive receptors and non-residential land uses, such as highways, trucking centers, gasoline dispensing facilities, and dry cleaners, that generate toxic air contaminants.
- **PHS-5.7 TAC Exposure Reduction Measures for New Development.** The County shall require new development projects to implement all applicable best management practices that will reduce exposure of sensitive receptors (e.g., hospitals, schools, daycare facilities, elderly housing, and convalescent facilities) to toxic air contaminants.
- **PHS-5.9 Particulate Emissions from Construction.** The County shall support SJVAPCD efforts to reduce PM_{10} and $PM_{2.5}$ emissions from construction, grading, excavation, and demolition to the maximum extent feasible and consistent with State and Federal regulations.
- **PHS-5.11 Paving Materials.** 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.
- **PHS-5.13 Industrial Best Management Practices.** The County shall require industrial facilities to incorporate economically feasible Best Management Practices and control technology to reduce PM_{10} and $PM_{2.5}$ emissions consistent with State and Federal regulations.
- **PHS-5.14 Energy Consumption Reduction.** The County shall encourage new development to incorporate green building practices and reduce air quality impacts from energy consumption.

San Joaquin Council of Governments

The San Joaquin Council of Governments (SJCOG) is a joint-powers authority comprised of the County of San Joaquin and the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop. The role of SJCOG is to foster intergovernmental coordination within San Joaquin County and with neighboring jurisdictions, other regional agencies in the San Joaquin Valley, the state of California, and various Federal agencies. SJCOG is overseen by a Board of Directors which allocate funding for transportation improvements. The board also establishes regional transportation policies and programs. SJCOG includes committees, task forces, workshops, and public forums which allow citizens and community groups to participate in the planning and approval process.

SJCOG has prepared and adopted the 2018 Regional Transportation Plan and Sustainable Communities Strategy (2018 RTP/SCS) for the region (SJCOG 2018). The planning horizon is 2046 and the plan is updated every 4 years. The SJCOG is in the process of preparing for the 2022 RTP/SCS. A Notice of Availability of a Draft Programmatic Environmental Impact Report for the 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was issued on June 24, 2022 (SJCOG 2022). The SJCOG Board voted to adopt the 2022 RTP/SCS on August 25, 2022.

2.2.3.3 Bay Area Air Quality Management District

The BAAQMD manages air quality within the Alameda County. The BAAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs. The BAAQMD develops regulations to improve air quality and protect the health and welfare of Alameda County residents and their environment. The district also monitors air quality, prepares clean air plans, responds to citizen complaints concerning air quality, and regulates agricultural burning.

BAAQMD regulations include permit requirements, emissions limits for specific source categories, requirements for open burning, and air toxics control measures for several source categories, including stationary compression ignition engines. There are no stationary sources proposed for the Project.

The BAAQMD regulates nuisance conditions in Rule 200, which states that:

> *No person shall discharge from any non-vehicular source such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property*.

No other BAAQMD rules are applicable to the Project.

2017 Clean Air Plan

The clean air strategy of the BAAQMD includes preparing regional air quality plans, writing and enforcing regulations concerning sources of air pollution, issuing permits and inspecting stationary sources, responding to citizen complaints, monitoring air quality and meteorological conditions, awarding grants, and assisting local governments in addressing climate change (BAAQMD 2017a). The most recent air quality plan adopted by the BAAQMD, titled *Bay Area 2017 Clean Air Plan: Spare the Air, Cool the Climate* (Clean Air Plan; BAAQMD 2017b), is the applicable air quality plan for projects in Alameda County. The 2017 Clean Air Plan provides an integrated, multipollutant control strategy to reduce emissions of O_3, particulates, air toxics, and greenhouse gases (GHG). In addition to the regional Clean Air Plan, Alameda County has adopted a local climate action plan to reduce GHG emissions (Alameda County 2014).

The BAAQMD is responsible for preparing plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans for the national ozone standard and clean air plans for the California standard, both in coordination with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

The 2017 Clean Air Plan addresses nonattainment of the federal and state ozone standards in the SFBAAB, nonattainment of federal and state PM_{10} standards, and nonattainment of the state $PM_{2.5}$ standard. The 2017 control strategy fulfills the state's ozone planning requirements, including all feasible measures to reduce emissions of ozone precursors (e.g., ROGs and NO_x) and reduce transport of ozone and its precursors to neighboring air basins. In addition, the Clean Air Plan builds on and enhances the air district's efforts to reduce emissions of fine particulate matter and toxic air contaminants.

The 2017 Clean Air Plan establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving California and national air quality standards. The plan's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, updated emission inventory methodologies for various source categories, and the latest population growth projections and vehicle miles traveled (VMT) projections for the region. The 2017 Clean Air Plan defines a control strategy that the BAAQMD and its partners will implement to:

1. Reduce emissions and decrease ambient concentrations of harmful pollutants;
2. Safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and
3. Reduce GHG emissions to protect the climate.

In addition to updating the previously prepared ozone plan, the 2017 Clean Air Plan also serves as a multipollutant plan to protect public health and the climate. In its dual role as an update to the state ozone plan and a multipollutant plan, the 2017 Clean Air Plan addresses four categories of pollutants (BAAQMD 2017b):

- Ground-level ozone and its key precursors, ROG and NO_X;
- Particulate matter: primary $PM_{2.5}$, as well as precursors to secondary $PM_{2.5}$;
- Air toxics (e.g., TACs); and
- GHGs

The 2017 Clean Air Plan includes local guidance for the state implementation plan (SIP), which includes the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards.

One of the 2050 goals of the Clean Air Plan is to develop and deploy strategies for on-site battery storage. The Project will help the BAAQMD to meet this goal.

Regulations and Rules

The following BAAQMD regulations and rules would be applicable to the Project:

Regulation 6, Rule 6, *Prohibition of Trackout*: This regulation prohibits the trackout from any active exit of a large construction or disturbed surface site onto an adjacent paved public roadway or shoulder of a paved public roadway that exceeds cumulative 25 linear feet and creates fugitive dust/visible emissions without cleaning up the trackout within 4 hours of when the owner/operator identifies excessive trackout. The rule also prohibits more than 1 quart of trackout to remain on an adjacent paved public roadway or the paved shoulder of a paved public roadway at the end of any workday. This rule applies to construction sites larger than 1 acre and applies to the Project during Project construction.

2.3 REGIONAL AND LOCAL AIR QUALITY CONDITIONS

2.3.1 San Joaquin Valley Air Basin Attainment Status

In an effort to protect human health and welfare, the CARB and EPA have established Ambient Air Quality Standards. Areas are considered in “attainment” if standards are met and “nonattainment” if they are not met. For ozone, nonattainment status is further classified as marginal, moderate, serious, severe, or extreme.

At the federal level, the SJVAB is designated as a “extreme” non-attainment area for the 8-hour ozone standard, nonattainment for $PM_{2.5}$, and a maintenance area for PM_{10}. At the state level, the SJVAB is designated as a “severe” non-attainment area for 1-hour ozone standard, non-attainment for the 8-hour ozone standard, and non-attainment for both the PM_{10} and $PM_{2.5}$ standards. The attainment classifications for the criteria pollutants are presented in Table 2.

Table 2. San Joaquin Valley (Kern County Portion) Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone (1-Hour)	No federal standard	Nonattainment/Severe
Ozone (8-Hour)	Nonattainment/Extreme	Nonattainment
NO2	Attainment/Unclassified	Attainment
CO	Attainment/Unclassified	Attainment/Unclassified
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
SO2	Attainment/Unclassified	Attainment
Lead	Attainment/Unclassified	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Sources: CARB 2021

2.3.2 Local Ambient Air Quality

An extensive air monitoring network operated by SJVAPCD, CARB, and the U.S. National Park Service measure concentrations for major pollutants to determine attainment status as well as generate air quality forecasts.

The closest monitor measuring ozone, NO_2, PM_{10} and $PM_{2.5}$ concentrations is the Tracey Airport monitoring station, located approximately 7 miles east of the Project area. For SO_2, the closest monitor is the Fresno-Garland monitoring station located approximately 117 miles southeast of the Project area. Finally, for CO, the Stockton Hazleton Street monitoring station is the closest, located approximately 23 miles northeast of the proposed Project. For the purposes of this analysis, these monitoring locations were considered representative of the air quality experienced in the vicinity of the Project. Table 3 summarizes the most recent air quality data from 2019 through 2021 with the number of days exceeding the ambient air quality standards.

Table 3. Local Ambient Air Quality Monitoring Data for the Years 2019–2021

Averaging Period	2019	2020	2021
Ozone (O_3) – *Tracy – Airport (A), California Monitoring Station (AQS Site ID: 06-077-3005)*			
1-hour Maximum Concentration (ppm)	0.095	0.086	0.089
Number of days exceeding CAAQS = **0.09 ppm**	2	0	0
8-hour Maximum Concentration	0.079	0.078	0.077
Number of days exceeding CAAQS = **0.070 ppm**	3	3	3
Number of days exceeding NAAQS = **0.070 ppm**	3	3	3
Nitrogen Dioxide (NO_2) – *Tracy-Airport (A), California Monitoring Station (AQS Site ID: 06-077-3005)*			
1-hour Maximum Concentration (ppb)	37	37	36
Number of days exceeding CAAQS = **180 ppb**	0	0	0
Number of days exceeding NAAQS = **100 ppb**	0	0	0
Annual Average Concentration (ppm) (**53 ppb**)	4	4	-

Averaging Period	2019	2020	2021
Carbon Monoxide (CO) – *Stockton-Hazelton Street, California Monitoring Station (AQS Site ID: 06-077-1002)*			
1-hour Maximum Concentration (ppm)	3.1	2.8	2.2
Number of days exceeding CAAQS = **20 ppm**	0	0	--
Number of days exceeding NAAQS = **35 ppm**	0	0	0
8-hour Maximum Concentration	--	--	--
Number of days exceeding CAAQS = **9.0 ppm**	--	--	--
Number of days exceeding NAAQS = **9.0 ppm**	--	--	--
Coarse Particulate Matter (PM_{10}) – *Tracy Airport (A), California Monitoring Station (AQS Site ID: 06-077-3005)*			
24-hour Maximum Concentration (µg/m^3)	247	229	--
Number of days exceeding CAAQS = **50 µg/m^3**	10	40	--
Number of days exceeding NAAQS = **150 µg/m^3**	1	2	--
Annual Average Concentration (state method) (µg/m^3) (**20 µg/m^3**)	--	--	--
Fine Particulate Matter ($PM_{2.5}$) – *Tracy Airport (A) and (-), California Monitoring Station (AQS Site ID: 06-077-3005)*[1]			
24-hour Maximum Concentration (µg/m^3)	30.7	117.5	59.6
Number of days exceeding NAAQS = **35 µg/m^3**	0	19	2
Annual Average Concentration (µg/m^3) (**12 µg/m^3**)	6.2	--	--
Sulfur Dioxide (SO_2) – *Fresno-Garland, California Monitoring Station (AQS Site ID: 06-019-0011)*			
1-hour Maximum Concentration (ppm)	0.009	0.016	0.008
Number of days exceeding NAAQS = **0.075 ppm**	0	0	0
24-hour Maximum Concentration (ppm)	0.002	0.002	0.003
Number of days exceeding NAAQS = **0.14 ppm**	0	0	0
Annual Average Concentration (ppm) (**0.03 ppm**)	--	--	--

Notes:
1 – Data for 2019 and 2020 is from Tracy Airport (A) Monitor Station (AQS Site ID: 06-077-3005). Data for 2021 was not available from this site. Data for 2021 is from Tracy Airport (-) Monitor Station, which is a preliminary site with not monitoring ID assigned.
µg/m^3 – microgram per cubic meter; CAAQS – California ambient air quality standards; NAAQS – National ambient air quality standards; ppb – parts per billion; ppm – parts per million
Sources: CARB 2022a and CARB 2022b

2.4 SIGNIFICANCE CRITERIA AND METHODOLOGY

2.4.1 Thresholds of Significance

2.4.1.1 California Environmental Quality Act Guidelines

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines, which indicates that a project has significant air quality impact if the following occurs:

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 project region is non-attainment under an applicable federal or state ambient air quality standard;
3. Expose sensitive receptors to substantial pollutant concentrations; and
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

2.4.1.2 San Joaquin Valley Air Pollution Control District

In addition to the air quality criteria above, SJVAPCD's Guidance for Assessing and Mitigating Air Quality includes one additional criterion as follows:

5. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Criteria Pollutants

The Guidance for Assessing and Mitigating Air Quality Impacts has established emissions-based thresholds of significance for criteria pollutants (SJVAPCD 2015a), which are shown in Table 4. The SJVAPCD has established significance thresholds for construction emissions and operational permitted and non-permitted equipment and activities, and it recommends evaluating impact significance for these categories separately. These thresholds of significance are based on a calendar-year basis, although construction emissions are assessed on a rolling 12-month period. A segment of the gen-tie line (less than 0.25 miles) is located in Alameda County. This segment of the gen-tie line will also be compared to the SJVAPCD's significance thresholds as these are more stringent than the BAAQMD's significance thresholds, with the exception of $PM_{2.5}$. The BAAQMD construction significance threshold of 10 tons per year will be used for $PM_{2.5}$.

Table 4. SJVAPCD Air Quality Thresholds of Significance – Criteria Pollutants

Pollutant	Construction Emissions (tons per year)	Operational Emissions (tons per year)	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
ROG	10	10	10
NO_x	10	10	10
CO	100	100	100
SO_x	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$[1]	10	10	10

Source: SJVAPCD 2015a
[1](BAAQMD 2017)

In addition to the annual emissions mass thresholds described in Table 4, the SJVAPCD has also established screening criteria to determine whether a project would result in a CO hotspot at affected roadway intersections (SJVAPCD 2015a). If neither of the following criteria are met at any of the intersections affected by the project, the project would result in no potential to create a violation of the CO standard:

- 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.
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more intersections in the project vicinity.

An LOS E Roadway is characterized by unstable traffic flow at or near capacity levels with poor levels of comfort and convenience. An LOS F Roadway is characterized by forced traffic flow in which the amount of traffic approaching a point exceeds the amount that can be served. LOS F is characterized by stop-and-go waves, poor travel times, low comfort and convenience, and increased accident exposure. The Project is located in a sparsely populated area and is unlikely to result in challenges to traffic flow.

Ambient Air Quality Analysis

The SJVAPCD recommends that an Ambient Air Quality Analysis (AAQA) be performed when on-site emissions of any criteria pollutant would equal or exceed 100 pounds per day (lbs/day). If emissions of one criteria pollutant exceeds the threshold, then all criteria pollutants are to be modeled. In the AAQA, air pollutant concentrations are determined by conducting air dispersion modeling, adding the resulting

concentrations to ambient background levels, and comparing to the applicable ambient air quality standard. A project would be considered a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any CAAQS or NAAQS. If an exceedance of the CAAQS or NAAQS is predicted, modeled concentrations may be compared to significant impact levels to assess whether a project's emissions would contribute significantly to an existing violation of the CAAQS or NAAQS.

Toxic Air Contaminants

The SJVAPCD has established thresholds of significance for combined TAC emissions from the operations of both permitted and non-permitted sources (SJVAPCD 2015a). Projects that have the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the maximally exposed individual equals or exceeds 20 in 1 million people.
- Hazard Index for acute and chronic noncarcinogenic TACs equals or exceeds 1 for the maximally exposed individual.

Odors

As described in the Guidance for Assessing and Mitigating Air Quality Impacts, due to the subjective nature of odor impacts, there are no quantitative thresholds to determine if potential odors would have a significant impact (SJVAPCD 2015a). Projects must be assessed for odor impacts on a case-by-case basis for the following two situations:

- Generators: Projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.
- Receivers: Residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

2.4.2 Approach and Methodology

Air quality and global climate change impacts associated with the proposed Project are related to emissions that would occur during construction and subsequent operation of the proposed Project. The principal sources of pollutants during construction would be earth-moving activities, construction equipment, trucks bringing materials to and from the site, on-site generators, and construction crew commuting vehicles. There are numerous air quality modeling tools available to assess air quality impacts of the Project. Emissions were estimated based on the air emission modeling software package CalEEMod (Version 2020.4.0). The model contains data specific to each California air basin. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. For calculation of on-road (off-site) mobile sources, CalEEMod uses the EMFAC2017 emissions model.

2.4.2.1 Construction

The construction processes are anticipated to occur during a period of approximately 15 months. Project construction would consist of five major stages, with the third and fourth stages concurrent with the second stage. The first stage would include mobilization, site preparation, fencing, laydown, and trenching. Grubbing and grading would occur on the site to achieve the required surface conditions and to accommodate the support structures and access roads. Due to the sloped topography of the Project site, site preparation would require approximately 407,000 cubic yards of cut and 406,000 cubic yards of fill, to create a single terrace on which the batteries would be installed. This area was conservatively used in

CalEEMod to calculate emissions from grading. Water for dust control and other construction needs would be trucked to the site. The Project would comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. During the site and substation preparation and grading subphase, four generators will be used: two will operate eight hours per day and two will operate 24 hours per day.

The second stage would involve construction of the energy storage enclosures and substation installation. A substation pad for the step-up transformer would be poured, followed by the installation of the medium-voltage stations, wiring of the modules through combiner boxes, and construction of the Project substation and grid interconnection. The medium-voltage stations would sit on concrete foundations or driven piles, pending final design. Off-road equipment in the CalEEMod model conservatively assumed that equipment for concrete foundations would be required. The third stage would be installation of the gen-tie line foundation and tower erection. The fourth stage would continue the gen-tie line installation including the pulling and stinging of the wires. The fifth and final phase of construction will include commissioning and testing.

The onsite construction workforce would consist of laborers, craftspeople, supervisory personnel, and support personnel. The onsite assembly and construction workforce is expected to reach a peak of approximately 60 workers; the average number of workers onsite is anticipated to be between 10 and 60 workers, depending on the construction phase. On average, it is anticipated that each worker will generate one round trip to the Project per workday. Workers could reside in any number of local communities or hotels. Due to the proximity of the city of Tracy and good availability of hotels and lodging there, it is likely many workers will stay there. The other closest residential locations to the Project are the hotels in Ulmar, Livermore, and Pleasanton. Additional nearby communities include Verona, Asco, Dublin, Lathrop, and Manteca. The nearest large urban areas are Tracy (9 miles, 18 minutes) and Ulmar (12 miles, 18 minutes). Because both are close in proximity, both will be included in analysis as possible commuting locations. Because so many local communities exist, the analysis did not consider all possible locations. It has been simplified to be representative and conservative. The communities in addition to Tracy and Ulmar that are included are Dublin (25 miles, 28 minutes) and Manteca (27 miles, 40 minutes). An estimated 40 percent of workers are estimated to come from Tracy, 30 percent from Ulmar, 15 percent from Dublin, and 15 percent from Manteca). Workers would reach the site using existing roads, accessing the Project site from Interstate 580 to Patterson Pass Road and Midway Road. The majority of the truck deliveries would be for the energy storage enclosures and power conversion system installation, as well as any aggregate material that may be required for foundations. Construction would occur primarily during daylight hours.

Vehicle use of area roadways resulting from Project construction activities would be limited to the 15-month construction period, as workers and materials are transported to and from the Project site. Construction workers would be encouraged to carpool in order to minimize vehicle trips.

Construction is anticipated to commence as early as 2024 and would occur over the course of 15 months. Construction scenario assumptions, including phasing, equipment, and vehicle trips, were based on information provided by the applicant. The CalEEMod model divides the construction processes into phases, which can be modified to fit Project specifications. As a conservative analysis, construction was assumed to begin at the start of 2024, though it is likely to commence later in the year. By assuming all major construction activity occurs in 2024, annual emissions would be higher than if emissions were divided between two construction years. As shown in Table 5, the second stage would overlap with both the third and fourth stages (the third and fourth stages would not occur simultaneously), with energy storage enclosures and substation installation occurring during weeks 17 through 52, gen-tie line foundation and tower erection occurring during weeks 41 through 46, and gen-tie line installation, pulling, and stringing occurring during weeks 47 through 52, and the CalEEMod model reflects this concurrent schedule. It was also assumed that construction equipment would operate for 5 days per week during Project construction.

Each construction phase has the potential to generate the following: (1) fugitive dust emissions resulting from soil disturbance activity; (2) emissions of air pollutants from fuel combustion in construction equipment; and (3) emissions of air pollutants from fuel combustion in vehicles used for worker commute, equipment deliveries, and material hauling. Table 5 shows the construction schedule and Table 6 shows the construction equipment and vehicle trips.

Table 5. Construction Schedule

Stage	Description	Duration (Days)	Week Nos.
1	Site and Substation Preparation and Grading	80	1-16
2	Energy Storage Enclosure and Substation Installation	180	17-52
3	Gen-Tie Line Foundation and Tower Erection	30	41-46
4	Gen-Tie Line Pulling and Stringing	30	47-52
5	Testing and Commissioning	60	53-64

Table 6. Construction Equipment and Vehicle Trips Per Phase

Construction Phase	Equipment			Daily Worker Vehicle Trips[1]	Daily Vendor Trips[1]	Total Haul Truck Trips[2]
	Equipment Type	Quantity	Usage Hours			
Site Clearing and Preparation	Air Compressors	4	8	40	4	3680
	Tractors/Loaders/Backhoes	2	8			
	Graders	2	8			
	Off-Highway Trucks	8	8			
	Rollers	2	8			
	Rubber Tired Dozers	2	8			
	Rubber Tired Loaders	2	8			
	Skid Steer Loaders	4	8			
	Trenchers	2	8			
	Dumpers/Tenders	8	8			
	Generators	2	24			
	Generators	2	8			
Energy Storage Enclosure and Substation Installation	Air Compressors	4	8	120	20	3600
	Cranes	2	8			
	Excavators	4	8			
	Generator Sets	4	8			
	Forklifts	2	8			
	Plate Compactors	2	8			
	Rollers	2	8			
	Tractors/Loaders/Backhoes	6	80			
Gen-Tie Line Foundation and Tower Erection	Air Compressors	2	8	40	4	600
	Cranes	2	8			
	Forklifts	2	8			
	Generator Sets	2	24			
	Pumps	2	8			
	Welders	2	8			
	Forklifts	2	8	49	4	600
	Generator Sets	2	8			

Construction Phase	Equipment			Daily Worker Vehicle Trips[1]	Daily Vendor Trips[1]	Total Haul Truck Trips[2]
	Equipment Type	Quantity	Usage Hours			
Gen-Tie Line Pulling and Stringing	Tractors/Loaders/Backhoes	2	8			
Testing and Commissioning	Off-Highway Trucks	3	8	100	0	0

[1]Number reflects daily one-way trips.
[2]Number reflects total one-way trips per phase.

2.4.2.2 Operation

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be operated by the Applicant or an affiliated company remotely. Periodic augmentation of batteries within the Project site may occur. Only occasional, on-site maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

During operation of the Project substation, operation and maintenance staff would visit the substation periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance.

The expected maintenance would generate little traffic during operation. Heavy equipment would not be utilized during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement, or for vegetation control. Routine operations would require one or two workers in a light utility truck to visit the facility on a weekly basis. Typically, one major maintenance inspection would take place annually.

Operational emissions were estimated using CalEEMod to include area, energy, and mobile source emissions. Operational assumptions, including equipment, solid waste, and water usage were based on information provided by the Applicant. There are no emissions expected with on-site energy use during operation. Electricity used on site would be supplied from the on-site batteries. Mobile sources would include motor vehicles (i.e., pickup trucks or light duty trucks) traveling to and from the site for infrequent maintenance. Based on conservative estimates, the Project is anticipated to have up to 130 round trips per year, accounting for regular operation and maintenance activities of two full-time-equivalent staff.

2.4.2.3 Ambient Air Quality Analysis

Per the Guidance for Assessing and Mitigating Air Quality Impacts, an AAQA should be performed if the emissions of a pollutant from equipment used for on-site construction or on-site operation exceeds 100 lbs/day (SJVAPCD 2015a).

2.4.2.4 Health Risk Assessment

Sensitive receptors are segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems related to respiratory distress). The area around the Project site is sparsely populated. The closest residences on land not owned by the current property owner are approximately 0.2 miles (approximately 1,000 feet) north of the Project site on the other side of West Patterson Pass and 0.2 miles (approximately 1,000 feet) southwest of the Project site at the southern terminus of Midway Road. SJVAPCD guidance (SJVAPCD 2015a) cites the Air Resources Board Handbook: *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005) and the California Air Pollution Control Officers Association (CAPCOA) Guidance

Document: *Health Risk Assessments for Land Use Projects* (CAPCOA 2009) for determining when and how to conduct risk assessments. Both documents include recommendations for buffer distances for siting sensitive receptors near various types of common sources. The project type and buffer distance are as follows:

- Freeways and high traffic roads – Sensitive receptors should be sited at least 500 feet from freeways or urban roads with 100,000 vehicles per day or rural roads with 50,000 vehicles per day.
- Distribution centers – Sensitive receptors should be sited at least 1,000 feet from distribution centers accommodating more than 100 trucks per day or more than 40 trucks per day with operating transport refrigeration units.
- Railyards – Sensitive receptors should be sited at least 1,000 feet from a major service and maintenance rail yard. Sensitive receptors sited within one mile of a major service and maintenance railyard should consider mitigation and/or restrictions.
- Ports – Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones.
- Refineries – Avoid siting new sensitive land uses immediately downwind of petroleum refineries.
- Chrome Platers – Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
- Dry Cleaners using Perchloroethylene – Avoid siting new sensitive land uses within 300 feet of any dry-cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
- A Gasoline Dispensing Facility – Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

The Project is an industrial project but does not fit into any of the project categories above. The reference distances from the CARB Air Quality and Land Use Handbook are not being used to analyze how existing conditions might impact future users or residents, but can be used as guidance to demonstrate that nearby residences are at an appropriate buffer distance to the project. As previously noted, the closest residence on land not owned by the Project's current property owner is located approximately 1,000 feet from the Project boundary. Tracy is located approximately 7 miles from the site.

SJVAPCD also provides significance thresholds for TACs:

Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in:

- A cancer risk greater than or equal to 20 in a million, and/or
- A Hazard Index (non-cancerous) greater than or equal to 1.

A HRA was not conducted for the Project. A qualitative discussion of Diesel Particulate Matter (DPM) risk is provided in Section 2.5.4.

2.5 IMPACT ANALYSIS

The Project is expected to have emissions less than 100 lbs/day for all pollutants during on-site construction. Therefore, Project construction emissions will not cause or contribute to a violation of an ambient air quality standard by exceeding any CAAQS or NAAQS. Since operational activities would be minimal and are also well below the modeling threshold, ambient air quality modeling was not performed for operational emissions.

2.5.1 Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact. The Project would not conflict with existing land uses or result in population growth. The Project would comply with applicable SJVAPCD rules and regulations, such as Regulation VIII (Fugitive PM_{10} Prohibitions) and IX (Mobile and Indirect Sources) which are discussed in detail in Section 2.2.3.1. Rule 9510 requires reductions in NOx and diesel particulate matter (as PM10). In addition, the Project would not result in a long-term increase in the number of trips or increase the overall vehicle miles traveled in the area. Worker vehicle trips, vendor trucks, and haul trucks would be generated during the proposed construction activities but would cease after construction is completed. NO_x emissions during construction would not exceed the SJVAPCD significance threshold. Additionally, as discussed in Section 2.2.3.1, compliance with SJVAPCD Regulation VIII and Rule 9510 would further reduce the Project's less than significant NO_x emissions. During the longer-term operational phase, the Project would have routine inspection and maintenance activities that would result in a net increase in emissions although, as discussed in Section 2.5.2, the increase in emissions would not exceed any significance threshold or violate any SJVAPCD rule or regulation.

The purposes of Rule 9510 are to reduce emissions from nitrogen oxide (NOx) and particulate matter of 10 microns or less (PM10) associated with construction and operation of new development projects in the San Joaquin Valley. Specifically, Rule 9510 was promulgated to reduce the growth in NOx and PM10 emissions associated with new development projects, including transportation and transit development projects in the San Joaquin Valley.

The Rule 9510 NO_X and PM_{10} reduction requires at least 20 percent reduction of NO_X construction emissions and 45 percent of construction diesel exhaust particulate matter (expressed as PM_{10}). The rule assures that the Project will not interfere with SJVAPCD attainment plans. Table 7 provides NO_X and PM_{10} construction exhaust emissions with and without Rule 9510 NO_x and PM_{10} emissions reductions, and the percent reduction from the use of Tier 4 engines for equipment greater than 85 horsepower.

Table 7. Rule 9510 NO_X and PM_{10} Reductions

Exhaust Emissions	NO_X (tons per year)		Diesel Exhaust PM_{10} (tons per year)	
	2024	2025	2024	2025
No Reductions	9.06	0.29	0.38	0.01
Rule 9510 Reductions	5.13	0.09	0.21	0.003
Percent Reduction	43%	69%	45%	70%

2.5.2 Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction Emissions

Less Than Significant Impact. The SJVAPCD has established annual significance thresholds to address pollution sources associated with general construction activities, such as the operation of on-site construction equipment, fugitive dust from site grading activities, and travel by construction workers. In addition to the SJVAPCD annual significance thresholds, the SJVAPCD also recommends the use of daily emissions thresholds for the evaluation of project impacts on localized ambient air quality. Based on these recommended thresholds, the proposed Project would result in a significant contribution to localized ambient air quality if on-site emissions would exceed a daily average of 100 lbs/day for any of the pollutants evaluated.

The Project would comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. Standard construction practices that would be employed to reduce fugitive dust emissions include:

- Develop a dust control plan to outline how the Project will comply with Rule 8021 and minimize fugitive dust during construction,
- Land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled utilizing application of water or by presoaking,
- Minimize and cleanup trackout onto paved roads,
- Cover haul trucks,
- Rapid cleanup of Project-related trackout or spills on paved roads,
- Minimize grading and soil movement when winds exceed 30 miles per hour, and
- Implement a speed limit of 15 miles per hour during all construction phases for vehicles travelling on un-paved roads.

The Project would also use of Tier 4 engines for construction equipment to reduce NO_X and DPM emissions and meet the requirements of Rule 9510. In addition to dust control measures, the use of Tier 4 engines was incorporated to CalEEMod. For the purpose of this assessment, it was assumed that all off-road diesel equipment greater than 85 horsepower would meet EPA Tier 4 off-road emission standards or equivalent.

Project construction emissions were calculated using the CalEEMod. Table 8 presents the estimated maximum annual emissions generated during construction of the Project. As previously stated, the BAAQMD annual significance threshold for $PM_{2.5}$ was used instead of the SJVAPCD threshold as the BAAQD annual $PM_{2.5}$ threshold is more conservative. Table 9 presents the estimated on-site maximum daily emissions generated during construction of the Project. Emissions with and without Rule 9510 and dust control reductions are presented. Detailed emission calculations are provided in Appendix A.

The SJVAPCD has determined that projects with emissions below the thresholds of significance for criteria pollutants would not conflict or obstruct implementation of the SJVAPCD's air quality plan (SJVAPCD 2015a).

Table 8. Estimated Maximum Annual Construction Criteria Air Pollutant Emissions

Total Project Emissions	Emissions (tons)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
No Reductions	1.09	9.35	10.98	0.03	1.25	0.72
Rule 9510 and Dust Control Reductions	1.09	5.22	10.98	0.03	0.76	0.41
SJVAPCD Threshold (tons/year)	*10*	*10*	*100*	*27*	*15*	*10*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Table 9. Estimated On-Site Maximum Daily Construction Criteria Air Pollutant Emissions

Total Project On-Site Emissions	Emissions (lbs/day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
No Reductions	11.92	99.99	98.44	0.25	18.38	10.83
Rule 9510 and Dust Control Reductions	11.92	51.46	98.44	0.25	8.68	5.33
SJVAPCD On-site Emissions Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

As shown in Table 8, annual construction emissions would not exceed the SJVAPCD annual significance thresholds for any pollutants, both with and without reductions. As shown in Table 9, maximum daily on-site construction emissions would not exceed SJVAPCD's localized significance threshold of 100 lbs/day for ROG, NO_X, CO, SO_x, PM_{10}, or $PM_{2.5}$ both with and without reductions. SJVAPCD recommends that an AAQA be conducted when on-site emissions from any criteria pollutant would equal or exceed applicable significance thresholds or when on-site emissions would equal or exceed 100 lbs/day for any pollutant. Therefore, an AAQA was not performed for the Project.

Operational Emissions

Less Than Significant Impact. Project operational emissions were estimated using CalEEMod to include area, mobile, and off-road source emissions. This included potential emissions from landscaping, worker commutes, and heavy trucks used during maintenance. Emissions from energy use were not included since electricity used on-site would be supplied from the on-site batteries. Table 10 presents the estimated maximum annual operational emissions in tons per year with a comparison to SJVAPCD thresholds. The $PM_{2.5}$ significance threshold is based on the BAAQMD threshold of 10 tons per year. Detailed emissions calculations are provided in Appendix A.

Table 10. Estimated Maximum Annual Operational Criteria Air Pollutant Emissions

Emission Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	Emissions (tons per year)					
Area, Mobile, and Offroad	0.006	0.03	0.04	0.0001	0.0020	0.0012
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*10*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Table 11. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Emission Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	Emissions (lbs/day)					
Area, Mobile, and Offroad	1.45	8.60	9.72	0.04	0.32	0.29
SJVAPCD Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

As shown in Tables 10 and 11, operational emissions would not exceed the SJVAPCD thresholds for ROG, NO_x, CO, SO_x, PM_{10} and $PM_{2.5}$. Since operational activities would be minimal, including only routine inspection and maintenance, ambient air quality modeling was not required. Additionally, traffic associated with operations would be negligible and would not result in CO hotspots at intersections. Therefore, the operational impacts would be less than significant.

2.5.3 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 (including releasing emissions which exceed quantitative thresholds for O_3 precursors)?

Less Than Significant Impact. As discussed previously, the Project results in an increase in short-term emissions related to construction and an increase in long-term operational emissions for those pollutants and precursors (ROG and NO_x) for which the SJVAPCD is in non-attainment (O_3, PM_{10} and $PM_{2.5}$). Although the Project site is located in a region that is in non-attainment for O_3, PM_{10} and $PM_{2.5}$, the

cumulative emissions associated with the Project would not be considerable as the emissions would fall below SJVAPCD thresholds. Under this condition, the Project would not make a cumulatively considerable contribution during construction or operations. Therefore, impacts would be less than significant. Additionally, the Project would not conflict with the SJVAPCD O_3, PM_{10} or $PM_{2.5}$ attainment plans, which address cumulative emissions in the SJVAB and account for emissions associated with construction activity. Therefore, impacts would be less than significant.

2.5.4 Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The Project consists of construction of a battery energy storage facility that may have the potential to affect nearby sensitive receptors. As stated previously, the closest residences are located between 300 and 650 feet west of the Project boundary. However, these residences are owned by landowners who are participating in the Project and, therefore, are not considered in the analysis of impacts. The nearest rural residences on land not owned by the current property owner are located approximately 1,000 feet north of the Project site on the other side of West Patterson Pass and 1,000 feet southwest of the Project site at the southern terminus of Midway Road to the west of the on-site substation, to the east of Midway Road. As described previously, construction and operation of the Project would not result in emissions of criteria pollutants in excess of established thresholds.

In addition to the significance thresholds for criteria pollutants, SJVPACD has established significance thresholds for TAC emissions. The use of combustion equipment in Project construction activities could result in elevated concentrations of DPM, which could lead to an increase in cancer risk or chronic health impacts.

The greatest potential for exposure to air pollutants would occur during construction. The primary TAC from the Project is DPM from construction equipment. PM_{10} and $PM_{2.5}$ are surrogates for DPM. Tables 8 and 9 provide a summary of total PM_{10} and $PM_{2.5}$ emissions during construction (including fugitive dust) on an annual and daily basis, respectively. Tables 10 and 11 provide a summary of total PM_{10} and $PM_{2.5}$ emissions during operation (including fugitive dust) on an annual and daily basis, respectively. Both construction and operational emissions of PM_{10} and $PM_{2.5}$ are a small fraction of the significance thresholds.

Because of the relatively small levels of DPM emissions during Project construction and operation, DPM emissions from Project construction would disperse to negligible levels, and therefore, the health impacts associated with exposure to DPM from Project construction and operation are not expected to be significant.

As previously noted, SJVAPCD also provides significance thresholds for TACs:

- Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in:
    - A cancer risk greater than or equal to 20 in a million and/or
    - A Hazard Index (non-cancerous) greater than or equal to 1.

Exposure to emissions would vary throughout construction and would depend on the staging of the work being conducted, location of work relative to receptors, and weather conditions.

A HRA was not conducted for this Project due to the low level of emissions. To obtain an order of magnitude risk estimate, a DPM risk assessment conducted for a similar project in the SJVAPCD, Luna Valley Solar Project (Luna Valley), was reviewed for comparison to the Project. In the case of Luna Valley, while the nearest sensitive receptor (residence) was located 1,500 feet from the project, the HRA analysis conservatively assessed maximum impacts at the project property line. The CARB HARP2

model was used to model the resultant health risk using construction PM_{10} concentrations modeled in AERMOD and based on emissions calculated by CalEEMod.

For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from off-road equipment during construction. For the Luna Valley construction HRA modeling, DPM from diesel-fueled off-road construction equipment and trucks was the only TAC evaluated. Annual DPM emissions for the Project, as presented in Table 7, were calculated to be lower than those for Luna Valley (0.21 tons per year for the Project versus 0.28 tons per year for Luna Valley); daily DPM emissions were also lower than those for Luna Valley (2.3 lbs/day for the Project versus 3.45 lbs/day for Luna Valley).

The Luna Valley risk screening resulted in a calculated cancer risk of 6.2 per million and a Hazard Index of 0.004. These results were conservatively based on impacts at the property line rather than the nearest sensitive receptor (County of Fresno 2021). Due to the distance to sensitive receptors for the Project and Luna Valley's conservative assessment at the property line, TAC risk from construction of the Project on sensitive receptors would be well below the SJVAPCD screening thresholds for TACs.

While TACs from the Project during construction are expected to have insignificant impacts on the surrounding communities, to minimize exhaust emissions from construction equipment, the Project is proposing the following design elements:

- Ensure periodic maintenance and inspections per the manufacturers' specifications.
- Reduce idling time through equipment and construction scheduling.
  Ultra-low sulfur diesel fuels (<=15 ppm_w S) will be used.

In addition, the Project would implement the following emissions reduction measures to comply with Rule 9510 (exhaust NO_x and PM_{10} reduction) and Rule 8021 (dust control):

- Use of Tier 4 engine technology for equipment greater than 85 horsepower.
- Watering for dust suppression.

Based on the temporary nature and the time frame for construction, these measures will maintain construction emissions and impacts to levels well within compliance with the SJAPCD air quality regulations. Use of these emission control strategies will ensure that the site does not cause any violations of existing air quality standards as a result of construction-related activities.

Since operational activities would be limited to routine inspection and maintenance, an operational HRA was not required and the impact would therefore be less than significant.

2.5.5 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. During Project-related construction activities, various diesel-powered vehicles and equipment could create minor odors. These odors are not likely to be noticeable beyond the immediate vicinity and would be temporary and short-lived. In addition, the nearest sensitive receptors on land not owned by the Project's current property owner are 1,000 feet or more from the Project site. Therefore, construction odor impacts would be less than significant. Long-term odors are associated typically with industrial projects involving use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes. Odors also are associated with such uses as sewage treatment facilities and landfills. The Project involves no elements related to these types of uses. Therefore, no long-term odor impacts would occur with Project implementation.

According to the California Department of Public Health, incidences of Valley Fever has been consistently high in the Southern San Joaquin Valley and Central Coast regions. The Northern San Joaquin Valley has shown a large increase in cases between 2000 and 2018; the highest median annual incidences

were in the Southern San Joaquin Valley (90.6 per 100,000), Central Coast (9.7 per 100,000), and Northern San Joaquin Valley (5.6 per 100,000) (Sondermeyer et al. 2020)

There are currently no recommended thresholds of significance for Valley Fever. Construction activities, including site preparation and grading, would have the potential to make *C. immitus* fungus spores airborne. However, the Project would comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. The Project would develop a dust control plan and employ all best available fugitive dust control measures that would reduce the risk of contracting Valley Fever. The Project would also comply with SJVPACD Regulation VIII, which requires fugitive dust sources to implement best available control measures for all sources, as described earlier.

The nearest sensitive receptors (rural residence) on land not owned by the Project's current property owner are located approximately 1,000 feet from the nearest Project boundary. Based on this distance, earth-moving activities during Project construction would not result in exposure of nearby sensitive receptors to Valley Fever. The California Department of Public Health recommends that employers in areas with endemic *C. immitus* should implement infection prevention measures and protect workers who are at risk for exposure to *C. immitus*. Infection risk can be decreased by using dust-control measures and appropriate personal protective equipment at work. The Project would implement dust control strategies to limit fugitive dust leaving the site and will also implement Valley Fever awareness and training. Based on the dust control plan, the Project would have a less-than significant impact with respect to Valley Fever exposure.

3.0 GREENHOUSE GAS EMISSIONS

3.1 ENVIRONMENTAL SETTING

3.1.1 The Greenhouse Effect

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A GHG is any gas in the atmosphere that absorbs infrared radiation. As solar radiation enters the earth's atmosphere, a portion of the radiation is absorbed by the earth's surface, and a portion is reflected back through the atmosphere into space. The absorbed radiation is eventually emitted from the earth into the atmosphere, not as solar radiation, but as infrared radiation. Most solar radiation passes through GHGs; infrared radiation is selectively absorbed or "trapped" by GHGs as heat and then reradiated back toward the earth's surface, warming the lower atmosphere and the earth's surface. This phenomenon, known as the "greenhouse effect," is beneficial for maintaining a habitable climate on the earth. As the atmospheric concentrations of GHGs rise, however, the average temperature of the lower atmosphere gradually increases, thereby increasing the potential for indirect effects such as a decrease in precipitation as snow, a rise in sea level, and changes to plant and animal species and habitat.

Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed globally. Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, scientific evidence reveals that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions remains stored in the atmosphere. The quantity of GHGs that it takes to ultimately result in climate change is not known precisely, although scientific evidence strongly indicates no single project would be expected to contribute measurably to a noticeable incremental change in the global average temperature.

3.1.2 Greenhouse Gases and Global Warming Potential

GHGs are emitted by natural processes and human activities. Natural GHG sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Human activities known to emit GHGs include industrial manufacturing, utilities, transportation, residential, and agricultural activities. The GHGs that enter the atmosphere because of human activities are CO_2, CH_4, N_2O, fluorinated carbons (hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

CO_2 is an odorless, colorless gas with both natural and anthropogenic sources. Examples of natural sources are respiration of bacteria, plants, and animals, evaporation from oceans, and decomposition of organic matter. Human activities that emit CO_2 include burning coal, oil, natural gas, and wood.

CH_4 is a flammable gas that is the main component of natural gas. When burned in the presence of oxygen, CO_2 and water are released. There are no direct health effects from exposure to CH_4. Sources of CH_4 include decay or organic material, natural gas fields, cattle, and landfills.

N_2O is a colorless gas that can cause euphoria, dizziness, and slight hallucinations when exposed to higher concentrations. Sources include agricultural sources (e.g., microbial processes in soil and water, fertilizer) and industrial processes (e.g., fossil fuel-fired power plants, vehicle emissions, nylon production).

Fluorinated Gases are synthetic and emitted from a variety of industrial processes.

HFCs are man-made chemicals used as a substitute for CFCs (chlorofluorocarbons) for automobile air conditioners and refrigerants.

PFCs are very stable and do not break down through the chemical processes in the lower atmosphere and they have long lifetimes (between 10,000 and 50,000 years). The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

SF_6 is an inorganic, colorless, odorless, nontoxic, nonflammable gas used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

Global Warming Potential

The Intergovernmental Panel on Climate Change developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of one kilogram of a trace substance relative to that of one kilogram of a reference gas. The reference gas used is CO_2. Therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent ($CO2_e$). It was assumed that the GWP for CH_4 is 25 (which means that emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), the GWP for N_2O is 298, and the GWP for SF6 is 22,800 based on the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC 2007). These GWPs are also codified by the EPA in 40 CFR 98.

3.2 REGULATORY SETTING

3.2.1 Federal Regulations

The U.S. Supreme Court ruled on April 2, 2007, that CO_2 is an air pollutant as defined under the CAA, and that the EPA has the authority to regulate emissions of GHGs. Responding to the mounting issue of climate change, the EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

Mandatory Greenhouse Gas Reporting Rule (40 CFR 98)

On September 22, 2009, the EPA issued a final rule for mandatory reporting of GHGs from large GHG emission sources in the United States. In general, this national reporting requirement will provide the EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publicly available data allows the reporters to track their own emissions, compare them to similar facilities, and help identify cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers report at the corporate level. An estimated 85 percent of the total United States GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act

On December 7, 2009, the EPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the Administrator (of EPA) should regulate and develop standards for “emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six key GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the health and welfare of current and future generations. The

second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and therefore the threat of climate change.

The Administrator found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are most likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wildfires, droughts, sea level rise, and higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The Administrator also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but rather allow the EPA to define the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.

Various subsequent federal rulemakings limit GHG emissions from fossil fuel-fired power plants through EPA's major stationary source permitting program and through EPA's New Source Performance Standards. These rulemakings have been subject to court challenges and political manipulation, such that applicants for air permits are required to evaluate the current status of the regulatory requirements. These GHG rules do not apply to the activities associated with the Project.

3.2.2 State Regulations

While climate change has been a concern since at least 1988, the efforts devoted to GHG emissions reduction and climate change policy have increased dramatically in recent years. In 2002, California passed AB 1493, which requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions beginning with the 2009 model year. In June 2005, Executive Order S-3-05 was signed to reduce California's GHG emissions to: (1) 2000 levels by 2010; (2) 1990 levels by the 2020; and (3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32, the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan (Scoping Plan), which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." CARB's 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan, CARB 2022c) was prepared to address climate legislation passed since the last scoping plan, which was prepared in 2017. The Scoping Plan addresses AB 1279, Senate Bill (SB) 905, SB 1065, SB 1075, and other legislation and executive orders addressing GHG reductions in various manufacturing sectors and managing natural lands. SB 32 codifies the emissions reduction goal of 40 percent below 1990 levels by 2030.

In 2022, California passed AB 1279 (California Crisis Act), which introduced a statewide policy to "achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter, and to ensure that by 2045, statewide anthropogenic greenhouse gas emissions are reduced to at least 85% below the 1990 levels." The bill would require the state board to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

AB 32 requires the state to create an opportunity for interested parties to comment on the scoping plan by conducting public workshops. It is required to conduct a portion of these workshops in regions with low-

income communities, and minority populations. SB 1020 (2022) would instead include “federal extreme nonattainment areas that have communities with minority populations, communities with low-income populations, or both” as regions for these workshops. Additionally, this bill would “accelerate the timeline required to have 100 percent renewable energy and zero carbon energy procured to serve state agencies from the original target year of 2045 to 2035.”

SB 905 requires the state board, along with appropriate state and local agencies, to “adopt regulations for a unified permit application for the construction and operation of carbon dioxide capture, removal, or sequestration projects” by January 1. 2025.The state board is required to develop a public database to track such projects.

SB 1075 requires the state board to specify information relative to the deployment, development, and use of hydrogen as part of the evaluation posted to the state board's internet website by June 1, 2024. Additionally, the Energy Commission is expected “to study and model potential growth for hydrogen and its role in decarbonizing” as part of the 2023 and 2025 editions of the integrated energy policy report.

SB 1206 mandates a stepped sales prohibition on newly produced high GWP HFCs to transition California’s economy toward recycled and reclaimed HFCs for servicing existing HFC-based equipment. Additionally, SB 1206 also requires CARB to develop regulations to increase the adoption of very low-, i.e., GWP < 10, and no-GWP technologies in sectors that currently rely on higher-GWP HFCs.

In 2002, SB 1078 established Renewable Portfolio Standard (RPS), which required an annual increase in renewable generation by the utilities with a goal of 20 percent by 2010. SB X1-2 expanded the RPS by establishing a renewable energy target of 20 percent of the total electricity sold to retail customers in California per year by 2013, and 33 percent by 2020 and subsequent years. SB 350 further expanded the RPS by establishing a goal of 50 percent of the total electricity sold to retail customers in California per year by 2030. SB 100 mandates that the CPUC, CEC, and CARB plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. The statute requires these agencies to issue a joint policy report on SB 100 every four years. The first of these reports was issued in 2021. This Scoping Plan reflects the SB 100 Core Scenario resource mix with a few minor updates. This bill also updates the state’s RPS to include the following interim targets:

- 44 percent of retail sales procured from eligible renewable sources by December 31, 2024
- 52 percent of retail sales procured from eligible renewable sources by December 31, 2027
- 60 percent of retail sales procured from eligible renewable sources by December 31, 2030

SB 97 acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. CEQA requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions can affect the environment adversely because they contribute, cumulatively, to global climate change. Thus, GHG emissions require consideration in CEQA documents.

3.2.3 Local Regulations

3.2.3.1 SJVAPCD

In 2009, the SJVAPCD Governing Board adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009a). The SJVAPCD found that the effects of project-specific emissions to be cumulative, and without mitigation, their incremental contribution to global climate change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their GHG emissions, whether through project design elements or mitigation.

For development projects, best performance standards (BPS) would include project design elements, land use decisions, and technologies that reduce GHG emissions. While the SJVAPCD has adopted BPS

for several types of stationary sources (e.g., boilers), it has not developed BPS for land development projects. Projects implementing any combination of BPS, and/or demonstrating a total 29 percent reduction in GHG emissions from business-as-usual, would be determined to have a less than significant individual and cumulative impact on global climate change (SJVAPCD 2015a).

3.2.3.2 San Joaquin Council of Governments

SB 375 requires metropolitan planning organizations to prepare a Sustainable Community Strategy (SCS) in their RTP. The types and quantity of emissions produced in the SJCOG region vary among jurisdictional boundaries. However, for most jurisdictions, transportation and energy consumption are responsible for the majority of GHG emissions. As discussed in Section 2.2.3.2 the SJCOG adopted the 2018 RTP/SCS (SJCOG 2018) in June 2018. The RTP/SCS, is a long-range comprehensive plan for the region's multimodal transportation system. CARB provided GHG reduction targets for the 2018 RTP/SCS, setting the targets at a 5 percent per capita reduction by 2020 and 10 percent per capita reduction by 2035 from year 2005 levels. According to the Programmatic Draft Environmental Impact Report (SJCOG 2022), the 2018 RTP/SCS met those targets. On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. SJCOG was assigned a 16 percent reduction of GHG emissions from per capita passenger vehicles by 2035, relative to 2005 emission levels.

SJCOG is required to adopt an updated RTP at least every four years to receive federal and state transportation funding for public transit, streets/roads, and bicycle and pedestrian improvements.

The proposed 2022 RTP/SCS will coordinate and facilitate planning and budgeting of transportation facilities and services within the SJCOG region through the year 2046 and will demonstrate how the SJCOG region will integrate transportation and land use planning to meet greenhouse gas emissions reduction targets established by CARB and other state and federal regulations.

The SJCOG is in the process of preparing for the 2022 RTP/SCS. A Notice of Availability of a Draft Programmatic Environmental Impact Report for the 2022 Regional Transportation Plan and Sustainable Communities Strategy was issued on June 24, 2022 (SJCOG 2022). The proposed 2022 RTP/SCS, as currently proposed, would result in a net decrease in overall transportation related GHG emissions in the SJCOG region. The Programmatic Draft Environmental Impact Report local review period extends through August 8, 2022.

3.2.3.3 Bay Area Air Quality Management District

The BAAQMD provides direction and recommendations for the analysis of GHG impacts of a project and approach to mitigation measures in its CEQA Guidelines (BAAQMD 2017a). The guidance provided in the handbook was used to prepare this analysis. In addition, the 2017 Clean Air Plan, Spare the Air Cool the Climate defines a control strategy that the BAAQMD and its partners will implement to reduce greenhouse gas emissions to protect the climate (BAAQMD 2017a). In April 2022, BAAQMD proposed CEQA thresholds of significance for climate impacts from land use projects and plans and published a justification report (BAAQMD 2022). CEQA requires agencies in California to analyze such impacts by evaluating whether a proposed project would make a "cumulatively considerable" contribution to the significant cumulative impact on climate change.

The new thresholds were developed in response to new state GHG targets and BAAQMD scoping targets. These thresholds are intended to assist public agencies in determining whether proposed projects would make a cumulatively considerable contribution to global climate change, as required under CEQA. The proposed thresholds focus on design elements for land use and transportation aspects of development projects. If a project meets these elements, it is considered to contribute to what is necessary to contribute its portion of what is necessary to achieve California's long-term climate goals

The Project will be required to be consistent with a local GHG reduction strategy that meets the criteria under CEQA guidelines Section 15183.5(b). As discussed under Local Regulations and Plans below, the Almeda County Community Climate Action Plan (CCAP) encourages energy efficiency and renewable energy. The Project will help the county meet its renewable energy goals.

3.2.3.4 Association of Bay Area Governments and Metropolitan Transportation Commission

As required by the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) developed a Regional Transportation Plan / Sustainable Community Strategy as a component of Plan Bay Area 2040 (MTC and ABAG 2017). In October 2021, the *Plan Bay Area 2050* and Final EIR were adopted (MTC and ABAG 2021). *Plan Bay Area 2050* focuses on climate change and strategies for resilience against hazards such as sea-level rise and wildfires. *Plan Bay Area 2050* includes an implementation plan detailing specific actions to be taken in the next 5 years.

Plan Bay Area 2050 provides a blueprint for how the Bay Area can accommodate future growth while achieving regional GHG emissions reduction targets established by the CARB pursuant to SB 375

3.2.3.5 Alameda County General Plan

Alameda County has adopted a local Climate Action Plan (CAP) to reduce GHG emissions. This plan was approved and adopted as an Element of the Alameda County General Plan by the Alameda County Board of Supervisors on February 4, 2014. Full implementation of the strategies in the CAP would allow the County to reduce GHG emissions to 80 percent below 1990 levels by 2050 (Alameda County 2014). The plan describes implementation steps in six action areas (land use, transportation, energy, water, waste, and green infrastructure) to achieve the county's GHG reduction targets. The project offers support for CAP particularly in the Building Energy Action Area's following measure:

- E-4: Identify and develop financing programs that encourage energy efficiency and renewable energy.

3.3 SIGNIFICANCE CRITERIA AND METHODOLOGY

3.3.1 Thresholds of Significance

The state of California has developed guidelines to address the significance of greenhouse gas impacts based on Appendix G of the CEQA Guidelines, which indicates that a project has significant air quality impact if the project:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and
2. Conflict with an applicable plan, policy, or regulations adopted for the purpose of reducing the emissions of greenhouse gases.

In the Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA and the policy Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009b), BPS are used to assess significance of project specific GHG emissions on global climate change during the environmental review process. However, SJVAPCD's adopted BPS are specifically directed at reducing GHG emissions from stationary sources; therefore, the adopted BPS would not generally be applicable to the Project as the Project would not be a stationary source of emissions. The SJVAPCD guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project related impacts on global climate change. SJVAPCD supports the use of the interim thresholds as established by the CAPCOA when adopted thresholds are not applicable.

While AB 32 aimed to reduce emissions to 1990 levels by year 2020, SB 32 was later passed and aimed to further reduce emissions to 40% below 1990 levels by 2030. A new threshold has not been determined but is expected to decrease over time in order to reduce project GHG emissions to meet SB 32 targets beyond 2020.

3.3.2 Approach and Methodology

A GHG analysis is required to be included in CEQA documents for all non-exempt projects. SJVAPCD supports the use of the interim thresholds as established by the CAPCOA when adopted thresholds are not applicable. A new threshold has not been established to meet SB 32 targets beyond 2020 CAPCOA proposes that projects amortize construction emissions over the 30-year lifetime of any given project. Project construction emissions can be amortized by calculating total construction period emissions and dividing by the 30-year lifetime of the Project.

For this Project, the major source of GHG is the combustion of fuel in construction equipment, in vehicles used to haul materials, and in vehicles used by workers commuting to and from the site.

There are three types of GHG from fuel combustion, including CO_2, CH_4 and N_2O. GHG emissions are presented as $CO2_e$ and is computed based on global warming equivalence. The CH_4 global warming equivalence is 25 times that of CO_2, and the N_2O global warming equivalence is 298 times that of CO_2. Mathematically, the $CO2_e$ can be represented by the following equation:

$$CO2_e \text{ Emissions} = CO_2 \text{ Emissions} + 25 \times CH_4 \text{ Emissions} + 298 \times N_2O \text{ Emissions}$$

The CalEEMod model was used to estimate the GHG emissions during the construction phase of the proposed Project. Based on the construction schedule, types and quantities of construction equipment, and haul trucks, etc., the maximum $CO2_e$ emissions were estimated. The CalEEMod model provides a CO_2 profile only and does not quantify $CO2_e$, CH_4 and N_2O emissions. The analysis assumed that the CO_2 emissions are $CO2_e$. For typical diesel-fueled combustion equipment used in construction activities, the emissions factors adjusted with global warming equivalence are the following:

1. CO_2 emission factors are 22.4 pounds of $CO2_e$ per gallon consumed
2. CH_4 emission factors are 0.065 pounds of $CO2_e$ per gallon consumed
3. N_2O emission factors are 0.068 pounds of $CO2_e$ per gallon consumed

As shown in these emission factors, the CO_2 profile is 99 percent of the total GHG emissions generated in combustion equipment.

Additionally, GHG emissions are associated with fugitive emissions of SF_6 from gas-insulated switchgear equipment, such as the high voltage circuit breakers at the on-site substation and R-134A leaking from the battery cooling systems. The SF_6 global warming potential (GWP) is 22,800 times that of CO_2. The Project will have no more than two high-voltage circuit breakers, each with up to 160 pounds of SF_6 for a total of up to 320 pounds, and a maximum leak rate of 0.5 percent per year. $CO2_e$ resulting from SF_6 gas leakage can be represented by the following equation:

$$CO2_e \text{ Emissions} = SF_6 \text{ gas contained in equipment (lbs)} \times 0.5\% \text{ leak rate per year} \times 0.0004536 \text{ MT/lb} \times 22{,}800$$

The R-134A GWP us 1,430 times that of CO_2. The Project will have approximately 500 battery storage units with a leak rate of approximately 0.035 pounds of R-134A per unit. $CO2_e$ resulting from R-134A leakage can be represented by the following equation:

$CO2_e$ Emissions = R-134A leak rate (0.035 lbs) x 500 battery units x 0.0004536 MT/lb x 1,430

3.4 IMPACT ANALYSIS

3.4.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction Emissions

Less Than Significant Impact. Construction of the Project would increase GHG generation, which can contribute to global climate change. This analysis is provided in response to recent heightened interest in the subject of global climate change and, specifically, in the California legislature's passage and the Governor's signing of AB 32, which is intended to control and reduce the emission of global warming gases in California; and SB 97, which directs the Office of Planning and Resr5earch and the California Resources Agency to develop CEQA Guidelines on how local agencies should analyze and, if necessary, mitigate for GHG emissions.

Construction emissions would be associated with vehicle engine exhaust from construction equipment and vehicles, vendor trips, construction worker commuting trips, and the stationary generators to be used during construction. Construction-related GHG emissions are considered temporary and short term. As shown in Table 12, short-term construction $CO2_e$ emissions will not exceed the annual GHG threshold.

Table 12. Estimated Annual Construction Greenhouse Gas Emissions

Total Project Emissions	CO_2	CH_4	N_2O
	Emissions (Metric tons)		
Construction GHG Emissions	2,307	0.43	0.05
Global Warming Equivalence Factor	1	25	298
Equivalent CO_2e Emissions[1]	2,307	11	15
Total Construction GHG (CO_2e)	2,333		
Total Construction GHG (CO_2e) Amortized Emissions over 30 Years	78		
[1] Equivalent CO2e Emissions = Construction GHG Emissions x Global Warming Equivalent Factor			

Operational Emissions

Less Than Significant Impact. Operation of the Project would generate GHG emissions through motor vehicle trips to and from the Project site, occasional use of heavy-duty trucks, landscaping, waste generation, water use, and potential leakage from gas-insulated circuit breakers (area source). The CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 2.4.2.2. Additionally, GHG emissions associated with SF_6-insulated circuit breakers at the on-site substation were calculated based on up to 320 pounds of SF_6 contained in equipment, an annual leak rate of 0.5 percent, and a GWP of 22,800.

The estimated operational GHG emissions from area sources, energy usage, motor vehicles, and emergency generator are shown in Table 13.

Table 13. Estimated Annual Operational Greenhouse Gas Emissions

Annual	CO_2	CH_4	N_2O	SF_6	R-134A
	Emissions (Metric tons)				
Operational GHG Emissions	13.6	0.2	0	0.000726	0.008
Global Warming Equivalence Factor	1	25	298	22,800	1,430
Equivalent CO_2e Emissions[1]	13.6	4.6	0	16.6	11.44
Total Operational GHG Emissions	46				

Annual	CO_2	CH_4	N_2O	SF_6	R-134A
	Emissions (Metric tons)				
Total Operational GHG Emissions + Amortized Construction GHG Emissions	124				

[1] Equivalent CO2e Emissions = Construction GHG Emissions x Global Warming Equivalent Factor

As shown in Table 13, estimated annual Project-operational GHG emissions would be approximately 46 MT CO_{2e} per year as a result of Project operation. Estimated maximum annual operational emissions and amortized construction emissions would be approximately 124 MT CO_{2e} per year. As shown, the total annual emissions would be very low. The storage project is expected to support GHG reduction measures conducive to meeting the targets of SB 32 by 2030. Because the Project's GHG emissions would not result in a cumulatively considerable contribution, the Project would result in a less than significant cumulative impact in terms of climate change.

3.4.2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact. The Project would keep with renewable energy targets under the Scoping Plan, SB X1-2, and SB 350 by providing a source of renewable energy to achieve the RPS of 33 percent by the end of 2020 and 50 percent by the end of 2030. While GHG would be generated from construction and occasional operation and maintenance activities, the Project would result in a net reduction in GHG from battery storage that would potentially replace energy generated by fossil fuels. The Project would assist in the attainment of the state's goals by using a renewable source of energy that could displace electricity generated by fossil-fuel-fired power plants, and therefore would comply with the goals and objectives of the state.

CARB's 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan, CARB 2022c) was prepared to address climate legislation passed since the last scoping plan, which was prepared in 2017. The Scoping Plan addresses AB 1279, SB 905, SB 1065, SB 1075, and other legislation and executive orders addressing GHG reductions in various manufacturing sectors and managing natural lands.

The Scoping Plan lays out a roadmap for achieving carbon neutrality in California by 2045 or sooner. This 2022 plan addresses recent legislation and extends and expands upon earlier CARB plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. The carbon neutrality goal is new in the 2022 plan and proposes both emissions reductions as well as capture and storage. Much of the state's success to date in reducing GHGs is due to decarbonization of the electricity sector as a result of the Renewable Portfolio Standards, SB 100 implementation, and the Cap-and-Trade Program (CARB 2022c). Clean energy generation and storage are a part of the 2022 Plan. According to the Scoping Plan, the estimated resources needed to meet future energy demand is approximately 72 GW of utility solar and 37 GW of battery storage by 2045. The Scoping Plan also acknowledges that both solar and battery storage projects over the period 2022-2035 will need to increase from the current proposed projects.

Under the SJVAPCD's CEQA thresholds 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. The GHG emission goals in the SJCOG RTP/SCS are based on demographic data trends and projections that include household, employment, and total population statistics. The Project is anticipated to have one to two personnel traveling to the facility on a weekly basis starting in 2025. On intermittent occasions, workers may be required for repairs or replacement of equipment and other specialized maintenance. However, due to the self-operating nature of the facility, such actions would occur infrequently. The additional jobs estimated by the Project would be well within the annual growth projection for the SJCOG 2018 RTP/SCS. Therefore, the Project would be consistent

with the SJCOG 2018 RTP/SCS and would not conflict with an applicable plan and the Project would have a less than significant impact.

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Appendix A. Detailed CalEEMod Output

Griffith Energy Storage Project - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Griffith Energy Storage Project

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1,307.00	1000sqft	30.00	1,307,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant

Off-road Equipment - Provided by applicant.

Trips and VMT - Provided by applicant; HHDT vehicle class assumed for vendor trips and haul trips.

Grading -

Vehicle Trips - 1-2 workers on a weekly basis.

Vehicle Emission Factors -

Griffith Energy Storage Project - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer product emissions.

Area Coating - No architectural coatings.

Energy Use - No energy required from the grid; on-site renewable energy generation.

Water And Wastewater - No potable water use; general maintenance only.

Solid Waste - Conservative estimate

Construction Off-road Equipment Mitigation -

Operational Off-Road Equipment - May be required for infrequent maintenance.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	653500	0
tblAreaCoating	Area_Nonresidential_Interior	1960500	0
tblConstructionPhase	NumDays	45.00	80.00
tblConstructionPhase	NumDays	440.00	180.00
tblConstructionPhase	NumDays	440.00	30.00
tblConstructionPhase	NumDays	440.00	30.00
tblConstructionPhase	NumDays	440.00	60.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.60	0.00
tblEnergyUse	NT24E	4.20	0.00
tblEnergyUse	NT24NG	0.06	0.00
tblEnergyUse	T24E	1.48	0.00
tblEnergyUse	T24NG	18.39	0.00
tblGrading	MaterialExported	0.00	1,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

Griffith Energy Storage Project - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Gen-Tie Line Foundation and Tower Erection

Griffith Energy Storage Project - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Testing and Commissioning
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Gen-Tie Line Foundation and Tower Erection
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	6.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	3.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	1,620.68	15.00
tblTripsAndVMT	HaulingTripNumber	125.00	3,680.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,600.00
tblTripsAndVMT	HaulingTripNumber	0.00	600.00
tblTripsAndVMT	HaulingTripNumber	0.00	600.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripNumber	214.00	20.00
tblTripsAndVMT	VendorTripNumber	214.00	4.00
tblTripsAndVMT	VendorTripNumber	214.00	4.00
tblTripsAndVMT	VendorTripNumber	214.00	0.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	95.00	40.00
tblTripsAndVMT	WorkerTripNumber	549.00	120.00
tblTripsAndVMT	WorkerTripNumber	549.00	40.00
tblTripsAndVMT	WorkerTripNumber	549.00	49.00
tblTripsAndVMT	WorkerTripNumber	549.00	100.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblWater	IndoorWaterUseRate	302,243,750.00	0.00
tblWater	OutdoorWaterUseRate	0.00	325,851.00

2.0 Emissions Summary

Griffith Energy Storage Project - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	1.0363	9.0616	10.5668	0.0245	0.8194	0.3789	1.1983	0.3419	0.3599	0.7018	0.0000	2,167.2772	2,167.2772	0.3952	0.0466	2,191.0503
2025	0.0559	0.2920	0.4103	1.5700e-003	0.0386	0.0105	0.0491	0.0103	9.6700e-003	0.0199	0.0000	139.8065	139.8065	0.0354	8.6000e-004	140.9485
Maximum	**1.0363**	**9.0616**	**10.5668**	**0.0245**	**0.8194**	**0.3789**	**1.1983**	**0.3419**	**0.3599**	**0.7018**	**0.0000**	**2,167.2772**	**2,167.2772**	**0.3952**	**0.0466**	**2,191.0503**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	1.0363	9.0616	10.5668	0.0245	0.8194	0.3789	1.1983	0.3419	0.3599	0.7018	0.0000	2,167.2751	2,167.2751	0.3952	0.0466	2,191.0482
2025	0.0559	0.2920	0.4103	1.5700e-003	0.0386	0.0105	0.0491	0.0103	9.6700e-003	0.0199	0.0000	139.8064	139.8064	0.0354	8.6000e-004	140.9483
Maximum	**1.0363**	**9.0616**	**10.5668**	**0.0245**	**0.8194**	**0.3789**	**1.1983**	**0.3419**	**0.3599**	**0.7018**	**0.0000**	**2,167.2751**	**2,167.2751**	**0.3952**	**0.0466**	**2,191.0482**

Griffith Energy Storage Project - San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2024**	**3-31-2024**	3.8462	3.8462
2	**4-1-2024**	**6-30-2024**	2.0546	2.0546
3	**7-1-2024**	**9-30-2024**	1.7223	1.7223
4	**10-1-2024**	**12-31-2024**	2.4019	2.4019
5	**1-1-2025**	**3-31-2025**	0.3405	0.3405
		Highest	3.8462	3.8462

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1000e-003	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0234	0.0234	6.0000e-005	0.0000	0.0249
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	4.3000e-003	0.0258	0.0287	1.2000e-004		9.2000e-004	9.2000e-004		8.5000e-004	8.5000e-004	0.0000	10.4481	10.4481	3.3800e-003	0.0000	10.5326
Waste						0.0000	0.0000		0.0000	0.0000	3.0449	0.0000	3.0449	0.1800	0.0000	7.5435
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.1055	0.1055	2.0000e-005	0.0000	0.1066
Total	**5.4000e-003**	**0.0259**	**0.0407**	**1.2000e-004**	**0.0000**	**9.6000e-004**	**9.6000e-004**	**0.0000**	**8.9000e-004**	**8.9000e-004**	**3.0449**	**10.5770**	**13.6218**	**0.1834**	**0.0000**	**18.2075**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1000e-003	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0234	0.0234	6.0000e-005	0.0000	0.0249
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	4.3000e-003	0.0258	0.0287	1.2000e-004		9.2000e-004	9.2000e-004		8.5000e-004	8.5000e-004	0.0000	10.4481	10.4481	3.3800e-003	0.0000	10.5326
Waste						0.0000	0.0000		0.0000	0.0000	3.0449	0.0000	3.0449	0.1800	0.0000	7.5435
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.1055	0.1055	2.0000e-005	0.0000	0.1066
Total	**5.4000e-003**	**0.0259**	**0.0407**	**1.2000e-004**	**0.0000**	**9.6000e-004**	**9.6000e-004**	**0.0000**	**8.9000e-004**	**8.9000e-004**	**3.0449**	**10.5770**	**13.6218**	**0.1834**	**0.0000**	**18.2075**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site and Substation Preparation and Grading	Grading	1/1/2024	4/19/2024	5	80	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2	Energy Storage Enclosure and Substation Installation	Building Construction	4/25/2024	1/1/2025	5	180	
3	Gen-Tie Line Foundation and Tower Erection	Building Construction	10/10/2024	11/20/2024	5	30	
4	Gen-Tie Line Pulling and Stringing	Building Construction	11/21/2024	1/1/2025	5	30	
5	Testing and Commissioning	Building Construction	1/2/2025	3/26/2025	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 160

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site and Substation Preparation and Grading	Air Compressors	4	8.00	78	0.48
Site and Substation Preparation and Grading	Dumpers/Tenders	8	8.00	16	0.38
Site and Substation Preparation and Grading	Generator Sets	2	24.00	84	0.74
Site and Substation Preparation and Grading	Generator Sets	2	8.00	84	0.74
Site and Substation Preparation and Grading	Graders	2	8.00	187	0.41
Site and Substation Preparation and Grading	Off-Highway Trucks	8	8.00	402	0.38
Site and Substation Preparation and Grading	Rollers	2	8.00	80	0.38
Site and Substation Preparation and Grading	Rubber Tired Dozers	2	8.00	247	0.40
Site and Substation Preparation and Grading	Rubber Tired Loaders	2	8.00	203	0.36
Site and Substation Preparation and Grading	Skid Steer Loaders	4	8.00	65	0.37
Site and Substation Preparation and Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site and Substation Preparation and Grading	Trenchers	2	8.00	78	0.50

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy Storage Enclosure and Substation Installation	Air Compressors	4	8.00	78	0.48
Energy Storage Enclosure and Substation Installation	Cranes	2	8.00	231	0.29
Energy Storage Enclosure and Substation Installation	Excavators	4	8.00	158	0.38
Energy Storage Enclosure and Substation Installation	Forklifts	2	8.00	89	0.20
Energy Storage Enclosure and Substation Installation	Generator Sets	4	8.00	84	0.74
Energy Storage Enclosure and Substation Installation	Plate Compactors	2	8.00	8	0.43
Energy Storage Enclosure and Substation Installation	Rollers	2	8.00	80	0.38
Energy Storage Enclosure and Substation Installation	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Gen-Tie Line Foundation and Tower Erection	Air Compressors	2	8.00	78	0.48
Gen-Tie Line Foundation and Tower Erection	Cranes	2	8.00	231	0.29
Gen-Tie Line Foundation and Tower Erection	Forklifts	2	8.00	89	0.20
Gen-Tie Line Foundation and Tower Erection	Generator Sets	2	8.00	84	0.74
Gen-Tie Line Foundation and Tower Erection	Pumps	2	8.00	84	0.74
Gen-Tie Line Foundation and Tower Erection	Welders	2	8.00	46	0.45
Gen-Tie Line Pulling and Stringing	Forklifts	2	8.00	89	0.20
Gen-Tie Line Pulling and Stringing	Generator Sets	2	8.00	84	0.74
Gen-Tie Line Pulling and Stringing	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Testing and Commissioning	Off-Highway Trucks	3	8.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site and Substation Preparation and Gradi	38	40.00	4.00	3,680.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Energy Storage Enclosure and Substat	26	120.00	20.00	3,600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Gen-Tie Line Foundation and Tower	14	40.00	4.00	600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Gen-Tie Line Pulling and Stringing	7	49.00	4.00	600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Testing and Commissioning	3	100.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

3.2 Site and Substation Preparation and Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5667	0.0000	0.5667	0.2740	0.0000	0.2740	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4770	3.9995	3.9374	9.9900e-003		0.1685	0.1685		0.1593	0.1593	0.0000	868.3601	868.3601	0.2113	0.0000	873.6425
Total	**0.4770**	**3.9995**	**3.9374**	**9.9900e-003**	**0.5667**	**0.1685**	**0.7352**	**0.2740**	**0.1593**	**0.4333**	**0.0000**	**868.3601**	**868.3601**	**0.2113**	**0.0000**	**873.6425**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site and Substation Preparation and Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.8600e-003	0.2293	0.0479	1.0600e-003	0.0314	2.1800e-003	0.0336	8.6300e-003	2.0900e-003	0.0107	0.0000	102.4867	102.4867	5.8000e-004	0.0161	107.3046
Vendor	2.3000e-004	8.6000e-003	3.1000e-003	3.0000e-005	9.0000e-004	6.0000e-005	9.7000e-004	2.5000e-004	6.0000e-005	3.1000e-004	0.0000	3.2229	3.2229	2.0000e-005	5.1000e-004	3.3745
Worker	5.6100e-003	3.7700e-003	0.0479	1.6000e-004	0.0198	9.0000e-005	0.0199	5.2700e-003	8.0000e-005	5.3500e-003	0.0000	15.1939	15.1939	3.2000e-004	3.6000e-004	15.3104
Total	**9.7000e-003**	**0.2417**	**0.0989**	**1.2500e-003**	**0.0521**	**2.3300e-003**	**0.0544**	**0.0142**	**2.2300e-003**	**0.0164**	**0.0000**	**120.9035**	**120.9035**	**9.2000e-004**	**0.0170**	**125.9895**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5667	0.0000	0.5667	0.2740	0.0000	0.2740	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4770	3.9995	3.9374	9.9900e-003		0.1685	0.1685		0.1593	0.1593	0.0000	868.3590	868.3590	0.2113	0.0000	873.6415
Total	**0.4770**	**3.9995**	**3.9374**	**9.9900e-003**	**0.5667**	**0.1685**	**0.7352**	**0.2740**	**0.1593**	**0.4333**	**0.0000**	**868.3590**	**868.3590**	**0.2113**	**0.0000**	**873.6415**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site and Substation Preparation and Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.8600e-003	0.2293	0.0479	1.0600e-003	0.0314	2.1800e-003	0.0336	8.6300e-003	2.0900e-003	0.0107	0.0000	102.4867	102.4867	5.8000e-004	0.0161	107.3046
Vendor	2.3000e-004	8.6000e-003	3.1000e-003	3.0000e-005	9.0000e-004	6.0000e-005	9.7000e-004	2.5000e-004	6.0000e-005	3.1000e-004	0.0000	3.2229	3.2229	2.0000e-005	5.1000e-004	3.3745
Worker	5.6100e-003	3.7700e-003	0.0479	1.6000e-004	0.0198	9.0000e-005	0.0199	5.2700e-003	8.0000e-005	5.3500e-003	0.0000	15.1939	15.1939	3.2000e-004	3.6000e-004	15.3104
Total	**9.7000e-003**	**0.2417**	**0.0989**	**1.2500e-003**	**0.0521**	**2.3300e-003**	**0.0544**	**0.0142**	**2.2300e-003**	**0.0164**	**0.0000**	**120.9035**	**120.9035**	**9.2000e-004**	**0.0170**	**125.9895**

3.3 Energy Storage Enclosure and Substation Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4397	3.8759	5.4356	9.1600e-003		0.1806	0.1806		0.1718	0.1718	0.0000	795.3493	795.3493	0.1662	0.0000	799.5042
Total	**0.4397**	**3.8759**	**5.4356**	**9.1600e-003**		**0.1806**	**0.1806**		**0.1718**	**0.1718**	**0.0000**	**795.3493**	**795.3493**	**0.1662**	**0.0000**	**799.5042**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.7600e-003	0.2231	0.0466	1.0400e-003	0.0305	2.1200e-003	0.0326	8.3900e-003	2.0300e-003	0.0104	0.0000	99.7017	99.7017	5.6000e-004	0.0157	104.3887
Vendor	2.5600e-003	0.0962	0.0347	3.7000e-004	0.0101	7.1000e-004	0.0108	2.7800e-003	6.8000e-004	3.4600e-003	0.0000	36.0561	36.0561	2.4000e-004	5.6700e-003	37.7521
Worker	0.0376	0.0253	0.3214	1.0900e-003	0.1330	5.9000e-004	0.1336	0.0354	5.5000e-004	0.0359	0.0000	101.9889	101.9889	2.1700e-003	2.4400e-003	102.7711
Total	**0.0440**	**0.3446**	**0.4027**	**2.5000e-003**	**0.1736**	**3.4200e-003**	**0.1771**	**0.0465**	**3.2600e-003**	**0.0498**	**0.0000**	**237.7467**	**237.7467**	**2.9700e-003**	**0.0238**	**244.9119**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4397	3.8759	5.4355	9.1600e-003		0.1806	0.1806		0.1718	0.1718	0.0000	795.3484	795.3484	0.1662	0.0000	799.5033
Total	**0.4397**	**3.8759**	**5.4355**	**9.1600e-003**		**0.1806**	**0.1806**		**0.1718**	**0.1718**	**0.0000**	**795.3484**	**795.3484**	**0.1662**	**0.0000**	**799.5033**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.7600e-003	0.2231	0.0466	1.0400e-003	0.0305	2.1200e-003	0.0326	8.3900e-003	2.0300e-003	0.0104	0.0000	99.7017	99.7017	5.6000e-004	0.0157	104.3887
Vendor	2.5600e-003	0.0962	0.0347	3.7000e-004	0.0101	7.1000e-004	0.0108	2.7800e-003	6.8000e-004	3.4600e-003	0.0000	36.0561	36.0561	2.4000e-004	5.6700e-003	37.7521
Worker	0.0376	0.0253	0.3214	1.0900e-003	0.1330	5.9000e-004	0.1336	0.0354	5.5000e-004	0.0359	0.0000	101.9889	101.9889	2.1700e-003	2.4400e-003	102.7711
Total	**0.0440**	**0.3446**	**0.4027**	**2.5000e-003**	**0.1736**	**3.4200e-003**	**0.1771**	**0.0465**	**3.2600e-003**	**0.0498**	**0.0000**	**237.7467**	**237.7467**	**2.9700e-003**	**0.0238**	**244.9119**

3.3 Energy Storage Enclosure and Substation Installation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3000e-003	0.0200	0.0303	5.0000e-005		8.7000e-004	8.7000e-004		8.3000e-004	8.3000e-004	0.0000	4.4442	4.4442	9.2000e-004	0.0000	4.4672
Total	**2.3000e-003**	**0.0200**	**0.0303**	**5.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.3000e-004**	**8.3000e-004**	**0.0000**	**4.4442**	**4.4442**	**9.2000e-004**	**0.0000**	**4.4672**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.2400e-003	2.6000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5453	0.5453	0.0000	9.0000e-005	0.5709
Vendor	1.0000e-005	5.3000e-004	1.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1972	0.1972	0.0000	3.0000e-005	0.2065
Worker	2.0000e-004	1.2000e-004	1.6700e-003	1.0000e-005	7.4000e-004	0.0000	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.5560	0.5560	1.0000e-005	1.0000e-005	0.5600
Total	**2.3000e-004**	**1.8900e-003**	**2.1200e-003**	**2.0000e-005**	**9.7000e-004**	**1.0000e-005**	**9.9000e-004**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**1.2984**	**1.2984**	**1.0000e-005**	**1.3000e-004**	**1.3374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3000e-003	0.0200	0.0303	5.0000e-005		8.7000e-004	8.7000e-004		8.3000e-004	8.3000e-004	0.0000	4.4442	4.4442	9.2000e-004	0.0000	4.4672
Total	**2.3000e-003**	**0.0200**	**0.0303**	**5.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.3000e-004**	**8.3000e-004**	**0.0000**	**4.4442**	**4.4442**	**9.2000e-004**	**0.0000**	**4.4672**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.2400e-003	2.6000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5453	0.5453	0.0000	9.0000e-005	0.5709
Vendor	1.0000e-005	5.3000e-004	1.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1972	0.1972	0.0000	3.0000e-005	0.2065
Worker	2.0000e-004	1.2000e-004	1.6700e-003	1.0000e-005	7.4000e-004	0.0000	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.5560	0.5560	1.0000e-005	1.0000e-005	0.5600
Total	**2.3000e-004**	**1.8900e-003**	**2.1200e-003**	**2.0000e-005**	**9.7000e-004**	**1.0000e-005**	**9.9000e-004**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**1.2984**	**1.2984**	**1.0000e-005**	**1.3000e-004**	**1.3374**

3.4 Gen-Tie Line Foundation and Tower Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0448	0.3755	0.4313	8.1000e-004		0.0166	0.0166		0.0161	0.0161	0.0000	69.0091	69.0091	8.8100e-003	0.0000	69.2292
Total	**0.0448**	**0.3755**	**0.4313**	**8.1000e-004**		**0.0166**	**0.0166**		**0.0161**	**0.0161**	**0.0000**	**69.0091**	**69.0091**	**8.8100e-003**	**0.0000**	**69.2292**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Gen-Tie Line Foundation and Tower Erection - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.3000e-004	0.0374	7.8200e-003	1.7000e-004	5.1200e-003	3.6000e-004	5.4700e-003	1.4100e-003	3.4000e-004	1.7500e-003	0.0000	16.7098	16.7098	9.0000e-005	2.6300e-003	17.4953
Vendor	9.0000e-005	3.2300e-003	1.1600e-003	1.0000e-005	3.4000e-004	2.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.2086	1.2086	1.0000e-005	1.9000e-004	1.2654
Worker	2.1000e-003	1.4100e-003	0.0180	6.0000e-005	7.4300e-003	3.0000e-005	7.4600e-003	1.9800e-003	3.0000e-005	2.0100e-003	0.0000	5.6977	5.6977	1.2000e-004	1.4000e-004	5.7414
Total	**2.8200e-003**	**0.0420**	**0.0269**	**2.4000e-004**	**0.0129**	**4.1000e-004**	**0.0133**	**3.4800e-003**	**3.9000e-004**	**3.8800e-003**	**0.0000**	**23.6161**	**23.6161**	**2.2000e-004**	**2.9600e-003**	**24.5021**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0448	0.3755	0.4313	8.1000e-004		0.0166	0.0166		0.0161	0.0161	0.0000	69.0090	69.0090	8.8100e-003	0.0000	69.2291
Total	**0.0448**	**0.3755**	**0.4313**	**8.1000e-004**		**0.0166**	**0.0166**		**0.0161**	**0.0161**	**0.0000**	**69.0090**	**69.0090**	**8.8100e-003**	**0.0000**	**69.2291**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Gen-Tie Line Foundation and Tower Erection - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.3000e-004	0.0374	7.8200e-003	1.7000e-004	5.1200e-003	3.6000e-004	5.4700e-003	1.4100e-003	3.4000e-004	1.7500e-003	0.0000	16.7098	16.7098	9.0000e-005	2.6300e-003	17.4953
Vendor	9.0000e-005	3.2300e-003	1.1600e-003	1.0000e-005	3.4000e-004	2.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.2086	1.2086	1.0000e-005	1.9000e-004	1.2654
Worker	2.1000e-003	1.4100e-003	0.0180	6.0000e-005	7.4300e-003	3.0000e-005	7.4600e-003	1.9800e-003	3.0000e-005	2.0100e-003	0.0000	5.6977	5.6977	1.2000e-004	1.4000e-004	5.7414
Total	**2.8200e-003**	**0.0420**	**0.0269**	**2.4000e-004**	**0.0129**	**4.1000e-004**	**0.0133**	**3.4800e-003**	**3.9000e-004**	**3.8800e-003**	**0.0000**	**23.6161**	**23.6161**	**2.2000e-004**	**2.9600e-003**	**24.5021**

3.5 Gen-Tie Line Pulling and Stringing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0152	0.1414	0.2041	3.3000e-004		6.6200e-003	6.6200e-003		6.3500e-003	6.3500e-003	0.0000	28.2245	28.2245	4.4900e-003	0.0000	28.3367
Total	**0.0152**	**0.1414**	**0.2041**	**3.3000e-004**		**6.6200e-003**	**6.6200e-003**		**6.3500e-003**	**6.3500e-003**	**0.0000**	**28.2245**	**28.2245**	**4.4900e-003**	**0.0000**	**28.3367**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.1000e-004	0.0361	7.5500e-003	1.7000e-004	4.9500e-003	3.4000e-004	5.2900e-003	1.3600e-003	3.3000e-004	1.6900e-003	0.0000	16.1528	16.1528	9.0000e-005	2.5400e-003	16.9121
Vendor	8.0000e-005	3.1200e-003	1.1300e-003	1.0000e-005	3.3000e-004	2.0000e-005	3.5000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.1683	1.1683	1.0000e-005	1.8000e-004	1.2233
Worker	2.4900e-003	1.6700e-003	0.0213	7.0000e-005	8.8000e-003	4.0000e-005	8.8400e-003	2.3400e-003	4.0000e-005	2.3800e-003	0.0000	6.7470	6.7470	1.4000e-004	1.6000e-004	6.7988
Total	**3.1800e-003**	**0.0409**	**0.0299**	**2.5000e-004**	**0.0141**	**4.0000e-004**	**0.0145**	**3.7900e-003**	**3.9000e-004**	**4.1800e-003**	**0.0000**	**24.0681**	**24.0681**	**2.4000e-004**	**2.8800e-003**	**24.9342**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0152	0.1414	0.2041	3.3000e-004		6.6200e-003	6.6200e-003		6.3500e-003	6.3500e-003	0.0000	28.2244	28.2244	4.4900e-003	0.0000	28.3367
Total	**0.0152**	**0.1414**	**0.2041**	**3.3000e-004**		**6.6200e-003**	**6.6200e-003**		**6.3500e-003**	**6.3500e-003**	**0.0000**	**28.2244**	**28.2244**	**4.4900e-003**	**0.0000**	**28.3367**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.1000e-004	0.0361	7.5500e-003	1.7000e-004	4.9500e-003	3.4000e-004	5.2900e-003	1.3600e-003	3.3000e-004	1.6900e-003	0.0000	16.1528	16.1528	9.0000e-005	2.5400e-003	16.9121
Vendor	8.0000e-005	3.1200e-003	1.1300e-003	1.0000e-005	3.3000e-004	2.0000e-005	3.5000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.1683	1.1683	1.0000e-005	1.8000e-004	1.2233
Worker	2.4900e-003	1.6700e-003	0.0213	7.0000e-005	8.8000e-003	4.0000e-005	8.8400e-003	2.3400e-003	4.0000e-005	2.3800e-003	0.0000	6.7470	6.7470	1.4000e-004	1.6000e-004	6.7988
Total	**3.1800e-003**	**0.0409**	**0.0299**	**2.5000e-004**	**0.0141**	**4.0000e-004**	**0.0145**	**3.7900e-003**	**3.9000e-004**	**4.1800e-003**	**0.0000**	**24.0681**	**24.0681**	**2.4000e-004**	**2.8800e-003**	**24.9342**

3.5 Gen-Tie Line Pulling and Stringing - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9000e-004	4.5500e-003	7.0200e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.9735	0.9735	1.5000e-004	0.0000	0.9773
Total	**4.9000e-004**	**4.5500e-003**	**7.0200e-003**	**1.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.9735**	**0.9735**	**1.5000e-004**	**0.0000**	**0.9773**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.2400e-003	2.6000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5453	0.5453	0.0000	9.0000e-005	0.5709
Vendor	0.0000	1.1000e-004	4.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0394	0.0394	0.0000	1.0000e-005	0.0413
Worker	8.0000e-005	5.0000e-005	6.8000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2270	0.2270	0.0000	1.0000e-005	0.2287
Total	**1.0000e-004**	**1.4000e-003**	**9.8000e-004**	**1.0000e-005**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**1.3000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.8118**	**0.8118**	**0.0000**	**1.1000e-004**	**0.8409**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9000e-004	4.5500e-003	7.0200e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.9735	0.9735	1.5000e-004	0.0000	0.9773
Total	**4.9000e-004**	**4.5500e-003**	**7.0200e-003**	**1.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.9735**	**0.9735**	**1.5000e-004**	**0.0000**	**0.9773**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.2400e-003	2.6000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5453	0.5453	0.0000	9.0000e-005	0.5709
Vendor	0.0000	1.1000e-004	4.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0394	0.0394	0.0000	1.0000e-005	0.0413
Worker	8.0000e-005	5.0000e-005	6.8000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2270	0.2270	0.0000	1.0000e-005	0.2287
Total	**1.0000e-004**	**1.4000e-003**	**9.8000e-004**	**1.0000e-005**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**1.3000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.8118**	**0.8118**	**0.0000**	**1.1000e-004**	**0.8409**

3.6 Testing and Commissioning - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0430	0.2580	0.2867	1.1900e-003		9.2200e-003	9.2200e-003		8.4800e-003	8.4800e-003	0.0000	104.4812	104.4812	0.0338	0.0000	105.3260
Total	**0.0430**	**0.2580**	**0.2867**	**1.1900e-003**		**9.2200e-003**	**9.2200e-003**		**8.4800e-003**	**8.4800e-003**	**0.0000**	**104.4812**	**104.4812**	**0.0338**	**0.0000**	**105.3260**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Testing and Commissioning - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7800e-003	6.2500e-003	0.0833	2.9000e-004	0.0372	1.6000e-004	0.0373	9.8800e-003	1.5000e-004	0.0100	0.0000	27.7975	27.7975	5.4000e-004	6.3000e-004	27.9996
Total	**9.7800e-003**	**6.2500e-003**	**0.0833**	**2.9000e-004**	**0.0372**	**1.6000e-004**	**0.0373**	**9.8800e-003**	**1.5000e-004**	**0.0100**	**0.0000**	**27.7975**	**27.7975**	**5.4000e-004**	**6.3000e-004**	**27.9996**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0430	0.2580	0.2867	1.1900e-003		9.2200e-003	9.2200e-003		8.4800e-003	8.4800e-003	0.0000	104.4811	104.4811	0.0338	0.0000	105.3258
Total	**0.0430**	**0.2580**	**0.2867**	**1.1900e-003**		**9.2200e-003**	**9.2200e-003**		**8.4800e-003**	**8.4800e-003**	**0.0000**	**104.4811**	**104.4811**	**0.0338**	**0.0000**	**105.3258**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Testing and Commissioning - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7800e-003	6.2500e-003	0.0833	2.9000e-004	0.0372	1.6000e-004	0.0373	9.8800e-003	1.5000e-004	0.0100	0.0000	27.7975	27.7975	5.4000e-004	6.3000e-004	27.9996
Total	**9.7800e-003**	**6.2500e-003**	**0.0833**	**2.9000e-004**	**0.0372**	**1.6000e-004**	**0.0373**	**9.8800e-003**	**1.5000e-004**	**0.0100**	**0.0000**	**27.7975**	**27.7975**	**5.4000e-004**	**6.3000e-004**	**27.9996**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.541920	0.052620	0.169871	0.146633	0.025153	0.006100	0.012627	0.016953	0.000467	0.000322	0.022878	0.001103	0.003353

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1000e-003	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0234	0.0234	6.0000e-005	0.0000	0.0249
Unmitigated	1.1000e-003	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0234	0.0234	6.0000e-005	0.0000	0.0249

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0234	0.0234	6.0000e-005	0.0000	0.0249
Total	**1.1000e-003**	**1.1000e-004**	**0.0120**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0234**	**0.0234**	**6.0000e-005**	**0.0000**	**0.0249**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0234	0.0234	6.0000e-005	0.0000	0.0249
Total	**1.1000e-003**	**1.1000e-004**	**0.0120**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0234**	**0.0234**	**6.0000e-005**	**0.0000**	**0.0249**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1055	2.0000e-005	0.0000	0.1066
Unmitigated	0.1055	2.0000e-005	0.0000	0.1066

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0.325851	0.1055	2.0000e-005	0.0000	0.1066
Total		**0.1055**	**2.0000e-005**	**0.0000**	**0.1066**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0.325851	0.1055	2.0000e-005	0.0000	0.1066
Total		**0.1055**	**2.0000e-005**	**0.0000**	**0.1066**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.0449	0.1800	0.0000	7.5435
Unmitigated	3.0449	0.1800	0.0000	7.5435

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	15	3.0449	0.1800	0.0000	7.5435
Total		**3.0449**	**0.1800**	**0.0000**	**7.5435**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	15	3.0449	0.1800	0.0000	7.5435
Total		**3.0449**	**0.1800**	**0.0000**	**7.5435**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	3	8.00	6	402	0.38	Diesel

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Off-Highway Trucks	4.3000e-003	0.0258	0.0287	1.2000e-004		9.2000e-004	9.2000e-004		8.5000e-004	8.5000e-004	0.0000	10.4481	10.4481	3.3800e-003	0.0000	10.5326
Total	**4.3000e-003**	**0.0258**	**0.0287**	**1.2000e-004**		**9.2000e-004**	**9.2000e-004**		**8.5000e-004**	**8.5000e-004**	**0.0000**	**10.4481**	**10.4481**	**3.3800e-003**	**0.0000**	**10.5326**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Griffith Energy Storage Project

San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1,307.00	1000sqft	30.00	1,307,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant

Off-road Equipment - Provided by applicant.

Trips and VMT - Provided by applicant; HHDT vehicle class assumed for vendor trips and haul trips.

Grading -

Vehicle Trips - 1-2 workers on a weekly basis.

Vehicle Emission Factors -

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer product emissions.

Area Coating - No architectural coatings.

Energy Use - No energy required from the grid; on-site renewable energy generation.

Water And Wastewater - No potable water use; general maintenance only.

Solid Waste - Conservative estimate

Construction Off-road Equipment Mitigation -

Operational Off-Road Equipment - May be required for infrequent maintenance.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	653500	0
tblAreaCoating	Area_Nonresidential_Interior	1960500	0
tblConstructionPhase	NumDays	45.00	80.00
tblConstructionPhase	NumDays	440.00	180.00
tblConstructionPhase	NumDays	440.00	30.00
tblConstructionPhase	NumDays	440.00	30.00
tblConstructionPhase	NumDays	440.00	60.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.60	0.00
tblEnergyUse	NT24E	4.20	0.00
tblEnergyUse	NT24NG	0.06	0.00
tblEnergyUse	T24E	1.48	0.00
tblEnergyUse	T24NG	18.39	0.00
tblGrading	MaterialExported	0.00	1,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Gen-Tie Line Foundation and Tower Erection

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Testing and Commissioning
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Gen-Tie Line Foundation and Tower Erection
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	6.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	3.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	1,620.68	15.00
tblTripsAndVMT	HaulingTripNumber	125.00	3,680.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,600.00
tblTripsAndVMT	HaulingTripNumber	0.00	600.00
tblTripsAndVMT	HaulingTripNumber	0.00	600.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripNumber	214.00	20.00
tblTripsAndVMT	VendorTripNumber	214.00	4.00
tblTripsAndVMT	VendorTripNumber	214.00	4.00
tblTripsAndVMT	VendorTripNumber	214.00	0.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	95.00	40.00
tblTripsAndVMT	WorkerTripNumber	549.00	120.00
tblTripsAndVMT	WorkerTripNumber	549.00	40.00
tblTripsAndVMT	WorkerTripNumber	549.00	49.00
tblTripsAndVMT	WorkerTripNumber	549.00	100.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblWater	IndoorWaterUseRate	302,243,750.00	0.00
tblWater	OutdoorWaterUseRate	0.00	325,851.00

2.0 Emissions Summary

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	12.1821	105.7564	101.0715	0.2815	15.5068	4.2710	19.7777	7.2125	4.0393	11.2518	0.0000	27,293.6662	27,293.6662	5.8482	0.5095	27,579.1330
2025	6.2822	55.3164	81.4555	0.1703	2.9983	2.1943	5.1926	0.8027	2.0902	2.8929	0.0000	16,731.2813	16,731.2813	2.4230	0.4968	16,939.8851
Maximum	**12.1821**	**105.7564**	**101.0715**	**0.2815**	**15.5068**	**4.2710**	**19.7777**	**7.2125**	**4.0393**	**11.2518**	**0.0000**	**27,293.6662**	**27,293.6662**	**5.8482**	**0.5095**	**27,579.1330**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	12.1821	105.7564	101.0715	0.2815	15.5068	4.2710	19.7777	7.2125	4.0393	11.2518	0.0000	27,293.6662	27,293.6662	5.8482	0.5095	27,579.1329
2025	6.2822	55.3164	81.4555	0.1703	2.9983	2.1943	5.1926	0.8027	2.0902	2.8929	0.0000	16,731.2813	16,731.2813	2.4230	0.4968	16,939.8851
Maximum	**12.1821**	**105.7564**	**101.0715**	**0.2815**	**15.5068**	**4.2710**	**19.7777**	**7.2125**	**4.0393**	**11.2518**	**0.0000**	**27,293.6662**	**27,293.6662**	**5.8482**	**0.5095**	**27,579.1329**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827	0.0000	3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4450**	**8.5994**	**9.6895**	**0.0397**	**0.0000**	**0.3078**	**0.3078**	**0.0000**	**0.2832**	**0.2832**	**0.0000**	**3,839.3123**	**3,839.3123**	**1.2424**	**0.0000**	**3,870.3714**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827	0.0000	3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4450**	**8.5994**	**9.6895**	**0.0397**	**0.0000**	**0.3078**	**0.3078**	**0.0000**	**0.2832**	**0.2832**	**0.0000**	**3,839.3123**	**3,839.3123**	**1.2424**	**0.0000**	**3,870.3714**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site and Substation Preparation and Grading	Grading	1/1/2024	4/19/2024	5	80	
2	Energy Storage Enclosure and Substation Installation	Building Construction	4/25/2024	1/1/2025	5	180	
3	Gen-Tie Line Foundation and Tower Erection	Building Construction	10/10/2024	11/20/2024	5	30	
4	Gen-Tie Line Pulling and Stringing	Building Construction	11/21/2024	1/1/2025	5	30	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5	Testing and Commissioning	Building Construction	1/2/2025	3/26/2025	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 160

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site and Substation Preparation and Grading	Air Compressors	4	8.00	78	0.48
Site and Substation Preparation and Grading	Dumpers/Tenders	8	8.00	16	0.38
Site and Substation Preparation and Grading	Generator Sets	2	24.00	84	0.74
Site and Substation Preparation and Grading	Generator Sets	2	8.00	84	0.74
Site and Substation Preparation and Grading	Graders	2	8.00	187	0.41
Site and Substation Preparation and Grading	Off-Highway Trucks	8	8.00	402	0.38
Site and Substation Preparation and Grading	Rollers	2	8.00	80	0.38
Site and Substation Preparation and Grading	Rubber Tired Dozers	2	8.00	247	0.40
Site and Substation Preparation and Grading	Rubber Tired Loaders	2	8.00	203	0.36
Site and Substation Preparation and Grading	Skid Steer Loaders	4	8.00	65	0.37
Site and Substation Preparation and Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site and Substation Preparation and Grading	Trenchers	2	8.00	78	0.50
Energy Storage Enclosure and Substation Installation	Air Compressors	4	8.00	78	0.48
Energy Storage Enclosure and Substation Installation	Cranes	2	8.00	231	0.29
Energy Storage Enclosure and Substation Installation	Excavators	4	8.00	158	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy Storage Enclosure and Substation Installation	Forklifts	2	8.00	89	0.20
Energy Storage Enclosure and Substation Installation	Generator Sets	4	8.00	84	0.74
Energy Storage Enclosure and Substation Installation	Plate Compactors	2	8.00	8	0.43
Energy Storage Enclosure and Substation Installation	Rollers	2	8.00	80	0.38
Energy Storage Enclosure and Substation Installation	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Gen-Tie Line Foundation and Tower Erection	Air Compressors	2	8.00	78	0.48
Gen-Tie Line Foundation and Tower Erection	Cranes	2	8.00	231	0.29
Gen-Tie Line Foundation and Tower Erection	Forklifts	2	8.00	89	0.20
Gen-Tie Line Foundation and Tower Erection	Generator Sets	2	8.00	84	0.74
Gen-Tie Line Foundation and Tower Erection	Pumps	2	8.00	84	0.74
Gen-Tie Line Foundation and Tower Erection	Welders	2	8.00	46	0.45
Gen-Tie Line Pulling and Stringing	Forklifts	2	8.00	89	0.20
Gen-Tie Line Pulling and Stringing	Generator Sets	2	8.00	84	0.74
Gen-Tie Line Pulling and Stringing	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Testing and Commissioning	Off-Highway Trucks	3	8.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site and Substation Preparation and Gradi	38	40.00	4.00	3,680.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Energy Storage Enclosure and Substat	26	120.00	20.00	3,600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Gen-Tie Line Foundation and Tower	14	40.00	4.00	600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Gen-Tie Line Pulling and Stringing	7	49.00	4.00	600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Testing and Commissioning	3	100.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site and Substation Preparation and Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1670	0.0000	14.1670	6.8498	0.0000	6.8498			0.0000			0.0000
Off-Road	11.9241	99.9877	98.4351	0.2496		4.2127	4.2127		3.9836	3.9836		23,930.0779	23,930.0779	5.8229		24,075.6500
Total	**11.9241**	**99.9877**	**98.4351**	**0.2496**	**14.1670**	**4.2127**	**18.3797**	**6.8498**	**3.9836**	**10.8333**		**23,930.0779**	**23,930.0779**	**5.8229**		**24,075.6500**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0996	5.4772	1.1887	0.0266	0.8056	0.0545	0.8601	0.2209	0.0521	0.2730		2,822.8073	2,822.8073	0.0160	0.4440	2,955.5104
Vendor	5.9700e-003	0.2060	0.0768	8.4000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8800e-003		88.6854	88.6854	6.1000e-004	0.0140	92.8572
Worker	0.1525	0.0855	1.3709	4.3800e-003	0.5109	2.2100e-003	0.5131	0.1355	2.0400e-003	0.1375		452.0956	452.0956	8.6700e-003	9.4100e-003	455.1154
Total	**0.2580**	**5.7687**	**2.6364**	**0.0318**	**1.3397**	**0.0583**	**1.3980**	**0.3628**	**0.0557**	**0.4184**		**3,363.5883**	**3,363.5883**	**0.0253**	**0.4673**	**3,503.4830**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site and Substation Preparation and Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1670	0.0000	14.1670	6.8498	0.0000	6.8498			0.0000			0.0000
Off-Road	11.9241	99.9877	98.4351	0.2496		4.2127	4.2127		3.9836	3.9836	0.0000	23,930.0779	23,930.0779	5.8229		24,075.6500
Total	**11.9241**	**99.9877**	**98.4351**	**0.2496**	**14.1670**	**4.2127**	**18.3797**	**6.8498**	**3.9836**	**10.8333**	**0.0000**	**23,930.0779**	**23,930.0779**	**5.8229**		**24,075.6500**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0996	5.4772	1.1887	0.0266	0.8056	0.0545	0.8601	0.2209	0.0521	0.2730		2,822.8073	2,822.8073	0.0160	0.4440	2,955.5104
Vendor	5.9700e-003	0.2060	0.0768	8.4000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8800e-003		88.6854	88.6854	6.1000e-004	0.0140	92.8572
Worker	0.1525	0.0855	1.3709	4.3800e-003	0.5109	2.2100e-003	0.5131	0.1355	2.0400e-003	0.1375		452.0956	452.0956	8.6700e-003	9.4100e-003	455.1154
Total	**0.2580**	**5.7687**	**2.6364**	**0.0318**	**1.3397**	**0.0583**	**1.3980**	**0.3628**	**0.0557**	**0.4184**		**3,363.5883**	**3,363.5883**	**0.0253**	**0.4673**	**3,503.4830**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.9123	43.3062	60.7324	0.1024		2.0175	2.0175		1.9191	1.9191		9,795.7830	9,795.7830	2.0469		9,846.9559
Total	**4.9123**	**43.3062**	**60.7324**	**0.1024**		**2.0175**	**2.0175**		**1.9191**	**1.9191**		**9,795.7830**	**9,795.7830**	**2.0469**		**9,846.9559**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0433	2.3814	0.5168	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,227.3075	1,227.3075	6.9600e-003	0.1930	1,285.0045
Vendor	0.0299	1.0298	0.3839	4.1800e-003	0.1159	7.9600e-003	0.1238	0.0318	7.6100e-003	0.0394		443.4269	443.4269	3.0500e-003	0.0697	464.2858
Worker	0.4574	0.2565	4.1126	0.0132	1.5328	6.6400e-003	1.5394	0.4065	6.1100e-003	0.4126		1,356.2867	1,356.2867	0.0260	0.0282	1,365.3462
Total	**0.5306**	**3.6676**	**5.0133**	**0.0289**	**1.9989**	**0.0383**	**2.0372**	**0.5343**	**0.0364**	**0.5707**		**3,027.0212**	**3,027.0212**	**0.0360**	**0.2910**	**3,114.6366**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.9123	43.3062	60.7324	0.1024		2.0175	2.0175		1.9191	1.9191	0.0000	9,795.7830	9,795.7830	2.0469		9,846.9559
Total	**4.9123**	**43.3062**	**60.7324**	**0.1024**		**2.0175**	**2.0175**		**1.9191**	**1.9191**	**0.0000**	**9,795.7830**	**9,795.7830**	**2.0469**		**9,846.9559**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0433	2.3814	0.5168	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,227.3075	1,227.3075	6.9600e-003	0.1930	1,285.0045
Vendor	0.0299	1.0298	0.3839	4.1800e-003	0.1159	7.9600e-003	0.1238	0.0318	7.6100e-003	0.0394		443.4269	443.4269	3.0500e-003	0.0697	464.2858
Worker	0.4574	0.2565	4.1126	0.0132	1.5328	6.6400e-003	1.5394	0.4065	6.1100e-003	0.4126		1,356.2867	1,356.2867	0.0260	0.0282	1,365.3462
Total	**0.5306**	**3.6676**	**5.0133**	**0.0289**	**1.9989**	**0.0383**	**2.0372**	**0.5343**	**0.0364**	**0.5707**		**3,027.0212**	**3,027.0212**	**0.0360**	**0.2910**	**3,114.6366**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5916	39.9499	60.5570	0.1024		1.7420	1.7420		1.6567	1.6567		9,797.6780	9,797.6780	2.0361		9,848.5809
Total	**4.5916**	**39.9499**	**60.5570**	**0.1024**		**1.7420**	**1.7420**		**1.6567**	**1.6567**		**9,797.6780**	**9,797.6780**	**2.0361**		**9,848.5809**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0430	2.3615	0.5155	0.0113	0.3503	0.0236	0.3739	0.0961	0.0226	0.1187		1,201.5397	1,201.5397	6.6900e-003	0.1890	1,258.0216
Vendor	0.0297	1.0217	0.3822	4.0900e-003	0.1159	7.9400e-003	0.1238	0.0318	7.6000e-003	0.0394		434.0947	434.0947	2.9500e-003	0.0683	454.5136
Worker	0.4248	0.2268	3.8080	0.0127	1.5328	6.3300e-003	1.5391	0.4065	5.8200e-003	0.4123		1,323.1014	1,323.1014	0.0233	0.0262	1,331.4836
Total	**0.4974**	**3.6099**	**4.7058**	**0.0281**	**1.9989**	**0.0379**	**2.0368**	**0.5343**	**0.0360**	**0.5704**		**2,958.7358**	**2,958.7358**	**0.0329**	**0.2834**	**3,044.0188**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5916	39.9499	60.5570	0.1024		1.7420	1.7420		1.6567	1.6567	0.0000	9,797.6780	9,797.6780	2.0361		9,848.5809
Total	**4.5916**	**39.9499**	**60.5570**	**0.1024**		**1.7420**	**1.7420**		**1.6567**	**1.6567**	**0.0000**	**9,797.6780**	**9,797.6780**	**2.0361**		**9,848.5809**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0430	2.3615	0.5155	0.0113	0.3503	0.0236	0.3739	0.0961	0.0226	0.1187		1,201.5397	1,201.5397	6.6900e-003	0.1890	1,258.0216
Vendor	0.0297	1.0217	0.3822	4.0900e-003	0.1159	7.9400e-003	0.1238	0.0318	7.6000e-003	0.0394		434.0947	434.0947	2.9500e-003	0.0683	454.5136
Worker	0.4248	0.2268	3.8080	0.0127	1.5328	6.3300e-003	1.5391	0.4065	5.8200e-003	0.4123		1,323.1014	1,323.1014	0.0233	0.0262	1,331.4836
Total	**0.4974**	**3.6099**	**4.7058**	**0.0281**	**1.9989**	**0.0379**	**2.0368**	**0.5343**	**0.0360**	**0.5704**		**2,958.7358**	**2,958.7358**	**0.0329**	**0.2834**	**3,044.0188**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Gen-Tie Line Foundation and Tower Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9875	25.0334	28.7498	0.0540		1.1071	1.1071		1.0756	1.0756		5,071.2982	5,071.2982	0.6471		5,087.4749
Total	**2.9875**	**25.0334**	**28.7498**	**0.0540**		**1.1071**	**1.1071**		**1.0756**	**1.0756**		**5,071.2982**	**5,071.2982**	**0.6471**		**5,087.4749**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0433	2.3814	0.5168	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,227.3075	1,227.3075	6.9600e-003	0.1930	1,285.0045
Vendor	5.9700e-003	0.2060	0.0768	8.4000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8800e-003		88.6854	88.6854	6.1000e-004	0.0140	92.8572
Worker	0.1525	0.0855	1.3709	4.3800e-003	0.5109	2.2100e-003	0.5131	0.1355	2.0400e-003	0.1375		452.0956	452.0956	8.6700e-003	9.4100e-003	455.1154
Total	**0.2017**	**2.6728**	**1.9645**	**0.0168**	**0.8844**	**0.0275**	**0.9119**	**0.2379**	**0.0262**	**0.2641**		**1,768.0885**	**1,768.0885**	**0.0162**	**0.2164**	**1,832.9771**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Gen-Tie Line Foundation and Tower Erection - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9875	25.0334	28.7498	0.0540		1.1071	1.1071		1.0756	1.0756	0.0000	5,071.2982	5,071.2982	0.6471		5,087.4749
Total	**2.9875**	**25.0334**	**28.7498**	**0.0540**		**1.1071**	**1.1071**		**1.0756**	**1.0756**	**0.0000**	**5,071.2982**	**5,071.2982**	**0.6471**		**5,087.4749**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0433	2.3814	0.5168	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,227.3075	1,227.3075	6.9600e-003	0.1930	1,285.0045
Vendor	5.9700e-003	0.2060	0.0768	8.4000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8800e-003		88.6854	88.6854	6.1000e-004	0.0140	92.8572
Worker	0.1525	0.0855	1.3709	4.3800e-003	0.5109	2.2100e-003	0.5131	0.1355	2.0400e-003	0.1375		452.0956	452.0956	8.6700e-003	9.4100e-003	455.1154
Total	**0.2017**	**2.6728**	**1.9645**	**0.0168**	**0.8844**	**0.0275**	**0.9119**	**0.2379**	**0.0262**	**0.2641**		**1,768.0885**	**1,768.0885**	**0.0162**	**0.2164**	**1,832.9771**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0463	9.7526	14.0776	0.0225		0.4564	0.4564		0.4376	0.4376		2,145.6643	2,145.6643	0.3414		2,154.1987
Total	**1.0463**	**9.7526**	**14.0776**	**0.0225**		**0.4564**	**0.4564**		**0.4376**	**0.4376**		**2,145.6643**	**2,145.6643**	**0.3414**		**2,154.1987**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0433	2.3814	0.5168	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,227.3075	1,227.3075	6.9600e-003	0.1930	1,285.0045
Vendor	5.9700e-003	0.2060	0.0768	8.4000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8800e-003		88.6854	88.6854	6.1000e-004	0.0140	92.8572
Worker	0.1868	0.1047	1.6793	5.3700e-003	0.6259	2.7100e-003	0.6286	0.1660	2.4900e-003	0.1685		553.8171	553.8171	0.0106	0.0115	557.5164
Total	**0.2360**	**2.6921**	**2.2729**	**0.0178**	**0.9993**	**0.0280**	**1.0273**	**0.2684**	**0.0267**	**0.2951**		**1,869.8100**	**1,869.8100**	**0.0182**	**0.2185**	**1,935.3781**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0463	9.7526	14.0776	0.0225		0.4564	0.4564		0.4376	0.4376	0.0000	2,145.6643	2,145.6643	0.3414		2,154.1987
Total	**1.0463**	**9.7526**	**14.0776**	**0.0225**		**0.4564**	**0.4564**		**0.4376**	**0.4376**	**0.0000**	**2,145.6643**	**2,145.6643**	**0.3414**		**2,154.1987**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0433	2.3814	0.5168	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,227.3075	1,227.3075	6.9600e-003	0.1930	1,285.0045
Vendor	5.9700e-003	0.2060	0.0768	8.4000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8800e-003		88.6854	88.6854	6.1000e-004	0.0140	92.8572
Worker	0.1868	0.1047	1.6793	5.3700e-003	0.6259	2.7100e-003	0.6286	0.1660	2.4900e-003	0.1685		553.8171	553.8171	0.0106	0.0115	557.5164
Total	**0.2360**	**2.6921**	**2.2729**	**0.0178**	**0.9993**	**0.0280**	**1.0273**	**0.2684**	**0.0267**	**0.2951**		**1,869.8100**	**1,869.8100**	**0.0182**	**0.2185**	**1,935.3781**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9708	9.0982	14.0458	0.0225		0.3866	0.3866		0.3709	0.3709		2,146.2425	2,146.2425	0.3372		2,154.6720
Total	**0.9708**	**9.0982**	**14.0458**	**0.0225**		**0.3866**	**0.3866**		**0.3709**	**0.3709**		**2,146.2425**	**2,146.2425**	**0.3372**		**2,154.6720**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0430	2.3615	0.5155	0.0113	0.3503	0.0236	0.3739	0.0961	0.0226	0.1187		1,201.5397	1,201.5397	6.6900e-003	0.1890	1,258.0216
Vendor	5.9300e-003	0.2043	0.0764	8.2000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8800e-003		86.8189	86.8189	5.9000e-004	0.0137	90.9027
Worker	0.1734	0.0926	1.5550	5.1900e-003	0.6259	2.5800e-003	0.6285	0.1660	2.3800e-003	0.1684		540.2664	540.2664	9.4900e-003	0.0107	543.6891
Total	**0.2224**	**2.6584**	**2.1469**	**0.0173**	**0.9993**	**0.0278**	**1.0271**	**0.2684**	**0.0265**	**0.2949**		**1,828.6250**	**1,828.6250**	**0.0168**	**0.2133**	**1,892.6135**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9708	9.0982	14.0458	0.0225		0.3866	0.3866		0.3709	0.3709	0.0000	2,146.2425	2,146.2425	0.3372		2,154.6720
Total	**0.9708**	**9.0982**	**14.0458**	**0.0225**		**0.3866**	**0.3866**		**0.3709**	**0.3709**	**0.0000**	**2,146.2425**	**2,146.2425**	**0.3372**		**2,154.6720**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0430	2.3615	0.5155	0.0113	0.3503	0.0236	0.3739	0.0961	0.0226	0.1187		1,201.5397	1,201.5397	6.6900e-003	0.1890	1,258.0216
Vendor	5.9300e-003	0.2043	0.0764	8.2000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8800e-003		86.8189	86.8189	5.9000e-004	0.0137	90.9027
Worker	0.1734	0.0926	1.5550	5.1900e-003	0.6259	2.5800e-003	0.6285	0.1660	2.3800e-003	0.1684		540.2664	540.2664	9.4900e-003	0.0107	543.6891
Total	**0.2224**	**2.6584**	**2.1469**	**0.0173**	**0.9993**	**0.0278**	**1.0271**	**0.2684**	**0.0265**	**0.2949**		**1,828.6250**	**1,828.6250**	**0.0168**	**0.2133**	**1,892.6135**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Testing and Commissioning - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827		3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4327**	**8.5982**	**9.5564**	**0.0397**		**0.3073**	**0.3073**		**0.2827**	**0.2827**		**3,839.0263**	**3,839.0263**	**1.2416**		**3,870.0668**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3540	0.1890	3.1734	0.0106	1.2773	5.2700e-003	1.2826	0.3387	4.8500e-003	0.3436		1,102.5845	1,102.5845	0.0194	0.0218	1,109.5697
Total	**0.3540**	**0.1890**	**3.1734**	**0.0106**	**1.2773**	**5.2700e-003**	**1.2826**	**0.3387**	**4.8500e-003**	**0.3436**		**1,102.5845**	**1,102.5845**	**0.0194**	**0.0218**	**1,109.5697**

Griffith Energy Storage Project - San Joaquin County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Testing and Commissioning - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827	0.0000	3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4327**	**8.5982**	**9.5564**	**0.0397**		**0.3073**	**0.3073**		**0.2827**	**0.2827**	**0.0000**	**3,839.0263**	**3,839.0263**	**1.2416**		**3,870.0668**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3540	0.1890	3.1734	0.0106	1.2773	5.2700e-003	1.2826	0.3387	4.8500e-003	0.3436		1,102.5845	1,102.5845	0.0194	0.0218	1,109.5697
Total	**0.3540**	**0.1890**	**3.1734**	**0.0106**	**1.2773**	**5.2700e-003**	**1.2826**	**0.3387**	**4.8500e-003**	**0.3436**		**1,102.5845**	**1,102.5845**	**0.0194**	**0.0218**	**1,109.5697**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.541920	0.052620	0.169871	0.146633	0.025153	0.006100	0.012627	0.016953	0.000467	0.000322	0.022878	0.001103	0.003353

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Unmitigated	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Total	**0.0123**	**1.2100e-003**	**0.1331**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**		**0.2860**	**0.2860**	**7.4000e-004**		**0.3046**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Total	**0.0123**	**1.2100e-003**	**0.1331**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**		**0.2860**	**0.2860**	**7.4000e-004**		**0.3046**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	3	8.00	6	402	0.38	Diesel

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Off-Highway Trucks	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827	0.0000	3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4327**	**8.5982**	**9.5564**	**0.0397**		**0.3073**	**0.3073**		**0.2827**	**0.2827**	**0.0000**	**3,839.0263**	**3,839.0263**	**1.2416**		**3,870.0668**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Griffith Energy Storage Project

San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1,307.00	1000sqft	30.00	1,307,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant.

Off-road Equipment - Provided by applicant

Off-road Equipment - Provided by applicant.

Trips and VMT - Provided by applicant; HHDT vehicle class assumed for vendor trips and haul trips.

Grading -

Vehicle Trips - 1-2 workers on a weekly basis.

Vehicle Emission Factors -

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - No consumer product emissions.

Area Coating - No architectural coatings.

Energy Use - No energy required from the grid; on-site renewable energy generation.

Water And Wastewater - No potable water use; general maintenance only.

Solid Waste - Conservative estimate

Construction Off-road Equipment Mitigation -

Operational Off-Road Equipment - May be required for infrequent maintenance.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	653500	0
tblAreaCoating	Area_Nonresidential_Interior	1960500	0
tblConstructionPhase	NumDays	45.00	80.00
tblConstructionPhase	NumDays	440.00	180.00
tblConstructionPhase	NumDays	440.00	30.00
tblConstructionPhase	NumDays	440.00	30.00
tblConstructionPhase	NumDays	440.00	60.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.60	0.00
tblEnergyUse	NT24E	4.20	0.00
tblEnergyUse	NT24NG	0.06	0.00
tblEnergyUse	T24E	1.48	0.00
tblEnergyUse	T24NG	18.39	0.00
tblGrading	MaterialExported	0.00	1,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Gen-Tie Line Foundation and Tower Erection

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Testing and Commissioning
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Gen-Tie Line Foundation and Tower Erection
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Energy Storage Enclosure and Substation Installation
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	PhaseName		Site and Substation Preparation and Grading
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	6.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	3.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	1,620.68	15.00
tblTripsAndVMT	HaulingTripNumber	125.00	3,680.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,600.00
tblTripsAndVMT	HaulingTripNumber	0.00	600.00
tblTripsAndVMT	HaulingTripNumber	0.00	600.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripNumber	214.00	20.00
tblTripsAndVMT	VendorTripNumber	214.00	4.00
tblTripsAndVMT	VendorTripNumber	214.00	4.00
tblTripsAndVMT	VendorTripNumber	214.00	0.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	95.00	40.00
tblTripsAndVMT	WorkerTripNumber	549.00	120.00
tblTripsAndVMT	WorkerTripNumber	549.00	40.00
tblTripsAndVMT	WorkerTripNumber	549.00	49.00
tblTripsAndVMT	WorkerTripNumber	549.00	100.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblWater	IndoorWaterUseRate	302,243,750.00	0.00
tblWater	OutdoorWaterUseRate	0.00	325,851.00

2.0 Emissions Summary

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	12.1731	106.1727	100.9115	0.2811	15.5068	4.2710	19.7778	7.2125	4.0393	11.2518	0.0000	27,253.7174	27,253.7174	5.8485	0.5157	27,539.7576
2025	6.2696	55.8040	80.7775	0.1686	2.9983	2.1944	5.1927	0.8027	2.0903	2.8930	0.0000	16,556.0013	16,556.0013	2.4254	0.5025	16,766.3816
Maximum	**12.1731**	**106.1727**	**100.9115**	**0.2811**	**15.5068**	**4.2710**	**19.7778**	**7.2125**	**4.0393**	**11.2518**	**0.0000**	**27,253.7174**	**27,253.7174**	**5.8485**	**0.5157**	**27,539.7576**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	12.1731	106.1727	100.9115	0.2811	15.5068	4.2710	19.7778	7.2125	4.0393	11.2518	0.0000	27,253.7174	27,253.7174	5.8485	0.5157	27,539.7576
2025	6.2696	55.8040	80.7775	0.1686	2.9983	2.1944	5.1927	0.8027	2.0903	2.8930	0.0000	16,556.0013	16,556.0013	2.4254	0.5025	16,766.3816
Maximum	**12.1731**	**106.1727**	**100.9115**	**0.2811**	**15.5068**	**4.2710**	**19.7778**	**7.2125**	**4.0393**	**11.2518**	**0.0000**	**27,253.7174**	**27,253.7174**	**5.8485**	**0.5157**	**27,539.7576**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827	0.0000	3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4450**	**8.5994**	**9.6895**	**0.0397**	**0.0000**	**0.3078**	**0.3078**	**0.0000**	**0.2832**	**0.2832**	**0.0000**	**3,839.3123**	**3,839.3123**	**1.2424**	**0.0000**	**3,870.3714**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827	0.0000	3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4450**	**8.5994**	**9.6895**	**0.0397**	**0.0000**	**0.3078**	**0.3078**	**0.0000**	**0.2832**	**0.2832**	**0.0000**	**3,839.3123**	**3,839.3123**	**1.2424**	**0.0000**	**3,870.3714**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site and Substation Preparation and Grading	Grading	1/1/2024	4/19/2024	5	80	
2	Energy Storage Enclosure and Substation Installation	Building Construction	4/25/2024	1/1/2025	5	180	
3	Gen-Tie Line Foundation and Tower Erection	Building Construction	10/10/2024	11/20/2024	5	30	
4	Gen-Tie Line Pulling and Stringing	Building Construction	11/21/2024	1/1/2025	5	30	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5	Testing and Commissioning	Building Construction	1/2/2025	3/26/2025	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 160

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site and Substation Preparation and Grading	Air Compressors	4	8.00	78	0.48
Site and Substation Preparation and Grading	Dumpers/Tenders	8	8.00	16	0.38
Site and Substation Preparation and Grading	Generator Sets	2	24.00	84	0.74
Site and Substation Preparation and Grading	Generator Sets	2	8.00	84	0.74
Site and Substation Preparation and Grading	Graders	2	8.00	187	0.41
Site and Substation Preparation and Grading	Off-Highway Trucks	8	8.00	402	0.38
Site and Substation Preparation and Grading	Rollers	2	8.00	80	0.38
Site and Substation Preparation and Grading	Rubber Tired Dozers	2	8.00	247	0.40
Site and Substation Preparation and Grading	Rubber Tired Loaders	2	8.00	203	0.36
Site and Substation Preparation and Grading	Skid Steer Loaders	4	8.00	65	0.37
Site and Substation Preparation and Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site and Substation Preparation and Grading	Trenchers	2	8.00	78	0.50
Energy Storage Enclosure and Substation Installation	Air Compressors	4	8.00	78	0.48
Energy Storage Enclosure and Substation Installation	Cranes	2	8.00	231	0.29
Energy Storage Enclosure and Substation Installation	Excavators	4	8.00	158	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy Storage Enclosure and Substation Installation	Forklifts	2	8.00	89	0.20
Energy Storage Enclosure and Substation Installation	Generator Sets	4	8.00	84	0.74
Energy Storage Enclosure and Substation Installation	Plate Compactors	2	8.00	8	0.43
Energy Storage Enclosure and Substation Installation	Rollers	2	8.00	80	0.38
Energy Storage Enclosure and Substation Installation	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Gen-Tie Line Foundation and Tower Erection	Air Compressors	2	8.00	78	0.48
Gen-Tie Line Foundation and Tower Erection	Cranes	2	8.00	231	0.29
Gen-Tie Line Foundation and Tower Erection	Forklifts	2	8.00	89	0.20
Gen-Tie Line Foundation and Tower Erection	Generator Sets	2	8.00	84	0.74
Gen-Tie Line Foundation and Tower Erection	Pumps	2	8.00	84	0.74
Gen-Tie Line Foundation and Tower Erection	Welders	2	8.00	46	0.45
Gen-Tie Line Pulling and Stringing	Forklifts	2	8.00	89	0.20
Gen-Tie Line Pulling and Stringing	Generator Sets	2	8.00	84	0.74
Gen-Tie Line Pulling and Stringing	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Testing and Commissioning	Off-Highway Trucks	3	8.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site and Substation Preparation and Gradi	38	40.00	4.00	3,680.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Energy Storage Enclosure and Substat	26	120.00	20.00	3,600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Gen-Tie Line Foundation and Tower	14	40.00	4.00	600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Gen-Tie Line Pulling and Stringing	7	49.00	4.00	600.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT
Testing and Commissioning	3	100.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site and Substation Preparation and Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1670	0.0000	14.1670	6.8498	0.0000	6.8498			0.0000			0.0000
Off-Road	11.9241	99.9877	98.4351	0.2496		4.2127	4.2127		3.9836	3.9836		23,930.0779	23,930.0779	5.8229		24,075.6500
Total	**11.9241**	**99.9877**	**98.4351**	**0.2496**	**14.1670**	**4.2127**	**18.3797**	**6.8498**	**3.9836**	**10.8333**		**23,930.0779**	**23,930.0779**	**5.8229**		**24,075.6500**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0925	5.8604	1.2117	0.0266	0.8056	0.0545	0.8602	0.2209	0.0522	0.2731		2,826.3755	2,826.3755	0.0157	0.4445	2,959.2393
Vendor	5.3600e-003	0.2210	0.0788	8.4000e-004	0.0232	1.6000e-003	0.0248	6.3600e-003	1.5300e-003	7.8900e-003		88.9957	88.9957	5.8000e-004	0.0140	93.1814
Worker	0.1512	0.1035	1.1860	3.9600e-003	0.5109	2.2100e-003	0.5131	0.1355	2.0400e-003	0.1375		408.2683	408.2683	9.4000e-003	0.0107	411.6869
Total	**0.2490**	**6.1850**	**2.4765**	**0.0314**	**1.3397**	**0.0584**	**1.3981**	**0.3628**	**0.0558**	**0.4185**		**3,323.6395**	**3,323.6395**	**0.0257**	**0.4692**	**3,464.1076**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site and Substation Preparation and Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1670	0.0000	14.1670	6.8498	0.0000	6.8498			0.0000			0.0000
Off-Road	11.9241	99.9877	98.4351	0.2496		4.2127	4.2127		3.9836	3.9836	0.0000	23,930.0779	23,930.0779	5.8229		24,075.6500
Total	**11.9241**	**99.9877**	**98.4351**	**0.2496**	**14.1670**	**4.2127**	**18.3797**	**6.8498**	**3.9836**	**10.8333**	**0.0000**	**23,930.0779**	**23,930.0779**	**5.8229**		**24,075.6500**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0925	5.8604	1.2117	0.0266	0.8056	0.0545	0.8602	0.2209	0.0522	0.2731		2,826.3755	2,826.3755	0.0157	0.4445	2,959.2393
Vendor	5.3600e-003	0.2210	0.0788	8.4000e-004	0.0232	1.6000e-003	0.0248	6.3600e-003	1.5300e-003	7.8900e-003		88.9957	88.9957	5.8000e-004	0.0140	93.1814
Worker	0.1512	0.1035	1.1860	3.9600e-003	0.5109	2.2100e-003	0.5131	0.1355	2.0400e-003	0.1375		408.2683	408.2683	9.4000e-003	0.0107	411.6869
Total	**0.2490**	**6.1850**	**2.4765**	**0.0314**	**1.3397**	**0.0584**	**1.3981**	**0.3628**	**0.0558**	**0.4185**		**3,323.6395**	**3,323.6395**	**0.0257**	**0.4692**	**3,464.1076**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.9123	43.3062	60.7324	0.1024		2.0175	2.0175		1.9191	1.9191		9,795.7830	9,795.7830	2.0469		9,846.9559
Total	**4.9123**	**43.3062**	**60.7324**	**0.1024**		**2.0175**	**2.0175**		**1.9191**	**1.9191**		**9,795.7830**	**9,795.7830**	**2.0469**		**9,846.9559**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	2.5480	0.5268	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,228.8589	1,228.8589	6.8100e-003	0.1933	1,286.6258
Vendor	0.0268	1.1052	0.3940	4.1900e-003	0.1159	7.9900e-003	0.1239	0.0318	7.6400e-003	0.0394		444.9786	444.9786	2.9100e-003	0.0700	465.9069
Worker	0.4535	0.3105	3.5580	0.0119	1.5328	6.6400e-003	1.5394	0.4065	6.1100e-003	0.4126		1,224.8049	1,224.8049	0.0282	0.0321	1,235.0608
Total	**0.5204**	**3.9637**	**4.4788**	**0.0276**	**1.9989**	**0.0383**	**2.0373**	**0.5343**	**0.0364**	**0.5708**		**2,898.6425**	**2,898.6425**	**0.0379**	**0.2953**	**2,987.5935**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.9123	43.3062	60.7324	0.1024		2.0175	2.0175		1.9191	1.9191	0.0000	9,795.7830	9,795.7830	2.0469		9,846.9559
Total	**4.9123**	**43.3062**	**60.7324**	**0.1024**		**2.0175**	**2.0175**		**1.9191**	**1.9191**	**0.0000**	**9,795.7830**	**9,795.7830**	**2.0469**		**9,846.9559**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	2.5480	0.5268	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,228.8589	1,228.8589	6.8100e-003	0.1933	1,286.6258
Vendor	0.0268	1.1052	0.3940	4.1900e-003	0.1159	7.9900e-003	0.1239	0.0318	7.6400e-003	0.0394		444.9786	444.9786	2.9100e-003	0.0700	465.9069
Worker	0.4535	0.3105	3.5580	0.0119	1.5328	6.6400e-003	1.5394	0.4065	6.1100e-003	0.4126		1,224.8049	1,224.8049	0.0282	0.0321	1,235.0608
Total	**0.5204**	**3.9637**	**4.4788**	**0.0276**	**1.9989**	**0.0383**	**2.0373**	**0.5343**	**0.0364**	**0.5708**		**2,898.6425**	**2,898.6425**	**0.0379**	**0.2953**	**2,987.5935**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5916	39.9499	60.5570	0.1024		1.7420	1.7420		1.6567	1.6567		9,797.6780	9,797.6780	2.0361		9,848.5809
Total	**4.5916**	**39.9499**	**60.5570**	**0.1024**		**1.7420**	**1.7420**		**1.6567**	**1.6567**		**9,797.6780**	**9,797.6780**	**2.0361**		**9,848.5809**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0399	2.5267	0.5254	0.0113	0.3503	0.0237	0.3739	0.0961	0.0226	0.1187		1,203.0637	1,203.0637	6.5400e-003	0.1892	1,259.6142
Vendor	0.0266	1.0967	0.3923	4.1100e-003	0.1159	7.9700e-003	0.1239	0.0318	7.6200e-003	0.0394		435.6190	435.6190	2.8100e-003	0.0685	456.1060
Worker	0.4227	0.2744	3.3040	0.0115	1.5328	6.3300e-003	1.5391	0.4065	5.8200e-003	0.4123		1,195.1792	1,195.1792	0.0253	0.0297	1,204.6673
Total	**0.4893**	**3.8978**	**4.2217**	**0.0269**	**1.9989**	**0.0380**	**2.0369**	**0.5343**	**0.0361**	**0.5704**		**2,833.8619**	**2,833.8619**	**0.0347**	**0.2874**	**2,920.3875**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Energy Storage Enclosure and Substation Installation - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5916	39.9499	60.5570	0.1024		1.7420	1.7420		1.6567	1.6567	0.0000	9,797.6780	9,797.6780	2.0361		9,848.5809
Total	**4.5916**	**39.9499**	**60.5570**	**0.1024**		**1.7420**	**1.7420**		**1.6567**	**1.6567**	**0.0000**	**9,797.6780**	**9,797.6780**	**2.0361**		**9,848.5809**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0399	2.5267	0.5254	0.0113	0.3503	0.0237	0.3739	0.0961	0.0226	0.1187		1,203.0637	1,203.0637	6.5400e-003	0.1892	1,259.6142
Vendor	0.0266	1.0967	0.3923	4.1100e-003	0.1159	7.9700e-003	0.1239	0.0318	7.6200e-003	0.0394		435.6190	435.6190	2.8100e-003	0.0685	456.1060
Worker	0.4227	0.2744	3.3040	0.0115	1.5328	6.3300e-003	1.5391	0.4065	5.8200e-003	0.4123		1,195.1792	1,195.1792	0.0253	0.0297	1,204.6673
Total	**0.4893**	**3.8978**	**4.2217**	**0.0269**	**1.9989**	**0.0380**	**2.0369**	**0.5343**	**0.0361**	**0.5704**		**2,833.8619**	**2,833.8619**	**0.0347**	**0.2874**	**2,920.3875**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Gen-Tie Line Foundation and Tower Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9875	25.0334	28.7498	0.0540		1.1071	1.1071		1.0756	1.0756		5,071.2982	5,071.2982	0.6471		5,087.4749
Total	**2.9875**	**25.0334**	**28.7498**	**0.0540**		**1.1071**	**1.1071**		**1.0756**	**1.0756**		**5,071.2982**	**5,071.2982**	**0.6471**		**5,087.4749**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	2.5480	0.5268	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,228.8589	1,228.8589	6.8100e-003	0.1933	1,286.6258
Vendor	5.3600e-003	0.2210	0.0788	8.4000e-004	0.0232	1.6000e-003	0.0248	6.3600e-003	1.5300e-003	7.8900e-003		88.9957	88.9957	5.8000e-004	0.0140	93.1814
Worker	0.1512	0.1035	1.1860	3.9600e-003	0.5109	2.2100e-003	0.5131	0.1355	2.0400e-003	0.1375		408.2683	408.2683	9.4000e-003	0.0107	411.6869
Total	**0.1967**	**2.8725**	**1.7916**	**0.0164**	**0.8844**	**0.0275**	**0.9119**	**0.2379**	**0.0263**	**0.2642**		**1,726.1229**	**1,726.1229**	**0.0168**	**0.2180**	**1,791.4941**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Gen-Tie Line Foundation and Tower Erection - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9875	25.0334	28.7498	0.0540		1.1071	1.1071		1.0756	1.0756	0.0000	5,071.2982	5,071.2982	0.6471		5,087.4749
Total	**2.9875**	**25.0334**	**28.7498**	**0.0540**		**1.1071**	**1.1071**		**1.0756**	**1.0756**	**0.0000**	**5,071.2982**	**5,071.2982**	**0.6471**		**5,087.4749**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	2.5480	0.5268	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,228.8589	1,228.8589	6.8100e-003	0.1933	1,286.6258
Vendor	5.3600e-003	0.2210	0.0788	8.4000e-004	0.0232	1.6000e-003	0.0248	6.3600e-003	1.5300e-003	7.8900e-003		88.9957	88.9957	5.8000e-004	0.0140	93.1814
Worker	0.1512	0.1035	1.1860	3.9600e-003	0.5109	2.2100e-003	0.5131	0.1355	2.0400e-003	0.1375		408.2683	408.2683	9.4000e-003	0.0107	411.6869
Total	**0.1967**	**2.8725**	**1.7916**	**0.0164**	**0.8844**	**0.0275**	**0.9119**	**0.2379**	**0.0263**	**0.2642**		**1,726.1229**	**1,726.1229**	**0.0168**	**0.2180**	**1,791.4941**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0463	9.7526	14.0776	0.0225		0.4564	0.4564		0.4376	0.4376		2,145.6643	2,145.6643	0.3414		2,154.1987
Total	**1.0463**	**9.7526**	**14.0776**	**0.0225**		**0.4564**	**0.4564**		**0.4376**	**0.4376**		**2,145.6643**	**2,145.6643**	**0.3414**		**2,154.1987**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	2.5480	0.5268	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,228.8589	1,228.8589	6.8100e-003	0.1933	1,286.6258
Vendor	5.3600e-003	0.2210	0.0788	8.4000e-004	0.0232	1.6000e-003	0.0248	6.3600e-003	1.5300e-003	7.8900e-003		88.9957	88.9957	5.8000e-004	0.0140	93.1814
Worker	0.1852	0.1268	1.4528	4.8500e-003	0.6259	2.7100e-003	0.6286	0.1660	2.4900e-003	0.1685		500.1287	500.1287	0.0115	0.0131	504.3165
Total	**0.2307**	**2.8958**	**2.0585**	**0.0173**	**0.9993**	**0.0280**	**1.0274**	**0.2684**	**0.0267**	**0.2951**		**1,817.9833**	**1,817.9833**	**0.0189**	**0.2204**	**1,884.1237**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0463	9.7526	14.0776	0.0225		0.4564	0.4564		0.4376	0.4376	0.0000	2,145.6643	2,145.6643	0.3414		2,154.1987
Total	**1.0463**	**9.7526**	**14.0776**	**0.0225**		**0.4564**	**0.4564**		**0.4376**	**0.4376**	**0.0000**	**2,145.6643**	**2,145.6643**	**0.3414**		**2,154.1987**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0402	2.5480	0.5268	0.0116	0.3503	0.0237	0.3740	0.0961	0.0227	0.1187		1,228.8589	1,228.8589	6.8100e-003	0.1933	1,286.6258
Vendor	5.3600e-003	0.2210	0.0788	8.4000e-004	0.0232	1.6000e-003	0.0248	6.3600e-003	1.5300e-003	7.8900e-003		88.9957	88.9957	5.8000e-004	0.0140	93.1814
Worker	0.1852	0.1268	1.4528	4.8500e-003	0.6259	2.7100e-003	0.6286	0.1660	2.4900e-003	0.1685		500.1287	500.1287	0.0115	0.0131	504.3165
Total	**0.2307**	**2.8958**	**2.0585**	**0.0173**	**0.9993**	**0.0280**	**1.0274**	**0.2684**	**0.0267**	**0.2951**		**1,817.9833**	**1,817.9833**	**0.0189**	**0.2204**	**1,884.1237**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9708	9.0982	14.0458	0.0225		0.3866	0.3866		0.3709	0.3709		2,146.2425	2,146.2425	0.3372		2,154.6720
Total	**0.9708**	**9.0982**	**14.0458**	**0.0225**		**0.3866**	**0.3866**		**0.3709**	**0.3709**		**2,146.2425**	**2,146.2425**	**0.3372**		**2,154.6720**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0399	2.5267	0.5254	0.0113	0.3503	0.0237	0.3739	0.0961	0.0226	0.1187		1,203.0637	1,203.0637	6.5400e-003	0.1892	1,259.6142
Vendor	5.3200e-003	0.2193	0.0785	8.2000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8900e-003		87.1238	87.1238	5.6000e-004	0.0137	91.2212
Worker	0.1726	0.1121	1.3491	4.6800e-003	0.6259	2.5800e-003	0.6285	0.1660	2.3800e-003	0.1684		488.0315	488.0315	0.0103	0.0121	491.9058
Total	**0.2179**	**2.8581**	**1.9530**	**0.0168**	**0.9993**	**0.0278**	**1.0272**	**0.2684**	**0.0265**	**0.2949**		**1,778.2190**	**1,778.2190**	**0.0174**	**0.2151**	**1,842.7412**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Gen-Tie Line Pulling and Stringing - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9708	9.0982	14.0458	0.0225		0.3866	0.3866		0.3709	0.3709	0.0000	2,146.2425	2,146.2425	0.3372		2,154.6720
Total	**0.9708**	**9.0982**	**14.0458**	**0.0225**		**0.3866**	**0.3866**		**0.3709**	**0.3709**	**0.0000**	**2,146.2425**	**2,146.2425**	**0.3372**		**2,154.6720**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0399	2.5267	0.5254	0.0113	0.3503	0.0237	0.3739	0.0961	0.0226	0.1187		1,203.0637	1,203.0637	6.5400e-003	0.1892	1,259.6142
Vendor	5.3200e-003	0.2193	0.0785	8.2000e-004	0.0232	1.5900e-003	0.0248	6.3600e-003	1.5200e-003	7.8900e-003		87.1238	87.1238	5.6000e-004	0.0137	91.2212
Worker	0.1726	0.1121	1.3491	4.6800e-003	0.6259	2.5800e-003	0.6285	0.1660	2.3800e-003	0.1684		488.0315	488.0315	0.0103	0.0121	491.9058
Total	**0.2179**	**2.8581**	**1.9530**	**0.0168**	**0.9993**	**0.0278**	**1.0272**	**0.2684**	**0.0265**	**0.2949**		**1,778.2190**	**1,778.2190**	**0.0174**	**0.2151**	**1,842.7412**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Testing and Commissioning - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827		3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4327**	**8.5982**	**9.5564**	**0.0397**		**0.3073**	**0.3073**		**0.2827**	**0.2827**		**3,839.0263**	**3,839.0263**	**1.2416**		**3,870.0668**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3523	0.2287	2.7533	9.5600e-003	1.2773	5.2700e-003	1.2826	0.3387	4.8500e-003	0.3436		995.9827	995.9827	0.0211	0.0248	1,003.8894
Total	**0.3523**	**0.2287**	**2.7533**	**9.5600e-003**	**1.2773**	**5.2700e-003**	**1.2826**	**0.3387**	**4.8500e-003**	**0.3436**		**995.9827**	**995.9827**	**0.0211**	**0.0248**	**1,003.8894**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Testing and Commissioning - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827	0.0000	3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4327**	**8.5982**	**9.5564**	**0.0397**		**0.3073**	**0.3073**		**0.2827**	**0.2827**	**0.0000**	**3,839.0263**	**3,839.0263**	**1.2416**		**3,870.0668**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3523	0.2287	2.7533	9.5600e-003	1.2773	5.2700e-003	1.2826	0.3387	4.8500e-003	0.3436		995.9827	995.9827	0.0211	0.0248	1,003.8894
Total	**0.3523**	**0.2287**	**2.7533**	**9.5600e-003**	**1.2773**	**5.2700e-003**	**1.2826**	**0.3387**	**4.8500e-003**	**0.3436**		**995.9827**	**995.9827**	**0.0211**	**0.0248**	**1,003.8894**

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.541920	0.052620	0.169871	0.146633	0.025153	0.006100	0.012627	0.016953	0.000467	0.000322	0.022878	0.001103	0.003353

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Unmitigated	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Total	**0.0123**	**1.2100e-003**	**0.1331**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**		**0.2860**	**0.2860**	**7.4000e-004**		**0.3046**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0123	1.2100e-003	0.1331	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		0.2860	0.2860	7.4000e-004		0.3046
Total	**0.0123**	**1.2100e-003**	**0.1331**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**		**0.2860**	**0.2860**	**7.4000e-004**		**0.3046**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	3	8.00	6	402	0.38	Diesel

Griffith Energy Storage Project - San Joaquin County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Off-Highway Trucks	1.4327	8.5982	9.5564	0.0397		0.3073	0.3073		0.2827	0.2827	0.0000	3,839.0263	3,839.0263	1.2416		3,870.0668
Total	**1.4327**	**8.5982**	**9.5564**	**0.0397**		**0.3073**	**0.3073**		**0.2827**	**0.2827**	**0.0000**	**3,839.0263**	**3,839.0263**	**1.2416**		**3,870.0668**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix E
Biological Resources

Appendix E-1

Biological Resources Evaluation Report

Griffith Energy, LLC.



Griffith Energy Project

BIOLOGICAL RESOURCES EVALUATION REPORT

Alameda and San Joaquin Counties, California
July 7, 2023

Prepared for
Griffith Energy, LLC
One California, Suite 16
San Francisco, CA 94111

Prepared by
Tetra Tech, Inc.
5383 Hollister Ave, Suite 130
Santa Barbara, CA 93111

TETRA TECH

EXECUTIVE SUMMARY

A literature review and general biological survey were conducted for the Griffith Energy, LLC (Griffith Energy), Griffith Energy Project (Project). A general biological survey of the Project site and 150-meter buffer area was performed in January 2022 to assess potential habitat for wildlife and rare plants. The Project site consisted of grazed, non-native grassland, several hills, and three residential units. All undeveloped areas of the Project site were comprised of *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance. Small mammal burrows were also present on the Project site. The only trees present in the Project site were in residential areas. The loggerhead shrike (*Lanius ludovicianus*), a California Department of Fish and Wildlife (CDFW) Species of Special Concern, was observed onsite during the survey.

Based on the results of the general biological survey, additional surveys for rare plants are recommended. The Project site is within the planning area for both the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) and East Alameda County Conservation Strategy (EACCS). Approximately 90% of the Project site is within the SJMSCP plan area, and the current site plans avoid Alameda County with the exception of the gen-tie line and access road. Additional coordination with the regulatory agencies is recommended to determine which of these plans will apply to the Project. This coordination is recommended to determine the additional requirements and refine the recommendations for California tiger salamander (*Ambystoma californiense*) and burrowing owl (*Athene cunicularia*). Pre-construction surveys for California red-legged frog (*Rana draytonii*), Swainson's hawk (*Buteo swainsoni*), nesting birds and raptors, San Joaquin kit fox (*Vulpes macrotis mutica*), and American badger (*Taxidea taxus*) are also recommended. Surveys are recommended to begin in spring 2022 and pre-construction surveys are recommended to be conducted 7 to 30 days prior to ground disturbance activities, depending on the species. Recommendations for pre-construction surveys will be refined during the California Environmental Quality Act (CEQA) process.

A jurisdictional wetland delineation was conducted at one feature on the Project site. Based on the results of the delineation, the Project site does not contain wetlands under U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board/State Water Resources Control Board (RWQCB/SWRCB), and/or CDFW jurisdiction.

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APPENDICES

Appendix A: Photographs
Appendix B: Wetland Datasheets

ACRONYMS/ABBREVIATIONS

BCC	Federal Bird of Conservation Concern
BESS	battery energy storage system
BIOS	Biogeographic and Information Observation System
BSA	biological study area
BUOW	burrowing owl
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CIA	Critical Issues Analysis
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CTS	California tiger salamander
EACCS	East Alameda County Conservation Strategy
ECA	Essential Connectivity Area
EPA	Environmental Protection Agency
FP	Fully Protected
GPS	Global Positioning System
Griffith Energy	Griffith Energy, LLC
NHD	National Hydrography Dataset
NLB	Natural Landscape Block
NWI	National Wetlands Inventory
Project	Griffith Energy Project
RWQCB	Regional Water Quality Control Board
SJKF	San Joaquin kit fox
SJMSCP	San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
SSC	Species of Special Concern
SWRCB	State Water Resources Control Board
Tetra Tech	Tetra Tech, Inc.
USACE	U.S. Army Corps of Engineers
USDA NRCS	U.S. Department of Agriculture National Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WL	Watch List

1 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) has prepared this biological resources evaluation report for the proposed Griffith Energy Project (Project). Griffith Energy, LLC (Griffith Energy) proposes to develop approximately 20 acres of a 102.6 acre site (approximately 95.4 acres in San Joaquin County, California and 7.2 acres of land located in Alameda County), into a battery energy storage facility. Together, the Project site and a 150-meter buffer comprise the biological study area (BSA). Biologists visited the BSA in January 2022 to conduct the following as part of the general biological survey:

- Inventory of all plants and wildlife observed onsite.
- Perform vegetation community mapping.
- Perform a jurisdictional wetland delineation.
- Assess habitat for California tiger salamander (CTS), including upland and aquatic habitat assessment and migration barrier assessment within a 1.24-mile buffer around the Project site.
- Identify potential nesting habitat for Swainson's hawk within a 0.5-mile buffer of the Project site.
- Assess habitat for San Joaquin kit fox (SJKF).
- Assess habitat for special-status species.
- Assess habitat for nesting birds.

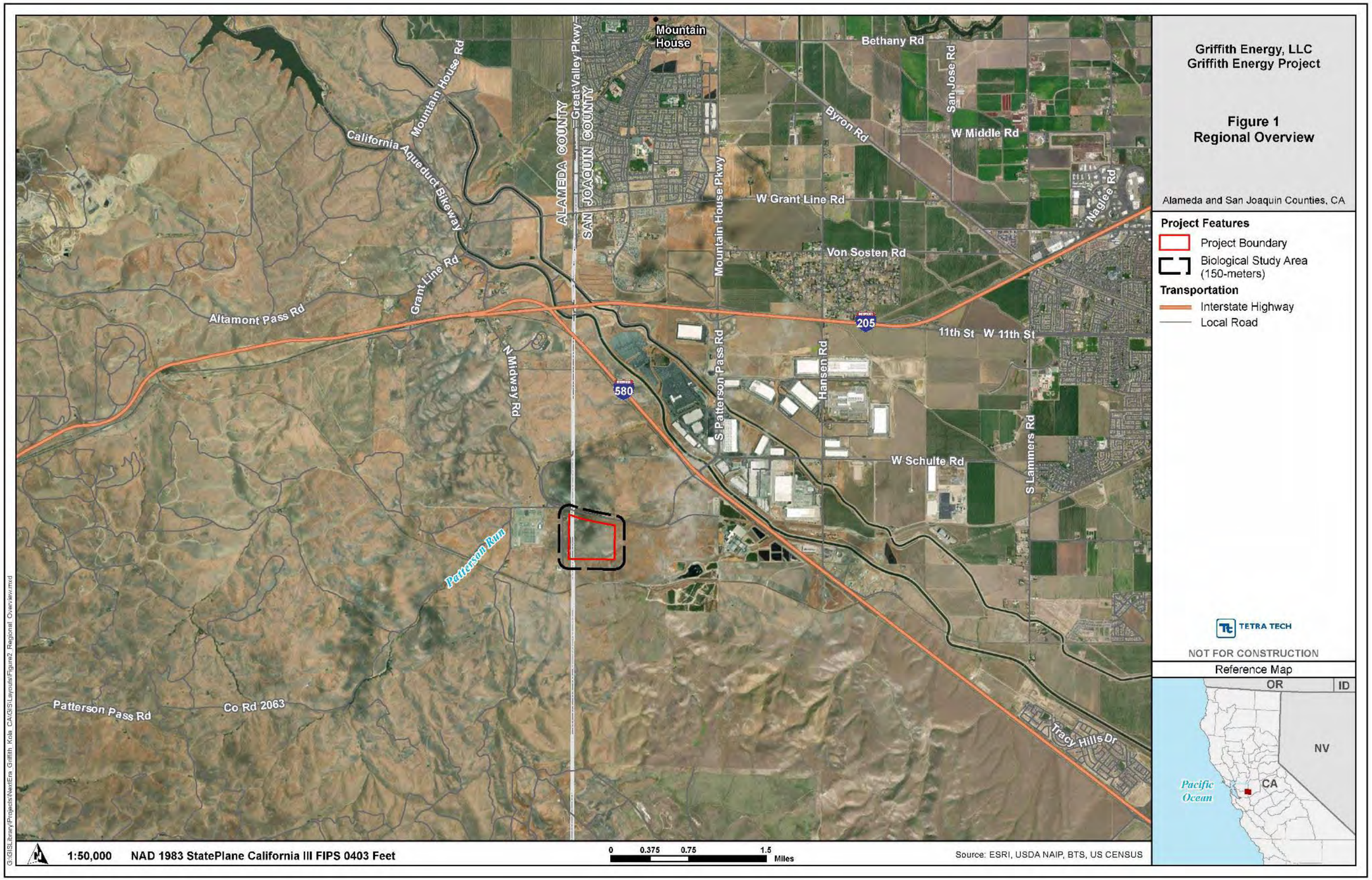
The purpose of this biological resources evaluation report is to:

- Document the methods and results of the field survey.
- Summarize the existing biological resources and conditions within the Project site and vicinity.
- Assess the potential presence of special-status biological resources.
- Recommend additional surveys.

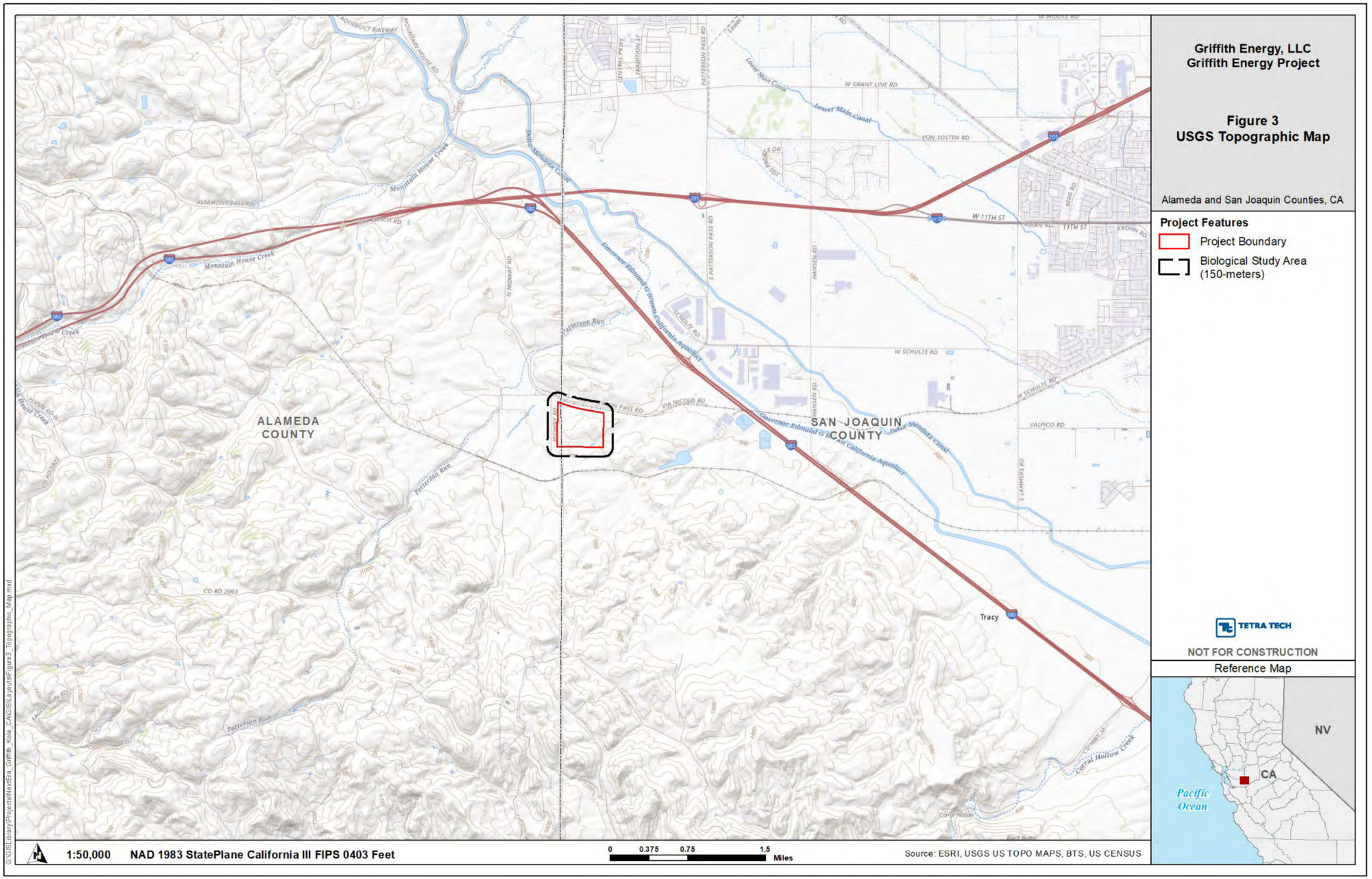
1.1 Project Site Location, Ecoregion, and Setting

1.1.1 Project Site Location

The Project site is located along the border of San Joaquin and Alameda Counties in California (Figures 1 and 2). It is generally bound by rolling hills used for wind-energy generation, cattle grazing, and residential housing. The Diablo Mountain Range is approximately 3 to 5 miles south and west of the Project site. The nearest city is Tracy, California, which is approximately 4.5 miles east of the Project site. Interstate 580 is approximately 1 mile to the northeast and Interstate 205 is approximately 2 miles north of the Project site. The Project site is within Township 2 South, Range 4 East, Section 32 in San Joaquin and Alameda Counties. The Project site is centered at a latitude of 37.710 degrees North and longitude of -121.554 degrees West (in decimal degrees). The Project site is also in the U.S. Geological Survey (USGS) *Midway* 7.5-Minute Topographic Quadrangle Map (Figure 3). The Project property consists of two parcels with the following Assessor's Parcel Numbers: 20910019 (San Joaquin County) and 99B-7885-2 (Alameda County)
.


Griffith Energy, LLC
Griffith Energy Project
Figure 1
Regional Overview
Alameda and San Joaquin Counties, CA
Project Features
Project Boundary
Biological Study Area (150-meters)
Transportation
Interstate Highway
Local Road
Mountain House
Bethany Rd
San Jose Rd
Byron Rd
W Middle Rd
Naglee Rd
W Grant Line Rd
Von Sosten Rd
Mountain House Rd
California Aqueduct Bikeway
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
Great Valley Pkwy
Mountain House Pkwy
Grant Line Rd
Altamont Pass Rd
205
580
11th St
W 11th St
Hansen Rd
S Patterson Pass Rd
N Midway Rd
W Schulte Rd
S Lammers Rd
Patterson Run
Patterson Pass Rd
Co Rd 2063
Tracy Hills Dr
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
OR
ID
NV
CA
Pacific Ocean
1:50,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 0.375 0.75 1.5
Miles
Source: ESRI, USDA NAIP, BTS, US CENSUS
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N Midway Rd
Patterson Pass Rd Co Rd 2063
Midway Rd
W Patterson Pass Rd
SAN JOAQUIN COUNTY
ALAMEDA COUNTY
Griffith Energy, LLC
Griffith Energy Project
Figure 2
Project Location
Alameda and San Joaquin Counties, CA
Project Features
Project Boundary
Biological Study Area (150-meters)
Transportation
Local Road
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
G:\GIS\Library\Projects\NextEra Griffith Kola CA\GIS\Layouts\Figure1 Project Location.mxd
1:5,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 250 500 1,000 Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS


ALAMEDA COUNTY
SAN JOAQUIN COUNTY
Tracy
Mountain House Creek
Patterson Run
Corral Hollow Creek
Delta Mendota Canal
Lower Main Canal
Governor Edmund G. Brown California Aqueduct
W GRANT LINE RD
W 11TH ST
W SCHULTE RD
VALPICO RD
VON SOSTEN RD
ALAMEDA PASS RD
PATTERSON PASS RD
N MIDWAY RD
HANSEN RD
1:50,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 0.375 0.75 1.5 Miles
Source: ESRI, USGS US TOPO MAPS, BTS, US CENSUS
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Griffith Energy, LLC
Griffith Energy Project
Figure 3
USGS Topographic Map
Alameda and San Joaquin Counties, CA
Project Features
Project Boundary
Biological Study Area (150-meters)
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean

1.1.2 Ecoregion

The Project site is located within the Great Valley Geomorphic Province, which is a broad, flat, alluvial plain about 50 miles wide and 400 miles long in the central part of California between the Sierra Nevada in the east and the Coast Ranges in the west (Jepson Flora Project [eds.] 2021). The Central Valley is composed of two valleys: 1) the northern and smaller valley, known as the Sacramento Valley, which is drained by the Sacramento River; and 2) the southern and larger valley, known as the San Joaquin Valley, which is drained by the San Joaquin River (California Department of Conservation, California Geological Survey 2002). The Project site is located within the San Joaquin Valley subregion of the Great Valley (Jepson Flora Project [eds.] 2021).

1.1.3 Land Use

Based on historical aerial imagery (Google Earth©), the Project site has consisted of herbaceous vegetation and has been used for grazing since 1985. Two houses were built within the boundary of Project site between 2002 and 2003. The topography of the Project site appears unchanged throughout this period. Based on information provided by the landowner, the Project site is annually grazed by cattle. The area of the Project site within San Joaquin County is designated as agriculture and open space land (San Joaquin County Community Development Department 2013), and the portion in Alameda County is designated as an unincorporated, wind-resource area (ICF International 2010).

2 PROJECT DESCRIPTION

Griffith Energy proposes to construct and operate a 400-megawatt battery energy storage system (BESS), substations, and associated infrastructure on approximately 20 acres of a 106-acre site of privately-owned land. Only 102.6 acres of grazing land are available for Project development because 3.4 acres of the Project area consist of residential plots. The precise locations of the facilities and access roads have not been determined as this time.

The Project would include the construction of:

- BESS.
- Project electrical substations.
- Access roads.
- Generation tie line.
- Perimeter fencing.

Construction would include site preparation, grading, preparing staging areas, and construction of the Project. A conceptual design of the Project would be completed prior to initiating the permitting and CEQA process and the design may be refined during the process.

3 LITERATURE REVIEW

This section describes the study methods (literature review) used for evaluating the biological resources within the BSA and Project vicinity. A Critical Issues Analysis (CIA) was initially prepared for this Project (Tetra Tech 2021). The information in the CIA has been incorporated into the sections below as applicable.

3.1 Topography

Methods

The USGS 7.5-Minute Topographic Map *Midway* Quadrangle as well as aerial imagery were reviewed. Topography describes the physical features of an area of land. The topographic features looked at include natural landforms, aquatic features, developed lands, agricultural lands, undeveloped lands, and terrain. Natural landforms are natural physical features on the surface of the land, such as mountains, hills, and canyons.

Results

Site topography consists of four gently sloping hills as well as flat terrain. The Project site is used for cattle grazing and the surrounding land uses consist of agriculture, open space, and developed land. The elevational range of the Project site is approximately 300 to 500 feet above mean sea level.

3.2 Sensitive Natural Communities

Methods

The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2021a) was used to identify sensitive natural communities that exist within the USGS *Midway* Quadrangle and surrounding quadrangles.

Results

The CNDDB identified one sensitive natural community, valley sink scrub, documented 5 miles northwest from the Project site in 1987. This community is still intact according to the database (CDFW 2021a).

3.3 Potential Jurisdictional Wetlands

Methods

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) database (USFWS 2021), the U.S. Department of Agriculture National Resources Conservation Service (USDA NRCS) Web Soil Survey (USDA NRCS 2021), and USGS National Hydrography Dataset (NHD) (USGS 2021) were accessed to determine which areas of the Project site could contain wetland features.

Results

The USFWS NWI database identified one potential riverine feature within the Project boundary (USFWS 2021). The NHD identified one potential body of water in the southeast corner of the Project site (USGS 2021).

3.4 Special-Status Plant and Wildlife Species

Methods

Special-status species are defined as plants and wildlife holding a status of sensitive, threatened, endangered, rare, candidate, Species of Special Concern, Fully Protected, Watch List, or Birds of Conservation Concern as defined by CDFW, USFWS, or California Native Plant Society (CNPS). Tetra Tech conducted a literature review by reviewing CDFW's CNDDB RareFind 5 online database and CNPS' online *Inventory of Rare and Endangered Plants of California* to identify special-status plant and wildlife species that may exist within a USGS 9 Quadrangle search area (CDFW 2021a, CNPS 2021). Species from the CNDDB and CNPS' online inventory that do not have habitat on the Project site are not carried forward in the analysis.

Results

The Project site has the potential to contain habitat for the following species:

- CTS
- California red-legged frog (CRLF)
- California glossy snake (*Arizona elegans occidentalis*)
- San Joaquin coachwhip (*Masticophis flagellum ruddocki*)
- Coast horned lizard (*Phrynosoma blainvillii*)
- Grasshopper sparrow (*Ammodramus savannarum*)
- Short-eared owl (*Asio flammeus*)
- Burrowing owl (BUOW)
- Swainson's hawk
- Northern harrier (*Circus hudsonius*)
- California horned lark (*Eremophila alpestris actia*)
- Loggerhead shrike
- SJKF
- American badger
- Rare plants

All CNDDB occurrences within a 2-mile buffer around the Project site are shown in Figure 4. The potential for each species to occur has been reviewed and updated based on the results of the field survey and is provided in the special-status species results section of this report.

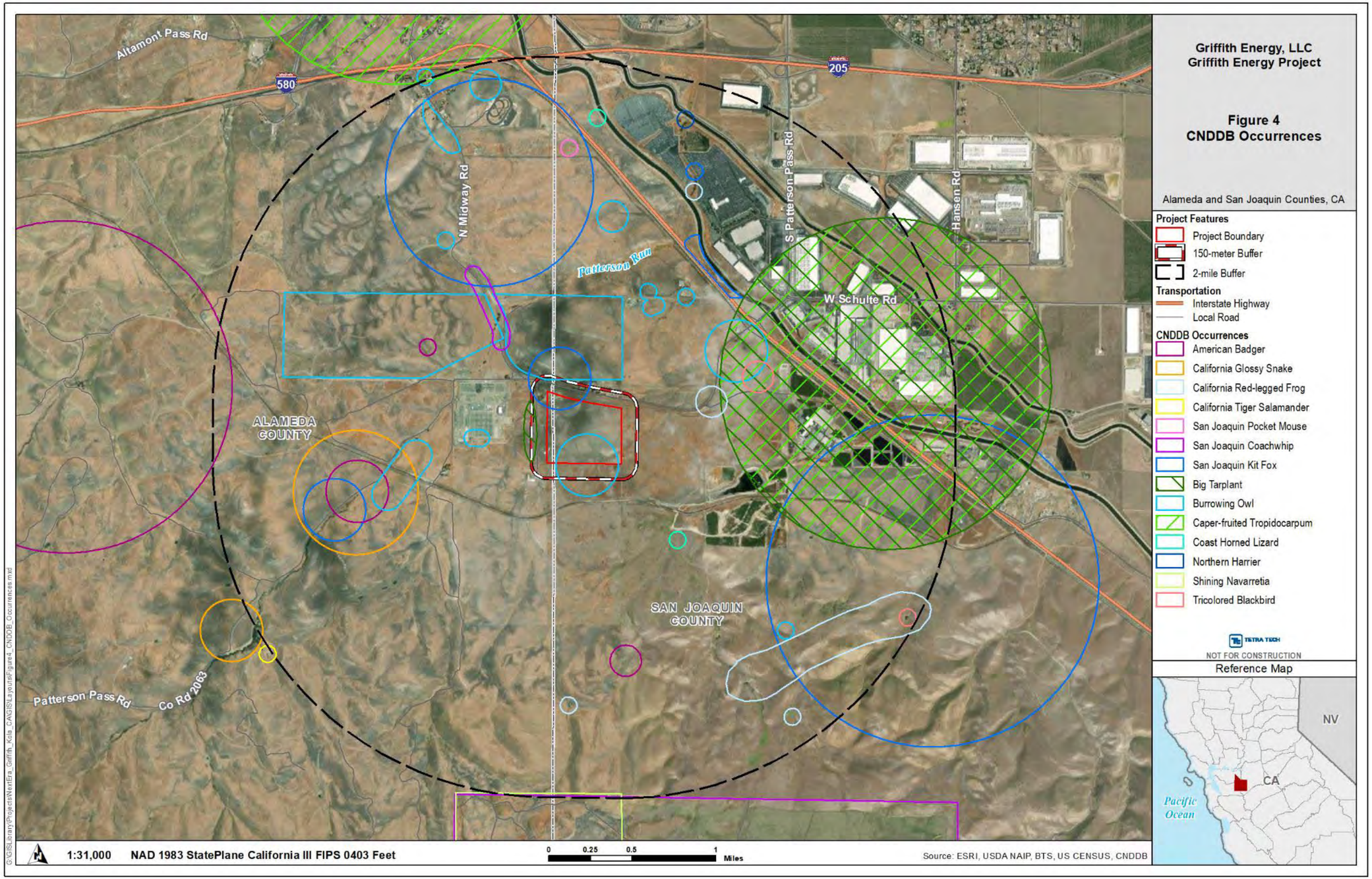
3.5 Critical Habitat

Methods

The USFWS Critical Habitat Portal was reviewed to identify final and proposed Critical Habitat for Federally threatened and endangered species within the Project site and vicinity (USFWS 2021).

Results

The BSA is not located within designated or proposed Critical Habitat for listed plant or wildlife species.


Altamont Pass Rd
580
205
N Midway Rd
Patterson Ram
S Patterson Pass Rd
Hansen Rd
W Schulte Rd
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
Patterson Pass Rd
Co Rd 2063
Griffith Energy, LLC
Griffith Energy Project
Figure 4
CNDDB Occurrences
Alameda and San Joaquin Counties, CA
Project Features
Project Boundary
150-meter Buffer
2-mile Buffer
Transportation
Interstate Highway
Local Road
CNDDB Occurrences
American Badger
California Glossy Snake
California Red-legged Frog
California Tiger Salamander
San Joaquin Pocket Mouse
San Joaquin Coachwhip
San Joaquin Kit Fox
Big Tarplant
Burrowing Owl
Caper-fruited Tropidocarpum
Coast Horned Lizard
Northern Harrier
Shining Navarretia
Tricolored Blackbird
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
G:\GIS\Library\Projects\NextEra_Griffith_Kolb_CA\GIS\Layouts\Figure4_CNDDB_Occurrences.mxd
1:31,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 0.25 0.5 1
Miles
Source: ESRI, USDA NAIP, BTS, US CENSUS, CNDDB

3.6 Wildlife Movement

Methods

The Essential Connectivity Map located on CDFW's Biogeographic and Information Observation System (BIOS) Habitat Connectivity Viewer was reviewed to determine if the Project site is located within or near a CDFW designated Natural Landscape Block (NLB) or Essential Connectivity Area (ECA) (CDFW 2021b). The Essential Connectivity Map serves to focus attention on large areas important to maintaining ecological integrity at the broadest scale. NLBs and ECAs describe habitats that provide refuges for wildlife and corridors for wildlife movement between wildlands.

Results

Per the BIOS Habitat Connectivity Viewer, the Project site lies within an area designated as category 4 (Conservation Planning Linkages) of CDFW's Terrestrial Connectivity Areas of Conservation Emphasis. However, due to the broad, State-wide nature of the Essential Connectivity Map, use of macro-scale data, and its focus on connecting very large blocks of natural lands, it is unlikely that conditions specific to the Project site have been incorporated into the analysis. The Project site is within the California Bay Area Linkage Network (Penrod et al. 2013), which identifies areas that are either high quality habitat or highly permeable to wildlife movement and connects larger wildlands with smaller wildlands. The Project site is also within a San Joaquin Valley Wildlife Corridor (Huber 2006). San Joaquin Valley Wildlife Corridors connect areas of conservation opportunity to healthy, native habitats. Since the Project site is located within the designated areas described above, it has the potential to contain or function as a wildlife movement corridor. However, these designated areas also extend far beyond the boundaries of the Project site and have not incorporated conditions specific to the site into the analysis.

Other factors considered when reviewing habitat connectivity of the Project site were:

- Paved roads are located along the western and northern boundaries of the Project site and the entire site is surrounded by cattle fencing.
- The Project site consists of a relatively small footprint that would not substantially reduce habitat connectivity in the region. The ability of wildlife to move through areas adjacent to the Project site would be unaffected.
- The Project site contains small mammal burrows and foraging habitat to adequately support local wildlife species and enable movement through the site.

Impacts to habitat connectivity would be evaluated during the CEQA process. Any measures required to avoid, minimize, or mitigate impacts to habitat connectivity would be proposed at that time.

4 FIELD SURVEY METHODS

A general biological survey was conducted on January 11 and 12, 2022. The field survey was conducted during daylight hours and not during abnormal or excessive cold, heat, wind, rain, or other inclement weather. The survey was conducted on foot and by vehicle. An Eos Arrow 100 sub-meter Global Positioning System (GPS) unit and a paired tablet running the ArcGIS Field Maps application were used to collect location and attribute data of features or species encountered. Photographs that were taken are provided in Appendix A.

4.1 Inventory of Plants and Wildlife

The BSA was surveyed for special-status plant species and their habitats. Signs of wildlife, such as tracks, burrows, dens, nests, nest sites, scat, or remains were also surveyed for. Wildlife species encountered visually or audibly during the survey and wildlife sign were identified and recorded.

4.2 Vegetation Mapping

Vegetation communities were mapped in accordance with the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Vegetation was mapped to the alliance level, which is defined by plant species composition and identified by the most dominant tree, shrub, or herb in the vegetation community.

4.3 Jurisdictional Wetland Delineation

A jurisdictional delineation was performed within the Project site. The delineation was conducted at any potential jurisdictional wetlands and Waters of the U.S. and State, and areas potentially under CDFW jurisdiction. The U.S. Army Corps of Engineers (USACE) has developed standard methods and data reporting forms contained in the *Interim Regional Supplement to the Corps of Engineering Wetland Delineation Manual: Arid West Region* (USACE 2008), a supplement to the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), to determine the presence or absence of wetlands and Waters of the U.S. The USACE methodology was used to identify wetlands and Waters of the U.S. in the Project site that are potentially subject to regulation under Section 404 of the Clean Water Act. This delineation methodology was also used to evaluate potential Waters of the State under Regional Water Quality Control Board (RWQCB) jurisdiction. “Waters of the State” are defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state” (State Water Resources Control Board [SWRCB] 2019). These may include intermittent or ephemeral waters. The SWRCB and each RWQCB regulate activities in Waters of the State which include Waters of the U.S. Areas of CDFW jurisdiction were determined by the presence of a defined bed, bank, and channel, or presence of a lake or pool, and were measured to the top of bank or the edge of riparian vegetation.

Sample points were taken to determine areas of potential jurisdiction and were mapped in the field using a GPS receiver with sub-meter accuracy. Field indicators were examined, and wetland data reporting forms were used to record three parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. Sample points were collected for each potential jurisdictional feature when a change in any of the three wetland parameters occurred. Sample points were also collected within the feature and in associated upland to compare these areas and determine the extent of the feature. Photographs taken during the field survey are provided in Appendix A. Completed wetland data forms are provided in Appendix B.

4.4 Special-Status Species Habitat Assessment

The BSA was surveyed for special-status species and their habitats. Any potential burrows/dens and burrow surrogates for BUOW, SJKF, or American badger were mapped and photographed. To assess habitat for rare plants, soil types, vegetation cover, and disturbance on the Project site were evaluated. Habitat assessments conducted for CTS, Swainson's hawk, and SJKF are described in the subsections below.

4.4.1 California Tiger Salamander and California Red-Legged Frog

To assess CTS and CRLF upland and aquatic habitat, the presence of small mammal burrows, water bodies on the project site, vegetation and debris cover, the grazing regime, and the presence of predatory and competing species were evaluated. Important CTS habitat features include ephemeral pools and a relative abundance of small mammal burrows (USFWS 2004). Methods for identification and assessment of potential CTS breeding sites in the Project vicinity is described in the subsection below. Important CRLF habitat features include shrubby or emergent riparian vegetation along still or slow-moving water at two-feet depth or greater. Habitat requirements for CRLF also include small mammal burrows or damp vegetation, such as leaf litter, for use during summer.

4.4.1.1 Assessment of Barriers to California Tiger Salamander Migration

An assessment of barriers to CTS migration between the nearest known and potential breeding ponds and the Project site was conducted. Potential breeding sites were identified using aerial imagery and hydrologic spatial data from the NWI (USFWS 2021) and NHD (USGS 2021). Previously documented breeding sites were identified using search results from the CNDDB (CDFW 2021a). Each potential breeding site was visited during the survey and notes were recorded on features that may restrict the ability of CTS to access the site (e.g., roads, walls, steep slopes, trenches). Habitat data, such as water body feature type and surrounding vegetation, for each breeding site was also recorded. Paved and dirt roads are not considered as barriers to CTS migration, but high-density residential development and Interstate Highways are considered significant physical barriers (USFWS 2003). Non-lethal barriers were also taken into account. Non-lethal barriers include structures longer than 12 meters and above the recommended minimum barrier height for fencing meant to divert amphibians,12-15 inches (Langton and Clevenger 2021). Features which could facilitate access, such as culverts or small mammal burrows, were also noted. When possible, binoculars were used from vantage points to survey sites that were on private property. Notes and photographs were recorded for all accessible sites within the 1.24-miles of the Project site.

4.4.2 Swainson's Hawk

A raptor nesting habitat assessment was conducted in the Project site and surrounding 0.5-mile buffer. Aerial imagery and binoculars were used to find and survey potential trees and other features (e.g., power poles) that could be used for raptor nesting. Visual surveys for nests and perched raptors were performed. Potential Swainson's hawk nesting features (e.g., trees, power poles) were mapped within a 0.5-mile buffer of the Project site.

4.4.3 San Joaquin Kit Fox

A SJKF habitat assessment was conducted in the Project site and 150-meter buffer. Meandering transects were performed to evaluate potential denning habitat and prey availability. Potential dens and manmade features (e.g., culverts and drainage pipes) within the required size and depth range for SJKF were photographed and mapped. Observations of small mammals and the presence of small mammal burrows were used to assess the availability of prey. The presence of potential predators or competitors (e.g., large hawks, coyotes, domestic dogs) was also recorded.

5 FIELD SURVEY RESULTS

5.1 Inventory of Plants and Wildlife

Plant and wildlife species observed in the BSA are listed in Tables 1 and 2. None of the plants in Table 1 are special-status species.

Table 1. Plant Species Observed

Scientific Name	Common Name
Achillea millefolium	Common yarrow
Allium sp.	Onion
Amsinckia menziesii	Common fiddleneck
Amsinckia sp.	Fiddleneck
Cynara cardunculus	Artichoke thistle
Brassica nigra [A]	Black mustard[A]
Calandrinia sp.	Calandrinia
Centaurea sp. [A, B]	Star thistle [A,B]
Claytonia sp.	Miner's lettuce
Conium maculatum [A]	Poison hemlock [A]
Croton setigerus	Dove weed
Distichlis spicata	Salt grass
Datura sp.	Jimsonweed
Erodium sp. [A]	Filaree[A]
Erodium moschatum [A]	Greenstem filaree [A]
Euphorbia sp.	Sandmat
Grindelia camporum	Gumweed
Lamium amplexicaule	Henbit
Lepidium sp.	Peppergrass
Lupinus sp.	Lupine
Malva parviflora [A]	Cheeseweed [A]
Non-native grasses [A, C]	Non-native grasses [A, C]
Plantago sp.	Plantain
Salsola sp. [A]	Russian thistle [A]
Capsella bursa-pastoris [A]	Shepherd's purse [A]
Silybum marianum [A]	Milk thistle [A]
Sonchus sp. [A]	Sowthistle [A]
Trifolium sp.	Clover
Schinus sp. [A, C]	Pepper tree [A, C]
Conifer tree [C]	Conifer tree [C]
Olea europaea [A, C]	Olive tree [A, C]

[A] Non-native species.
[B] Found only in the 150-meter buffer.
[C] Found only in residential areas of the Project site.

Table 2. Wildlife Species Observed

Scientific Name	Common Name	Federal/State Status
Invertebrates		
Lycosidae sp.	Wolf spider	None
Lygaeidae sp.	Seed bug	None
Pentatomidae sp.	Stink bug	None
Pseudoscorpiones sp.	Pseudoscorpion	None
Spirobolida sp.	Millipede	None
Tenebrionidae sp.	Darkling beetle	None
Zygentoma sp.	Silverfish	None
Amphibians		
Batrachoseps attenuatus	California slender salamander	None
Reptiles		
Sceloporus occidentalis occidentalis	Western fence lizard	None
Birds		
Buteo jamaicensis	Red-tailed hawk	None
***Buteo regalis*[A]**	**Ferruginous hawk[A]**	**WL**
Cathartes aura	Turkey vulture	None
Charadrius semipalmatus[B]	Semipalmated plover[B]	None
Colaptes auratus	Northern flicker	None
Corvus corax[1]	Common raven[1]	None
Eremophila alpestris actia	**California horned lark**	**WL**
Falco sparverius	American kestrel	None
Lanius ludovicianus	**Loggerhead shrike**	**SSC**
Mimus polyglottos	Northern mockingbird	None
Passer domesticus	House sparrow	None
Patagioenas fasciata	Band-tailed pigeon	None
Sayornis saya	Say's phoebe	None
Spinus psaltria	Lesser goldfinch	None
Streptopelia decaocto	Eurasian Collared-Dove	None
Sturnella neglecta	Meadowlark	None
Sturnus vulgaris	European starling	None
Tringa flavipes[B]	Lesser yellowlegs[B]	None
Zenaida macroura	Mourning dove	None
Zonotrichia leucophrys	White-crowned sparrow	None
Zenaida macroura	Mourning dove	None
Mammals		
Canis latrans[C]	Coyote[C]	None
Lepus californicus	Black-tailed jackrabbit	None
Spermophilus beecheyi	California ground squirrel	None

[A] Species only observed flying overhead of the Project site.
[B] These species were observed only in areas of open water habitat.
[C] Only sign of this species was observed during the survey.
Species in bold have a Federal or State status designation.
SSC = CDFW Species of Special Concern: "Species of Special Concern" means a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following criteria:

- Is extirpated from California or, in the case of birds, is extirpated in its primary season or breeding role;
- Is Federally listed, but not State listed, as threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed;
- Is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; and/or
- Has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status.

WL = CDFW Watch List: animal taxa that were previously designated as SSC but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

5.2 Vegetation Communities

The Project site was undeveloped other than three small residential areas. Two hills, both approximately 100-feet tall with slopes of 25 percent, were located in the western and eastern portions of the Project site. Two smaller hills, both approximately 50 to 60 feet tall, were located in the southeast and southwest corners of the Project site. The vegetation on the Project site was dominated by non-native herbs; grazing on the Project site has greatly reduced the cover of non-native grasses such as slender oat (*Avena* sp.) and brome (*Bromus* sp.) as compared to surrounding areas that are not grazed. This change in community structure between grazed and not grazed areas was evident along fence lines on the Project boundary, as seen in Photo 12 (Appendix A). One small patch of the non-native Russian thistle (*Salsola* sp.) and a small area (approximately 15,000-square feet) of cut logs and leaf litter were found in the southeast corner of the Project site. Ornamental and non-native trees, such as Pepper trees (*Schinus* sp.), were found on the Project site and 150-meter buffer in residential areas. One erosional feature, with no wetland vegetation or standing water at the time of survey, was located in the northern portion of the Project site (Figure 5). Within the 150-meter buffer, there was another erosional feature that had collected pooled water from a previous rain event. This feature was mapped as open water and is discussed below.

Vegetation communities within the BSA were mapped during the survey (Table 3 and Figure 5). No sensitive natural communities were found in the BSA.

Table 3. Vegetation Communities

Vegetation Communities	Acres within Project Site	Acres within 150-meter Buffer
Avena spp. – *Bromus* spp. *herbaceous semi-natural alliance*	102.6	100.2
Developed	0	4.6
Disturbed	0	0.1
Open Water	0	0.5
Residential	3.4	11
Total	**106.0**	**116.4**

***Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance.** The majority of the BSA was *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance. Although patches of annual grasses were present, this community is regularly grazed by cattle, and grazing has greatly reduced the cover of grasses. Most of the ground cover in this community was composed of non-native filaree (*Erodium* sp.), but patches of cheeseweed (*Malva parviflora*), black mustard (*Brassica nigra*), and greenstem filaree (*Erodium moschatum*) were also present, particularly along hillslopes. Low cover of Russian thistle was also found in the southwest corner the Project site. Numerous small mammal burrows and burrow networks were scattered in the Project site, which could serve as habitat for estivating special-status amphibians (CTS and

CRLF) and BUOW or SJKF. In the 150-meter buffer, a shallow ditch and berm ran along the southern side of W Patterson Pass Road and although the dominant community in this area was *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance, this area also supported other non-native plants including Russian thistle, poison hemlock (*Conium maculatum*), and star thistle (*Centaurea* sp.).

Disturbed. The disturbed area shown in Figure 5 consisted of a graded, dirt pad adjacent to W Patterson Pass Road. Other disturbed areas consisted of narrow, dirt roads, which have not been individually mapped. These areas occurred only within the 150-meter buffer.

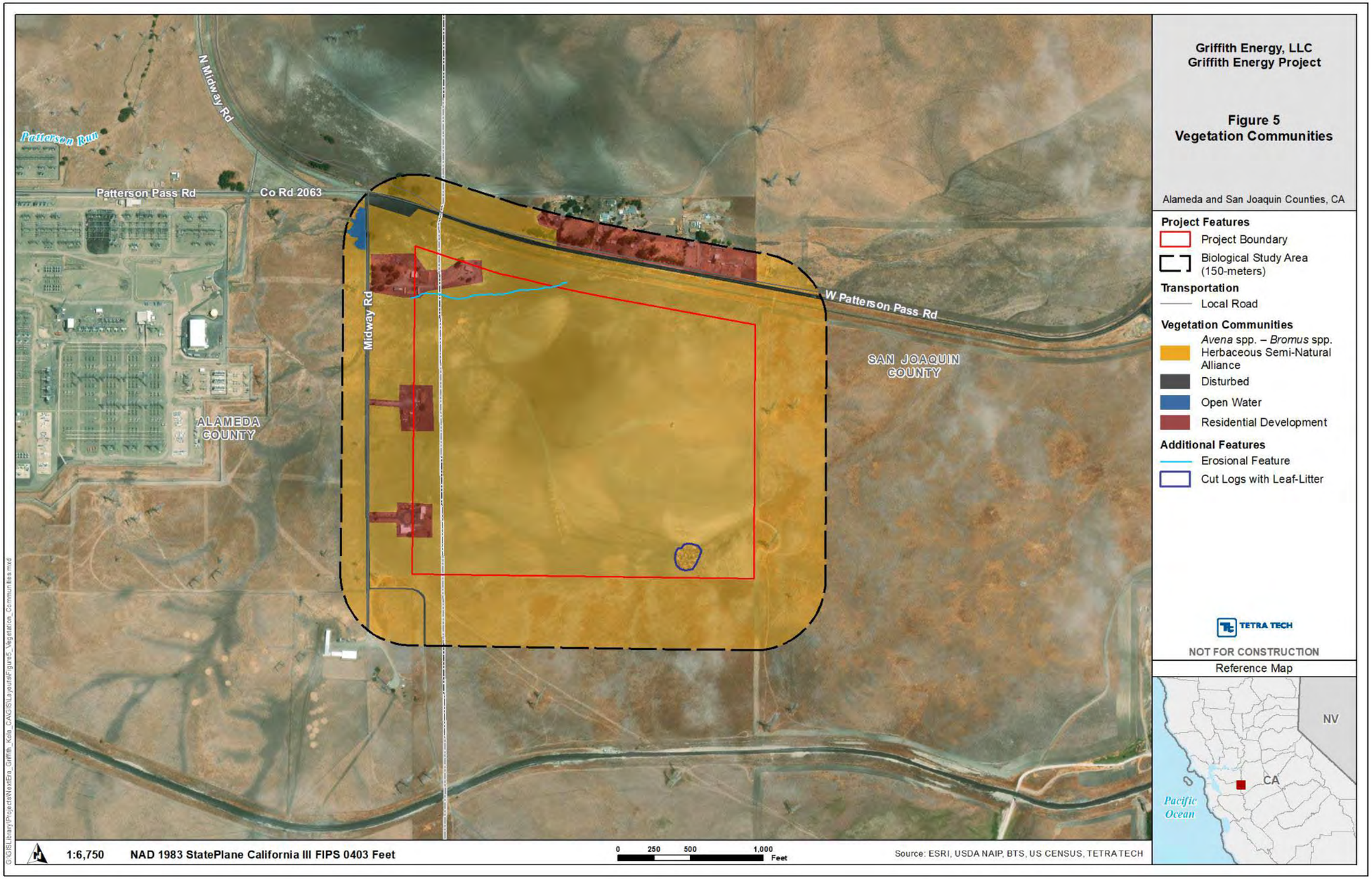
Developed. The developed areas shown in Figure 5 consisted of two paved roads (W Patterson Pass Road and Midway Road).

Open Water. This area only occurs within the 150-meter buffer. At the time of survey, this area held standing water that was a maximum of approximately 0.5 feet deep. This area was bounded by native salt grass (*Distichlis spicata*) and *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance. This pool is unlikely to support special-status amphibians because it is shallow and unlikely to hold water for 4 to 6 months; however, migrating shorebird species were observed using this area and are likely to do so during winter and spring.

Residential Development. There were several residential areas within the Project boundary and 150-meter buffer. All tree species found within the BSA were within these areas. Therefore, areas mapped as residential are the most likely areas within the BSA to host tree-nesting or structure-nesting bird species or nesting raptors.

5.3 Soil

The NRCS web soil survey indicates that the Project Property is comprised of Clear Lake clay drained, 3 to 7 percent slopes (CdB), Diablo clay, 7 to 15 percent slopes (DbC), Calla-Carbona complex, 8 to 30 percent slopes (114), Calla-Carbona complex, 30 to 50 percent slopes (115), Carbona clay loam, 2 to 8 percent slopes (123), and Linne clay loam, 3 to 15 percent slopes (LaC) (USDA NRCS 2021).


N Midway Rd
Patterson Run
Patterson Pass Rd
Co Rd 2063
Midway Rd
W Patterson Pass Rd
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
G:\GIS\Library\Projects\NextEra_Griffith_Kola_CA\GIS\Layouts\Figure5_Vegetation_Communities.mxd
1:6,750
NAD 1983 StatePlane California III FIPS 0403 Feet
0 250 500 1,000 Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS, TETRA TECH
Griffith Energy, LLC
Griffith Energy Project
Figure 5
Vegetation Communities
Alameda and San Joaquin Counties, CA
Project Features
Project Boundary
Biological Study Area (150-meters)
Transportation
Local Road
Vegetation Communities
Avena spp. – Bromus spp. Herbaceous Semi-Natural Alliance
Disturbed
Open Water
Residential Development
Additional Features
Erosional Feature
Cut Logs with Leaf-Litter
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean

5.4 Jurisdictional Wetland Delineation

A search of the Project area using the USFWS NWI and USGS NHD indicated that one riverine area and one freshwater emergent wetland area may occur within the Project boundary (USFWS 2021, USGS 2021). This riverine area was determined to be an erosional feature that was approximately 1 foot wide and 6 inches deep (Figure 5). No ponded or flowing water or evidence of standing water was observed within this feature, and it did not have a defined bed, bank, and channel. The area recorded in the NHD as a freshwater emergent wetland is the same area described in Section 5.2 as an area of cut logs and leaf litter (Figure 5). Where this feature was located, there was no depression or channel to hold water, no standing water present, and no hydrophytic vegetation. Because this area did not have any wetland characteristics, no jurisdictional delineation was conducted. The following text discusses potential jurisdiction of the erosional feature.

5.4.1 U.S. Army Corps of Engineers

In April 2020, the USACE and Environmental Protection Agency (EPA) published the Navigable Waters Protection Rule in the Federal Register, which became effective on June 22, 2020. Following a federal district court decision on August 30, 2021, the USACE and EPA halted implementation of the Navigable Waters Protection Rule and began interpreting Waters of the U.S. consistent with the “pre-2015” regulatory regime (USACE and EPA 2021). Under the pre-2015 regulations, the onsite erosional feature is not considered a Water of the U.S. because it was an ephemeral feature, that is hydrologically isolated from other waters of the U.S. Non-navigable waters that are not relatively permanent would only have USACE jurisdiction if they have a significant nexus to a traditional navigable water. This feature did not connect to downstream traditional navigable waters. There were several factors that were considered in the conclusion that there was no significant nexus. First, there was no connection to the closest natural aquatic feature, Patterson Run, which is approximately 0.5 to 1 mile north-northwest to the Project site. Second, due to the infrequent flow, low volume, and short duration of flow, the feature on the Project site had a minimal capacity to transfer nutrients and organic carbon that support food webs. As confirmed in the field, the ditch did not have a direct physical connection to Patterson Run or any other offsite feature. Based on this evaluation, it was concluded that this feature lacks a significant nexus to traditional navigable waters. Therefore, no Section 404 Waters of the U.S. were identified within the Project site.

5.4.2 Regional Water Quality Control Board

RWQCB and SWRCB Waters of the State include USACE Section 404 jurisdictional wetlands and Waters of the U.S. No areas under USACE jurisdiction were identified at the Project site. Intermittent and ephemeral surface waters may be considered jurisdictional Waters of the State, regardless of a significant nexus, but the feature on the Project site did not have a defined bed, bank, and channel and lacked hydrophytic vegetation and hydric soils. The only hydrology present was surface soil cracks due to recent rains. Therefore, no RWQCB/SWRCB Waters of the State were identified at the Project site.

5.4.3 California Department of Fish and Wildlife

California Fish and Game Code, Sections 1600-1616, regulates activities that would alter the flow, bed, banks, channel, or associated riparian areas of a river, stream, or lake. CDFW jurisdiction over lakes and streams is to the top of bank, or edge of riparian vegetation as determined by edge of dripline. The onsite feature did not meet the criteria for CDFW jurisdiction since it did not have a defined bed, bank, and channel or riparian vegetation.

The findings presented above are subject to verification by the USACE, RWQCB, and CDFW.

5.5 Special-Status Species Habitat Assessment

5.5.1 Rare Plants

All rare plants that have the potential to occur onsite are annuals, and therefore, could not be observed during the time of survey (January). Potential rare plants that occur in vernal pool or wetland habitats would not occur onsite since these habitats were not observed during the survey. The rare plants that could occur onsite are those suited for sandy loam or clay soil types in annual grassland habitat (e.g., *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance). These species along with their Federal status, State status, and/or California Rare Plant Rank (CRPR) are listed in Table 6.

5.5.2 California Tiger Salamander

CTS is a Federally and State threatened species. This species has been previously documented several times, between 2015-2016, 3 miles from the Project site (CDFW 2021a). Ephemeral ponds lasting at least 30 days for breeding and an additional 10 weeks for larval development are necessary for successful breeding (USFWS 2004). Suitable breeding habitat consists of vernal pools, stock ponds, or other ephemeral wetlands that do not contain fish or bullfrog predators. Emergent or submerged vegetation or debris is necessary for egg attachment. Suitable upland habitat includes grazed annual grassland no further than 1.24 miles from a known or potential breeding site (USFWS 2003). Networks of small mammal burrows in upland habitat are necessary for CTS estivation (Pittman 2005). Because the Project site has many California ground squirrel burrows (Figure 6) but no ephemeral sources of water that could provide CTS breeding habitat, the Project site is potential upland habitat only. Although CTS larvae have been recorded in cattle troughs (Alvarez et al. 2021), the concrete cattle trough found onsite is unlikely to be used as breeding habitat because there was no bank or slope for CTS to access the water in the trough and CTS cannot climb over structures greater than 15 inches (Langton 2021). Three California slender salamanders (*Batrachoseps attenuates*) were observed during the survey at the surface of the soil under the cover of logs, indicating that soils may hold enough moisture during the dry season to support estivating amphibians.

5.5.2.1 Assessment of Barriers to California Tiger Salamander Migration

An assessment was conducted to analyze potential barriers to CTS migration between potential breeding ponds/pools and the Project site. The nearest known breeding site is 2 miles to the southwest of the Project site; migration from this area was not considered in the analysis because it is further than 1.24 miles from the Project site. A total of six aquatic features within 1.24 miles of the Project site were visited. Three additional aquatic features that could serve as potential breeding pools were identified within 1.24 miles but could not be visited because they are on private land. Out of the six aquatic features visited, only one potential CTS breeding pond was identified, which was 1 mile from the Project site (Pool 1, Photo 10, Appendix A). A map of potential breeding pools and barriers is provided in Figure 7.


Patterson Pass Rd
Co Rd 2063
W Patterson Pass Rd
Midway Rd
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
1:4,250
NAD 1983 StatePlane California III FIPS 0403 Feet
0
250
500
1,000
Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS, TETRA TECH
G:\GIS\Library\Projects\NextEra_Griffith_Kcla_CA\GIS\Layouts\Figure5_Potential_Special_Status_Species_Hab.mxd
Griffith Energy, LLC
Griffith Energy Project
Figure 6
Locations of Potential Special-Status Species Habitat
Alameda and San Joaquin Counties, CA
Project Features
Project Boundary
150-meter Buffer
Transportation
Local Road
Locations of Potential Special-Status Species Habitat
Potential Underground California Tiger Salamander Refugia
Potential Burrowing Owl or San Joaquin Kit Fox Burrow
Potential Burrowing Owl Burrow
*While these features represent areas where burrows and burrow surrogates were photographed in the field on 01/11 and 01/12/2022, CTS burrows and burrow surrogates observed on-site are not limited to the points seen on this figure.
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean

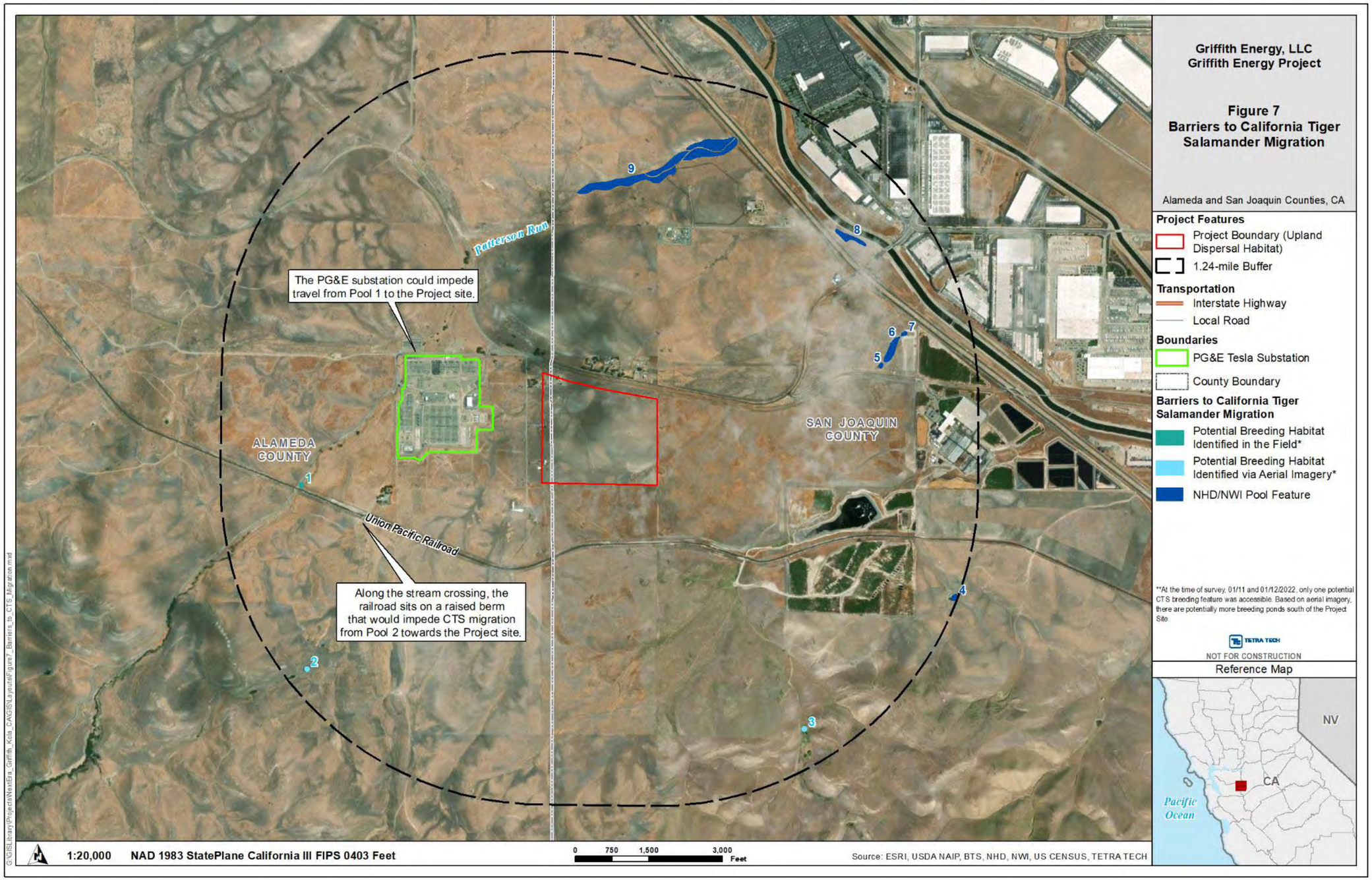

Griffith Energy, LLC
Griffith Energy Project
Figure 7
Barriers to California Tiger Salamander Migration
Alameda and San Joaquin Counties, CA
Project Features
Project Boundary (Upland Dispersal Habitat)
1.24-mile Buffer
Transportation
Interstate Highway
Local Road
Boundaries
PG&E Tesla Substation
County Boundary
Barriers to California Tiger Salamander Migration
Potential Breeding Habitat Identified in the Field*
Potential Breeding Habitat Identified via Aerial Imagery*
NHD/NWI Pool Feature
**At the time of survey, 01/11 and 01/12/2022, only one potential CTS breeding feature was accessible. Based on aerial imagery, there are potentially more breeding ponds south of the Project Site.
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
The PG&E substation could impede travel from Pool 1 to the Project site.
Along the stream crossing, the railroad sits on a raised berm that would impede CTS migration from Pool 2 towards the Project site.
Patterson Run
Union Pacific Railroad
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
1
2
3
4
5
6
7
8
9
1:20,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 750 1,500 3,000
Feet
Source: ESRI, USDA NAIP, BTS, NHD, NWI, US CENSUS, TETRA TECH
G:\GIS\Library\Projects\NextEra_Griffith_Kola_CA\GIS\Layouts\Figure7_Barriers_to_CTS_Migration.mxd

Table 4 describes potential CTS breeding habitat within 1.24 miles of the Project site.

Table 4. California Tiger Salamander Potential Breeding Pools

Pool Number	Pool Location	Survey Results
1	Approximately 1 mile southwest from the Project site, 30 feet east of Patterson Pass Road	This potential breeding pool was identified in the field. It held approximately 2 feet of standing water at its deepest point (Photo 10, Appendix A). The pool had emergent vegetation and is potentially used by grazing cattle. This was determined to be a potential breeding pool.
2	Approximately 1.2 miles southwest from the Project site, south of the Union Pacific Railroad	This potential breeding pool was identified on aerial imagery. At the time of survey, this pool could not be accessed because it is located on private land.
3	Approximately 1.2 miles southeast from the Project site, south of the Union Pacific Railroad	This potential breeding pool is part of the San Joaquin County ponds spatial database (San Joaquin County Community Development Department 2022). At the time of survey, this pool could not be accessed because it is on private land.
4	Approximately 1.2 miles east from the Project site, south of the Union Pacific Railroad	This feature is from the NWI database (USFWS 2021). At the time of survey, this pool could not be accessed because it is on private land.
5	Approximately 0.9 miles east from the Project site, adjacent to Van Nicolo Road	This feature is from the NHD database (USGS 2021). This pool had 100 percent cover by bulrush (*Scripus* sp.) and held no surface water at the time of survey. This feature is unlikely to provide breeding habitat for CTS since it is not preferred vernal pool habitat and supports dense bulrush that would likely inhibit its use by CTS.
6	Approximately 1 mile east from the Project site, between Highway 580 and Van Nicolo Road	This feature is from the NWI spatial database (USFWS 2021). There was no standing water present during the survey despite recent rains that had inundated other ponded features near the Project site. This feature is a wash and is unlikely to support pooling water. This feature is not a potential breeding pool.
7	Approximately 1 mile east from the Project site, between Highway 580 and Van Nicolo Road	This feature is from the NWI database (USFWS 2021). There was no standing water present during the survey despite recent rains that had inundated other ponded features near the Project site. This feature is a wash and is unlikely to support pooling water. This feature is not a potential breeding pool.
8	Approximately 1 mile northeast of the Project site, between Highway 580 and the California Aqueduct	This feature is from the NWI database (USFWS 2021). Although this site may have supported a pool in the past, it is now a highly disturbed road right-of-way area and is unvegetated. This feature is not a potential breeding pool.
9	Approximately 1 mile north of the Project site, adjacent to Highway 580	This feature is from the NWI database (USFWS 2021). There was no standing water present during the survey despite recent rains that had inundated other ponded features near the Project site. This feature is a wash and is unlikely to support pooling water. This feature is not a potential breeding pool.

Two types of potential CTS barriers were identified within the 1.24-mile assessment radius: high-density development and steep slopes without passages. A previous study conducted by USGS indicates that migrating CTS can only successfully cross through a physical barrier if there are passages at least every 40 meters along the barrier (Brehme et al. 2021). Slopes greater than 14 degrees are considered barriers to CTS movement (Pittman 2005); the only exception would be if passages are present. Cattle fencing and most paved roads are not considered barriers to upland dispersal (USFWS 2003). Table 5 describes specific barriers and the pools that would be affected.

Table 5. Potential Barriers to California Tiger Salamander Migration

Potential Barrier	Location	Pool Affected by Barrier	Impact to California Tiger Salamander Migration
PG&E Tesla Substation	Approximately 0.3 miles west of the Project site	1	The substation has a raised concrete foundation that covers approximately 75 acres within the 1.24-mile buffer. Since this is a type of high-density development, it could affect CTS migration depending on which direction CTS move from Pool 1. If CTS meander northeast from Pool 1, they would reach this barrier. However, the substation can be avoided by CTS traveling from Pool 1 if they migrate directly east towards the Project site. Therefore, this substation is a partial barrier to CTS migration.
Union Pacific Railroad	Approximately 0.3 miles south of the Project site	2	The railroad acts as a barrier in areas where it is on a raised berm. The berm is at an approximately 33 percent slope and occurs along the ephemeral stream crossing from Pool 2 towards the Project site (Figure 7). Therefore, CTS migration from Pool 2 would be impeded. However, CTS migration from Pools 3 and 4 would not be impeded by the railroad because dispersal from the southeast portion of the 1.24-mile buffer would not require crossing slopes greater than 14 percent.

Lack of development south of the Project site has resulted in relatively unimpeded potential CTS migration from most potential breeding ponds in that area. Specifically, migration from Pool 1 is affected by one partial barrier, dispersal from Pool 2 is affected by one barrier, and Pools 3 and 4 have no barriers to CTS migration. Based on this assessment, CTS could migrate through the Project site.

5.5.3 California Red-Legged Frog

CRLF is a Federally threatened species and a CDFW Species of Special Concern. The Project site is not located within CRLF Critical Habitat; however, the Project site provides potential estivation habitat in the form of a perennial cattle trough and California ground squirrel burrows. Ideally, breeding habitat has emergent vegetation and still or slow-moving water at 2-foot depth or deeper. Water must last a minimum of 4-6 months for breeding and metamorphosis. This species is also known to use stock ponds and cattle troughs for breeding (Hemingway 2005). Ideal upland habitat are creek, seeps, or freshwater-spring corridors with riparian vegetation, but this species can occupy different types of upland habitats, including annual grassland (e.g., *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance). CRLF upland habitat is typically located within 1 mile of a breeding site. The Project site is not within a 1-mile distance of known CRLF breeding habitat.

Although there are no known breeding ponds within a 1-mile distance from the Project site (CDFW 2021a), there are two potential breeding ponds within 1 mile of the site. One pond is covered in bulrush (*Scripus* sp.) and is located 120 feet north of Via Nicolo Road, approximately 1 mile east of the Project site (Pool 5, Figure 7). If this pond holds water, then it could provide potential breeding habitat for CRLF. Pool 1 may also provide potential breeding habitat for CRLF but is located at the maximum dispersal distance for this species of 1 mile (Figure 7). Based on the NWI search and aerial imagery, there are at least seven additional cattle ponds that hold water through August, approximately 1.5 miles to the west and southwest of the Project site. The Project site is also surrounded by four ephemeral creeks within 0.5 to 1 mile which could facilitate safe dispersal for CRLF from these potential breeding sites to the Project site. CNDDB records have previously documented one breeding pond 1.5 miles northwest of the Project site in 2004 (CDFW 2021a). CNDDB records also document this species 2 miles from the project site in 1996, 2001, 2004, and 2008 (CDFW 2021a). In addition, within 3 to 5 miles from the Project site, the CNDDB has records of eight breeding ponds (CDFW 2021a). About half of these sites are within Corral Hollow Creek; however, dispersal from this Creek to the Project site is unlikely because CRLF would have to migrate over a steep elevation

gain (approximately 500 feet) and this species does not appear to use slopes greater than 30-40 degrees (USFWS 2000). Considering these factors, the Project site may provide upland habitat that could be used by CRLF.

5.5.4 Special-Status Reptiles

California glossy snake, San Joaquin coachwhip, and coast horned lizard are each a CDFW Species of Special Concern. These reptiles inhabit grassland habitats (e.g., *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance). California glossy snake is a primarily fossorial species and is found in areas with sandy and loose soils. The most recent sighting was 3 miles from the Project site in 2010 (CDFW 2021a). The closest occurrence is one mile north of the Project site in 1994 (CDFW 2021a). The San Joaquin coachwhip inhabits open, valley grassland habitats with sparse shrub cover. They require small mammal burrows for egg-laying and refuge from extreme temperatures. The most recent sighting was 5 miles from the Project site and the nearest sighting from the Project site was 0.5 mile in 1996 (CDFW 2021a). The coast horned lizard frequents a wide variety of habitats but is most common in lowlands along sandy washes with scattered low bushes. The most recent sighting of this species was 5 miles from the Project site in 2003 (CDFW 2021a). Due to the lack of sandy substrates for burrowing and suitable prey base, the coast horned lizard does not have habitat on the Project site. The Project site provides potential habitat for the California glossy snake and San Joaquin coachwhip.

5.5.5 Burrowing Owl

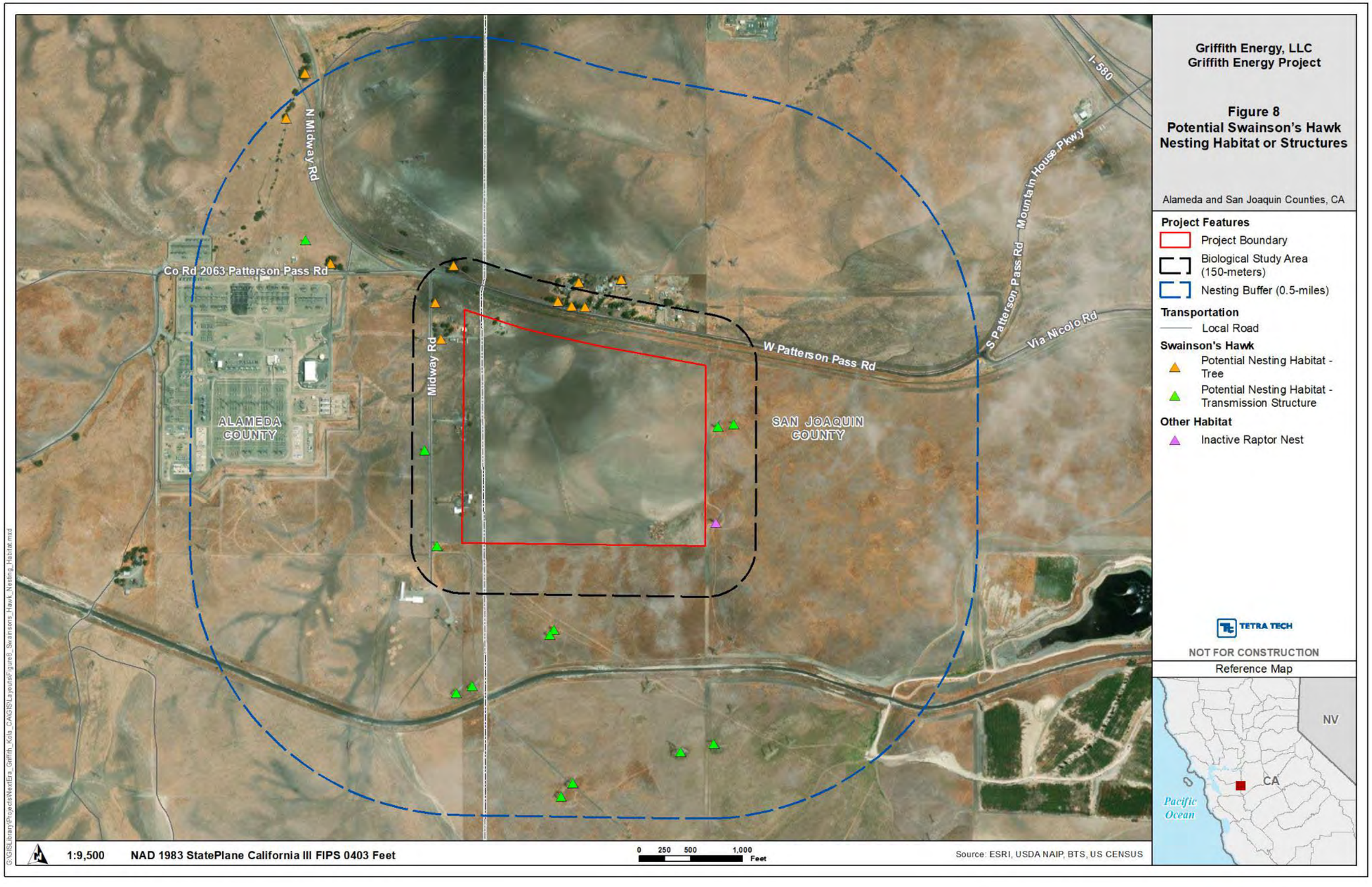
BUOW is a CDFW Species of Special Concern. BUOWs breed and live in burrows and use coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean Desert scrub, Sonoran Desert scrub, and valley and foothill grassland habitats as well as agricultural areas or any open dry area with low vegetation. The Project site is in the known distributional range of the BUOW, and the site contains potentially suitable BUOW habitat due to low-growing vegetation and abundance of small mammals found during the field survey. In addition, this species has been previously documented on the Project site in June 2007 (CDFW 2021a). A total of eight potentially suitable burrows, likely dug by California ground squirrels, and one burrow surrogate (i.e., culvert) were found within the Project site during the survey. These burrows had entrance diameters greater than approximately 4 inches and were above 60 inches in depth, and therefore, were considered potentially suitable for BUOW. No BUOW sign was observed at the potential burrows or burrow surrogates.

5.5.6 Swainson's Hawk

Swainson's hawk is listed as a State threatened species and the San Joaquin Valley hosts the majority of California's breeding pairs. This species nests primarily in riparian or isolated trees between March 1 and September 15. Although no Swainson's hawks were observed during the general biological survey, adult Swainson's hawks are not expected to be in the San Joaquin Valley in January.

Trees within the Project boundary are not suitable nesting habitat for Swainson's hawk or other raptors. Although trees in the BSA met the height and foliage cover requirements for Swainson's hawk nesting and are considered potential habitat, these residential areas undergo high levels of disturbance (e.g., vehicle traffic, dogs, human activity). Adjacent areas in the 0.5-mile buffer undergo comparably less disturbance. The potential Swainson's hawk and raptor nesting habitat within the Project site and 0.5-mile buffer consisted of over ten transmission towers and numerous 8 to 10-foot trees of various species in residential areas and in stands along Patterson Run. There is no suitable shrub-nesting habitat for Swainson's hawk within the Project site or 150-meter buffer. Altogether, there are over twenty features recorded within the 0.5-mile buffer for Swainson's hawk nesting (Figure 8). One inactive nest, likely belonging to common raven (*Corvus corax*) or a raptor species, was found in a transmission tower approximately 100 feet from the

Project boundary (Figure 8). Raptor species observed during the survey include red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and ferruginous hawk (*Buteo regalis*).


Griffith Energy, LLC
Griffith Energy Project
Figure 8
Potential Swainson's Hawk Nesting Habitat or Structures
Alameda and San Joaquin Counties, CA
Project Features
Project Boundary
Biological Study Area (150-meters)
Nesting Buffer (0.5-miles)
Transportation
Local Road
Swainson's Hawk
Potential Nesting Habitat - Tree
Potential Nesting Habitat - Transmission Structure
Other Habitat
Inactive Raptor Nest
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
N Midway Rd
Co Rd 2063 Patterson Pass Rd
Midway Rd
W Patterson Pass Rd
S Patterson Pass Rd
Mountain House Pkwy
Via Nicolo Rd
I-580
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
1:9,500
NAD 1983 StatePlane California III FIPS 0403 Feet
0 250 500 1,000 Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS
G:\GIS\Library\Projects\NextEra_Griffith_Kola_CA\GIS\Layouts\Figure8_Swainsons_Hawk_Nesting_Habitat.mxd

5.5.7 Other Special-Status Birds

During the survey, two loggerhead shrikes, one ferruginous hawk, and one California horned lark were observed. Loggerhead shrike is a CDFW Species of Special Concern, and the ferruginous hawk and California horned lark are CDFW Watch List species. The two loggerhead shrikes were observed foraging in the southern corner of the Project site, the ferruginous hawk was observed soaring overhead, and the California horned lark was heard calling in the southern portion of the site. Each of these species have been previously documented within 5 miles of the Project site (CDFW 2021a). While the ferruginous hawk does not nest in the San Joaquin Valley, the loggerhead shrike may nest in the trees within the residential areas in the 150-meter buffer, and California horned larks may nest in areas of the Project site and 150-meter buffer mapped as *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance habitat.

5.5.8 Nesting Birds

Native birds and their nests are protected under the Federal Migratory Bird Treaty Act. Ground-nesting, cavity-nesting, shrub-nesting, and tree-nesting species were observed onsite (Table 2). Ground-nesting birds can nest in areas mapped as *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance, cavity and structure-nesting birds can nest in the areas mapped as residential, and tree nesting species can nest in the areas mapped as residential or areas mapped in the 150-meter buffer as suitable nesting for Swainson's hawk (Figure 8).

One inactive raptor nest was found in the 150-meter buffer area. Trees that could support raptor nesting are located in the residential areas of the Project site, but it is unlikely that nesting will occur within the residential areas of the Project site because of the level of human activity (e.g., noise disturbance, light pollution). There are many suitable natural and man-made features for raptor nesting within the 150-meter buffer (Figure 8).

5.5.9 San Joaquin Kit Fox

The SJKF is Federally listed as endangered and State listed as threatened. Potential SJKF dens based on the USFWS *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011) are defined as described below.

- Any suitable underground hole that has entrances of appropriate dimensions (5 to 8 inches in diameter):
    - Any den or burrow of another species (e.g., coyote, badger, red fox, or California ground squirrel) that has appropriate dimensions for kit fox use.
    - Atypical dens such as pipes, culverts, canal banks, and other man-made features.
- Typical kit fox dens may also include the following features (USFWS 2011):
    - Kit fox tracks, scat, or prey remains in the vicinity of the den
    - Dirt berms adjacent to the entrances.
    - Matted vegetation adjacent to den entrances.

There have been 6 recorded occurrences of SJKF within 5 miles in all directions of the Project site, but records are prior to 2000 (CDFW 2021a). Within the BSA, there was an abundant prey base and friable soils to support burrows/dens. CNDDB records of SJKF have been previously documented on the Project site in 1989 (CDFW 2021a). However, there are no occurrences within the past 20 years in the CNDDB (CDFW 2021a). During the general biological survey, three potential burrows which met the size requirements for SJKF were observed on the Project site and one culvert was observed in the BSA (Figure 6). No SJKF sign was seen during the survey and the burrows observed originated from other small mammal species. Representative potential dens and burrows found during the surveys that could be used

by the SJKF are shown in Figure 6. Photos of these potential dens and burrows are included in Appendix A.

5.5.10 American Badger

American badger is a CDFW Species of Special Concern. This species has been previously recorded 1 mile northwest of the Project site in 2014 and 3 miles from the Project site in 2015 (CDFW 2021a). This species is a habitat generalist and this species could forage and reside in grazed grasslands of the San Joaquin valley. The Project site and 150-meter buffer contain friable soils for dens and an abundant prey base of small mammals. While no American badger sign or dens were found during the survey, this species could forage and reside within the Project site and the 150-meter buffer.

5.5.11 Special-status Species with Potential to Occur within the Project Site

Based on the results of the general biological survey, the potential to occur for each special-status plant and wildlife species has been reviewed and updated and is provided in Table 6. Species with no habitat on the Project site or for which the site is not in their distributional range are not included in the table.

Table 6. Special-Status Species with Potential to Occur within the Project Site

Scientific Name	Common Name	Federal Status	State Status / Other Status	Habitat	Potential to Occur*
Plants					
Blepharizonia plumosa	Big tarplant	None	CRPR 1B.1	Dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. Foothill woodland, chaparral, valley grassland at elevations of less than 500 meters. Blooming period is from Jul-Nov.	**High.** This species has been previously observed within the 150-meter buffer west of the Project site in 2003 (CDFW 2021a). There is also a recorded observation 1.5 miles east of the Project site from 2002 (CDFW 2021a). Because there is a previous occurrence of a big tarplant population across the road from the Project site and suitable habitat is present on the site, the probability for this species to occur on the site is high.
Tropidocarpum capparideum	Caper-fruited tropidocarpum	None	CRPR 1B.1	Valley grassland at elevations of less than 400 meters. Blooming period is from Mar-Apr.	**High.** CNDDB search results show that one population was observed within the 150-meter buffer (on the northwest portion) in 1987 (CDFW 2021a). This population extended about 1 mile along Midway road (this road makes up the western boundary of the project site). The most recent occurrence is from 2019, 4 miles from the Project site (CDFW 2021a). The Project site fulfills the habitat requirements of this species and supports species within the same family, Brassicaceae (e.g., Shepard's purse). Therefore, the potential for this species to occur on the Project site is high.

Scientific Name	Common Name	Federal Status	State Status / Other Status	Habitat	Potential to Occur*
Amphibians					
Ambystoma californiense	California tiger salamander	Threatened	Threatened	Grassland, savanna, or open woodland habitats. Can occur in upland areas with underground refuges (e.g., small mammal burrows) within 1.24 miles from a breeding pond.	**Medium.** This species lives in vacant or mammal-occupied burrows, such as California ground squirrel burrows, during the estivation period (March-November). They also require vernal pools or other seasonal water sources for breeding. Within the 1.24-mile radius assessed for potential breeding ponds/pools, four potential breeding pools exist (Table 4). One pool was visited and determined to be a potential CTS breeding pool and three potential breeding habitats could not be observed during the survey because they occur on private property. The nearest known breeding site is 2 miles southwest from the Project site (CDFW 2021a). CNDDB search results show that there are additional occurrences 3 miles east of the project site from 2015 and 2016, and several occurrences found along a road 3 miles north of the Project site in 2016 (CDFW 2021a). Ground squirrel burrows in low-sloping areas are present on the Project site and provide upland refuges for CTS. Also, the soils on site are moist enough to support burrowing amphibians, such as the slender salamanders observed during the survey. While the Project site and surrounding properties within the 1.24-mile radius undergo annual grazing, this is generally thought to be compatible with successful use by CTS (USFWS 2004). Overall, lack of development south of the Project site has resulted in relatively unimpeded potential CTS migration from most potential breeding ponds in that area. Therefore, the potential for this species to utilize the Project site as upland dispersal habitat is medium. CTS would not use the Project site as breeding habitat given the lack of aquatic habitat onsite.

Scientific Name	Common Name	Federal Status	State Status / Other Status	Habitat	Potential to Occur*
Rana draytonii	California red-legged frog	Threatened	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Breeding habitat consists of emergent vegetation and still or slow-moving water at 2-foot depth or deeper. Upland habitat can vary; In grasslands, CRLF seek out upland habitat in seeps or springs and small-mammal burrows.	**Medium.** This species requires 11-20 weeks of permanent water for larval development and access to estivation habitat. This species has been previously recorded several times within 1.5 to 2 miles from the Project site from 2001 to 2004 (CDFW 2021a). The most recent occurrence was in 2016, 3 miles north of the Project site (CDFW 2021a). The Project site and surrounding 150-meter buffer could be utilized as upland habitat, though the site and surrounding buffer do not provide breeding habitat. There are two pools within a 1-mile radius from the Project site which could serve as potential breeding habitat (Table 4). Potential for this species to utilize the Project site as upland dispersal habitat is medium. CRLF would not use the Project site as breeding habitat given the lack of aquatic habitat onsite.
Reptiles					
Arizona elegans occidentalis	California glossy snake	None	SSC	Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	**Medium.** This species has been previously documented approximately 1 mile from the Project site in 1984 (CDFW 2021a). The most recent record is 3 miles from the Project site in 2010 (CDFW 2021a). This species inhabits grassland habitat that is present on the Project site (e.g., *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance). Therefore, potential to occur onsite is medium.
Masticophis flagellum ruddocki	San Joaquin coachwhip	None	SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley.	**Medium.** San Joaquin coachwhip has been recorded 0.5 mile from the Project site in 1996 (CDFW 2021a). The most recent occurrence is 5 miles from the Project site in 2004 (CDFW 2021a). This species requires small mammal burrows, such as California ground squirrel burrows, for refuge and egg-laying sites. Abundant prey and refuge in the form of small mammal burrows is available on the Project site. Therefore, the potential for this species to occur is medium.

Scientific Name	Common Name	Federal Status	State Status / Other Status	Habitat	Potential to Occur*
Phrynosoma blainvillii	Coast horned lizard	None	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.	**Low.** This species has been previously documented 0.5 mile south from the Project site in 1992 and 5 miles from the Project site in 2003 (CDFW 2021a). Because the coast horned lizard requires bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects, it is unlikely to be found on the Project site since these features were not present. Therefore, potential for the coast horned lizard to occur on the Project site is low.
Birds					
Ammodramus savannarum	Grasshopper sparrow	None	SSC	Dense grasslands on rolling hills, lowland plains, in valleys, and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting.	**Low.** The grasshopper sparrow has been previously documented 7 miles south of the Project site in 2016 (CDFW 2021a). The project site hosts non-native forbs and is annually grazed, so the preferred habitat for this species is not available on the Project site. Therefore, potential for this species to occur onsite is low.
Asio flammeus	Short-eared owl	None	SSC	Found in swamp lands, both fresh and salt, lowland meadows, and irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion.	**Low.** The short-eared owl has been previously documented 3 miles south of the Project site in 1995, which is the only occurrence within a 5 miles radius from the Project site (CDFW 2021a). There are areas of tule and bulrush patches within 1.5 miles of the Project site which could provide daytime seclusion for this species; however, this species is unlikely to use the Project site for nesting because the dominant vegetation is annually grazed grassland and low-lying forbs. Therefore, potential for this species to occur on the Project site is low.

Scientific Name	Common Name	Federal Status	State Status / Other Status	Habitat	Potential to Occur*
Athene cunicularia	Burrowing owl	BCC	SSC	Coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean Desert scrub, Sonoran Desert scrub, and valley and foothill grassland.	**High.** This species has been previously documented in the southwest corner of the Project site in June 2007 (CDFW 2021a). The most recent occurrences are also the two closest occurrences: two observations 1 mile from the Project site in 2012 and 2014 (CDFW 2021a). Within a 5-mile radius of the Project site, the CNDDB has 44 previous occurrences of this species (CDFW 2021a). Although no BUOW sign was found on the Project site at the time of survey, several burrow networks which could support BUOW were found onsite. Therefore, potential to occur is high.
Buteo regalis	Ferruginous hawk	BCC	WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	**Observed.** This species was observed flying overhead over the Project site during the survey. This species is known to frequent areas of the San Joaquin valley where burrowing small mammals are present during the winter season. Due to the number of California ground squirrels present on the Project site, this species may use this area to hunt prey. The ferruginous hawk does not nest in the San Joaquin Valley and therefore, will not nest in the vicinity of the Project site.
Buteo swainsoni	Swainson's hawk	BCC	Threatened	Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland.	**Low in Project site and medium in 0.5-mile buffer.** This species has been previously documented approximately 4 miles from the Project site in 1994 (CDFW 2021a). The most recent occurrence was of a nesting pair 4.5 miles east of the Project site in 2016 (CDFW 2021a). Tree stands in Patterson run are suitable for Swainson's hawk nesting. Transmission towers surround the Project site in all directions and are also suitable sites for nesting (Figure 8). In addition, trees suitable for nesting are found north of the Project site, on the borders of residential areas. This species could use the Project site as foraging habitat, but there is a low potential for this species to nest in the Project site due to the level of human activity near the only trees on the Project site. Therefore, there is medium potential for this species to occur in the 0.5-mile buffer and low potential for this species to occur in the Project area.

Scientific Name	Common Name	Federal Status	State Status / Other Status	Habitat	Potential to Occur*
Circus hudsonius	Northern harrier	None	SSC	Open wetlands, wet meadows, pastures, old fields, freshwater and brackish marshes, grasslands, agricultural fields, shrublands and riparian corridors.	**Medium.** This species has been previously documented along the California Aqueduct 2 miles northeast from the Project site (CDFW 2021a). This is the only record within a 5-mile radius of the Project site. Harriers prefer undisturbed grasslands for nesting (Herkert et al.1999), but may also use lightly disturbed sites, such as lightly grazed grassland or crop fields (Kaufman 2005). This species could use the Project site as foraging habitat and use the adjacent 150-meter buffer as nesting habitat. Therefore, potential for this species to occur onsite is medium.
Eremophila alpestris actia	California horned lark	None	WL	Short-grass prairie, mountain meadow, open coastal plain, fallow grain field, and alkali flat.	**Observed.** This species was heard calling on the Project site during the survey and has five occurrences within 5 miles from the Project site; the most recent recorded occurrence from the CNDDB is 5 miles from the Project site in 2007 (CDFW 2021a).
Lanius ludovicianus	Loggerhead shrike	BCC	SSC	Broadleaved upland forest, desert wash, Joshua tree woodland, Mojavean Desert scrub, pinon and juniper woodlands, riparian woodland, and Sonoran Desert scrub.	**Observed.** This species has been previously recorded within 3 to 5 miles of the Project site and was observed on the Project site during the survey (CDFW 2021a). This species requires trees and shrubs for nesting; therefore, it would only nest in the residential areas of the Project site.
Mammals					
Taxidea taxus	American badger	None	SSC	Grasslands, savannas, openings in desert scrub, and grassy mountain meadows near timberline.	**Medium.** This species has been previously documented 1 mile northwest of the project site in 2014 (CDFW 2021a). The most recent occurrence was 3 miles northwest from the Project site in 2015 (CDFW 2021a). There is the possibility this species could forage and reside on the Project site because of the presence of friable soils for dens and adequate food supplies, and since this species is a habitat generalist. No badger sign or burrows were found during the survey. Therefore, potential to occur onsite is medium.

Scientific Name	Common Name	Federal Status	State Status / Other Status	Habitat	Potential to Occur*
Vulpes macrotis mutica	San Joaquin kit fox	Endangered	Threatened	Grasslands and other sparsely vegetated, shrubland habitats.	**Low.** This species has been previously documented once within the boundary of the project site in 1989 (CDFW 2021a). There have also been 10 occurrences within 5 miles of the project site prior to 2000 (CDFW 2021a). However, there are no occurrences within the past 20 years in the CNDDB, and kit fox is likely either extirpated or occurs at very low levels in this part of its range, as evident by long-term surveys from 2016-2026 just southeast of the Project area on the Contra Costa Water District's 3,000-acre Corral Hollow property. These surveys have not found any SJKF, since occurrences are required to be reported to the CNDDB and they were not found during the literature review (CDFW 2021a). At the time of survey, several burrows potentially suitable for SJKF were observed, but no kit fox sign or characteristic kit fox burrows were found. Therefore, potential for this species to occur on the Project site is low.

* Closest occurrence records are from the CNDDB (CDFW 2021a).
Federally listed endangered: an animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.
State listed endangered: "endangered species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (Fish and Game Code § 2062).
State listed threatened: "threatened species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts (Fish and Game Code § 2067).
BCC = Federal Bird of Conservation Concern: The Birds of Conservation Concern 2021 List identifies migratory and non-migratory bird species (beyond those already designated as Federally threatened or endangered) that represent the USFWS' highest conservation priorities.
FP = CDFW Fully Protected: the classification of "Fully Protected" was California's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Most Fully Protected species have also been listed as threatened or endangered species under the California Endangered Species Act. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for necessary scientific research, relocation of bird species for the protection of livestock, or if they are a covered species in a Natural Community Conservation Plan (Fish and Game Code §§ 3511, 4700, 5050, and 5515).

CRPR = California Rare Plant Rank:
1B = Plants rare, threatened, or endangered in California and elsewhere.
0.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat).

6 CONCLUSIONS AND RECOMMENDATIONS

The Project site is within the planning area for both the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) and East Alameda County Conservation Strategy (EACCS). The SJMSCP plan area covers all of San Joaquin County except for federally owned lands. A majority (approximately 90%) of the Project site is within the SJMSCP plan area along the western boundary of San Joaquin County. The current Project site plans avoid Alameda County with the exception of the gen-tie line and access road. The eastern boundary of the EACCS plan area follows the Alameda County line. A small portion (approximately 10%) of the Project site is within the EACCS plan area along the eastern boundary of Alameda County. Additional coordination with the agencies (e.g., CDFW, San Joaquin and Alameda Counties) is recommended to determine if both the SJMSCP and EACCS apply to the Project site or if only one would be used.

The SJMSCP (San Joaquin County 2000) and EACCS (ICF International 2010) provide measures to avoid, minimize, and mitigate impacts on special-status species and sensitive habitats. Both of these plans have been finalized. Projects with anticipated impacts to special-status species that are within San Joaquin County are eligible for incidental take coverage under the SJMSCP and would not require incidental take permits for SJMSCP Covered Species. Conversely, the EACCS is a regional conservation strategy that only provides guidelines and recommended avoidance, minimization, and mitigation measures for focal species and habitats. The EACCS does not provide incidental take permits for special-status species, as is the case in a Habitat Conservation Plan such as the SJMSCP, but rather serves as guidance for project-level permits. Therefore, work within Alameda County would still require project-level incidental take permits if impacts to special-status species are anticipated.

Recommendations from the SJMSCP and EACCS have been incorporated into Section 6.1. All recommendations within this report are preliminary and will be refined during the CEQA process as more details about the Project design and schedule are determined.

6.1 Additional Survey Recommendations

6.1.1 Rare Plants

Two rare plants have the potential to occur on the Project site. Therefore, rare plant surveys are recommended within the Project site. To capture the blooming period for all potential rare plants that could occur, two rare plant surveys are recommended. The first rare plant survey should be conducted in March to April and the second in July to November. The following rare plant species with medium or high potential to occur will be surveyed for during each rare plant survey:

- First Rare Plant Survey (March to April): caper-fruited tropidocarpum (*Tropidocarpum capparideum*).
- Second Rare Plant Survey (July to November): big tarplant (*Blepharizonia plumosa*).

6.1.2 California Tiger Salamander

The Project is not within Critical Habitat of CTS or within 5 miles of an area designated as Critical Habitat (USFWS ECOS 2021). Project applicants have the following two options for CTS (ICF International 2010):

1. Assume CTS presence and mitigate. Mitigation would likely entail habitat enhancement/conservation easement on a protected property since there are no agency-approved mitigation banks in the area.

2. Have a USFWS and CDFW-approved biologist conduct surveys using the 2003 Interim Guidance to determine if CTS are present (USFWS 2003). If CTS are present, the project would proceed with avoidance, minimization, and mitigation measures. If no CTS are present, then no mitigation is necessary, but avoidance and minimization measures may still be required by the agencies since suitable upland habitat is present.

Therefore, it is recommended to assume presence of CTS and mitigate rather than conducting protocol surveys.

No CTS were found during the general biological survey; however, CTS would be overwintering in small mammal burrows at the time of the survey. The Project site contains suitable habitat for CTS and is within the CTS distributional range. If presence is not assumed, to determine the presence/absence of this species on the Project site, a protocol survey would be required (USFWS 2003). A CTS site assessment would be submitted to the USFWS. Upon reviewing the results from the site assessment, USFWS is likely to determine that the Project site contains upland habitat only. At sites that only contain upland habitat and at least one potential breeding pool within 1.24 miles, a one-year drift fence study would be required in the fall and winter, between two consecutive seasons of aquatic larval surveys, to support a negative finding.

6.1.3 Burrowing Owl

The SJMSCP does not specifically require BUOW protocol surveys. As allowed under the SJMSCP, this species may be addressed by implementing pre-construction surveys and avoidance buffers (i.e., 75 meters) during construction if nesting owls are found (San Joaquin County 2000). The EACCS recommends that the CDFW protocol survey is implemented (CDFW 2012). The following summarizes the recommendations and timing for protocol-level BUOW surveys:

- BUOW protocol surveys require that 100 percent of a project site and 150-meter buffer be thoroughly surveyed by walking transects spaced no more than 20 meters apart to look for potential suitable burrows.
- After the burrow transect survey is completed, four breeding season surveys and census of BUOW must be conducted prior to beginning work activities. Nesting season surveys must be conducted between February 15 and July 15, with the first survey occurring between February 15 and April 15 and the last survey occurring between June 15 and July 15. These surveys occur from two hours before sunset to one hour after or from one hour before to two hours after sunrise.
- One winter survey must be conducted between December 1 and January 31 if BUOW are not found during the nesting season survey.

After the surveys are completed, a report documenting the methods and results must be submitted to the CDFW. After it is determined which of the two plans applies to the Project, that plan should be followed for BUOW as described above.

6.1.4 Additional Requirements

Pre-construction surveys are recommended prior to ground disturbance or vegetation clearance to avoid impacts to special-status species that have potential to occur on the Project site. Pre-construction surveys would occur 7 to 30 days prior to construction activities (e.g. equipment staging, potholing) depending on species. Pre-construction surveys would be needed for CRLF, Swainson’s hawk, nesting birds (including raptors), SJKF, and American badger. Pre-construction surveys for SJKF are recommended to include the use of motion-activated cameras, which would be setup and monitored 14 to 30 days prior to construction activities. The recommended density of camera placement is equal to about two camera stations in an average SJKF home range, or about 1 camera station per 2.9 square kilometers (Westall and Cypher 2017).

No pre-construction surveys are required for California glossy snake or San Joaquin coachwhip. Minimization measures for these special-status reptiles would be included in the CEQA document and reviewed by regulating agencies. If special-status species are observed during any protocol or pre-construction surveys, avoidance buffers specific to that species would be implemented and a biological monitor may be required during ground-disturbance activities. Additional consultations with agencies may also be required, depending on which species is observed.

Table 7 summarizes the additional surveys recommended for the SJMSCP and EACCS plan areas and the schedule for each. If there are differences between the two plans, the option that is recommended is highlighted in the table.

Completing protocol surveys for CTS requires two consecutive years of surveys with sufficient rainfall (USFWS 2003). Therefore, coordination with the USFWS and San Joaquin County is recommended to assume presence of CTS mitigate for it. For BUOW, the SJMSCP only requires pre-construction surveys. Recommendations for the other species listed in Table 7 are similar regardless of whether the SJMSCP or EACCS applies.

Table 7. Additional Recommended Surveys

Species	Recommendation	Survey Schedule
Plants		
Big tarplant	Rare plant survey	July-November
Caper-fruited tropidocarpum	Rare plant survey	March-April
Amphibians		
California tiger salamander	Assume presence and mitigate	Protocol surveys are not required if presence is assumed.
Birds		
Burrowing owl	Pre-construction survey	**Nesting season surveys:** February 15 - July 15 **Winter season survey:** December 1- January 31 **Pre-construction survey:** conduct within 14 days prior to the beginning ground and/or vegetation disturbing activities
Additional Requirements		
California red-legged frog	Pre-construction survey	**Pre-construction survey:** conduct no more than 7 days prior to construction activities.
Swainson's hawk	Pre-construction survey	**Pre-construction survey:** conduct no more than 10 days prior to construction activities that occur between March 1 to September 15.
Nesting birds (including raptors)	Pre-construction survey	**Pre-construction survey:** conduct no more than 10 days prior to construction activities that occur between February 1 to September 15.
San Joaquin kit fox / American Badger	Pre-construction survey	**Pre-construction survey:** conduct 14-30 days prior to beginning ground and/or vegetation disturbing activities.
California glossy snake, San Joaquin coachwhip	Minimization measures	Will be addressed by general wildlife pre-construction surveys/measures that are developed in the CEQA document.

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Appendix A: Photographs

Photograph 1	
Date: January 2022	
Notes: The southwestern portion of the Project site. Grazing has reduced the overall cover of grasses. **Location:** Project Site Southwest **Aspect:** South	

Photograph 2	
Date: January 2022	
Notes: The tallest hill on the Project site is at 500 foot elevation. The hill also has a non-functioning weather station and billboard on top. **Location:** Project Site West **Aspect:** East	

Photograph 3	
Date: January 2022	
Notes: The disturbed pad in the 150-meter buffer and a residential area on the Project site. **Location:** Project Site North **Aspect:** Southeast	

Photograph 4	
Date: January 2022	
Notes: The erosional feature mapped as Open Water. **Location:** 150-meter Buffer **Aspect:** Northwest	

Photograph 5	
Date: January 2022	
Notes: View of the erosional feature covered in herbaceous plants. **Location:** Project Site North **Aspect:** East	

Photograph 6	
Date: January 2022	
Notes: View of the erosional feature ending at the road. **Location:** Project Site West **Aspect:** West	

Photograph 7	
Date: January 2022	
Notes: This photo shows representative burrowing by California ground squirrels on the Project site. **Location:** Project Site Center **Aspect:** East	

Photograph 8	
Date: January 2022	
Notes: Burrow networks with openings greater than 4 inches provide habitat for burrowing owl and upland habitat for California red-legged frog and California tiger salamander. **Location:** Project Site Center	

Photograph 9	
Date: January 2022	
Notes: A cattle trough with perennial water may provide moisture to amphibians using the Project site as upland habitat. **Location:** Project Site North **Aspect:** North	

Photograph 10	
Date: January 2022	
Notes: Potential California red-legged frog or California tiger salamander breeding habitat within 1.24 miles from the Project site. **Location:** 1.24-mile Buffer Southwest **Aspect:** East	

Photograph 11	
Date: January 2022	
Notes: This California ground squirrel burrow could potentially serve as a suitable burrow for burrowing owl or San Joaquin kit fox. Diameter is approximately 9 inches. **Location:** Project Site Southwest	

Photograph 12	
Date: January 2022	
Notes: Comparison between ungrazed grassland (150-meter buffer) and grazed grassland (Project site). **Location:** 150-meter Buffer South **Aspect:** West	

Photograph 13	
Date: January 2022	
Notes: This transmission tower had an inactive raptor nest. **Location:** 150-meter Buffer East **Aspect:** East	

Photograph 14	
Date: January 2022	
Notes: 10 to 12-foot trees in the 150-meter buffer offer suitable breeding habitat for Swainson's hawk and other raptors. **Location:** 150-meter Buffer North **Aspect:** North	

Appendix B: Wetland Datasheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: NextEra Griffith-Kola | City/County: San Joaquin County | Sampling Date: 1/11/22

Applicant/Owner: NextEra/Griffith LLC | State: CA | Sampling Point: UP-1

Investigator(s): Daniel Berg, Victoria Prado | Section, Township, Range: Township 2 South, Range 4 East, Section 32

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): C - Mediterranean California | Lat: 37.7129434958333 | Long: -121.555550663333 | Datum: WGS

Soil Map Unit Name: Carbona clay loam | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: The Project site is grazed annually but cattle were not currently present.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Erodium cicutarium/botrys*	90	Yes	FACU
2. *Non-native annual grasses*	5	No	UPL
3. *Lepidium sp.*	1	No	UPL
4.			
5.			
Total Cover:	96 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum: 4 % | % Cover of Biotic Crust: 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	90	x 4 =	360
UPL species	6	x 5 =	30
Column Totals:	96 (A)		390 (B)

Prevalence Index = B/A = 4.06

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: UP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10 YR 3-1	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ● Depth (inches):

Water Table Present? Yes ○ No ● Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ● Depth (inches):

Wetland Hydrology Present? Yes ○ No ●

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil is moist from recent rains, not from groundwater.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: NextEra Griffith-Kola | City/County: San Joaquin County | Sampling Date: 1/11/22

Applicant/Owner: NextEra/Griffith LLC | State: CA | Sampling Point: WET-1

Investigator(s): Daniel Berg, Victoria Prado | Section, Township, Range: Township 2 South, Range 4 East, Section 32

Landform (hillslope, terrace, etc.): tow of hillslope | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): C - Mediterranean California | Lat: 37.7130193893333 | Long: -121.5555870155 | Datum: WGS

Soil Map Unit Name: Carbona clay loam | NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)		
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?**	Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )		

Remarks: The Project site is grazed annually but cattle were not currently present.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Erodium cicutarium/ Erodium botrys*	5	No	FACU
2. *Lepidium sp.*	1	No	UPL
3. *Erodium moschatum*	30	Yes	FACU
4. *Non-native annual grasses*	1	No	UPL
5.			
6.			
7.			
8.			
Total Cover:	37 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum: 63 % | % Cover of Biotic Crust: 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	35	x 4 =	140
UPL species	2	x 5 =	10
Column Totals:	37 (A)		150 (B)

Prevalence Index = B/A = 4.05

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Green moss is present at low cover (<1%).

SOIL

Sampling Point: WET-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR3/1	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ●

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ○ Depth (inches):

Water Table Present? Yes ○ No ○ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches):

Wetland Hydrology Present? Yes ● No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil is moist from recent rains, not from groundwater. Surface soil cracks due to recent rains. Feature has no defined bed/bank/channel.

Appendix E-2

Rare Plant Survey Report

RARE PLANT SURVEY REPORT

Griffith Energy Storage Project

July 2023



Prepared for

Griffith Energy, LLC
One California, Suite 16
San Francisco, CA 94111

Prepared by

TETRA TECH

5383 Hollister Ave, Suite 130
Santa Barbara, CA 93111

EXECUTIVE SUMMARY

Griffith Energy, LLC requested rare plant surveys to be conducted for the Griffith Energy Storage Project (Project). Tetra Tech previously conducted a literature review and general biological survey in January 2022 at the proposed Project site that recommended rare plant surveys for caper-fruited tropidocarpum (*Tropidocarpum capparideum*) and big tarplant (*Blepharizonia plumosa*) (Tetra Tech 2022). One rare plant survey was conducted for caper-fruited tropidocarpum in March 2022 and a second survey was conducted for big tarplant in September 2022. One rare plant species, big tarplant, was found on the Project site during the September 2022 rare plant survey. Two populations of this species were found onsite. This report describes the methods and results of the rare plant surveys and provides preliminary recommended measures for big tarplant.

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APPENDIX A: Photographs

Acronyms and Abbreviations

Cal-IPC	California Invasive Plant Council
CNDDB	California Natural Diversity Database
CRPR	California Rare Plant Rank
Griffith Energy	Griffith Energy, LLC
Project	Griffith Energy Storage Project

1.0 INTRODUCTION

Tetra Tech has prepared this rare plant survey report for the proposed Griffith Energy Storage Project (Project). Griffith Energy, LLC (Griffith Energy) proposes to develop approximately 20 acres of a 132-acre site into a battery energy storage facility. A majority of the Project site is located in San Joaquin County, California and a small western portion of the Project site is located in Alameda County (Figure 1). The Project site of 132 acres was surveyed for rare plants in 2022.

Tetra Tech previously conducted a literature search and a general biological survey in January 2022 at the proposed Project site (Tetra Tech 2022). Based on the general biological survey results and the habitats found onsite, an assessment of rare plants that could occur onsite was performed (Tetra Tech 2022). The Biological Resources Evaluation Report recommended conducting rare plant surveys for caper-fruited tropidocarpum (*Tropidocarpum capparideum*) and big tarplant (*Blepharizonia plumosa*) based on this assessment (Tetra Tech 2022). Both of these species have a California Rare Plant Rank (CRPR) of 1B.1, which indicates that they are rare, threatened, or endangered in California and elsewhere and are considered seriously threatened in California.

One rare plant survey was conducted for caper-fruited tropidocarpum in March 2022 and a second survey was conducted for big tarplant in September 2022. The purpose of this rare plant survey report is to document the methods and results of the rare plant surveys.

1.1 Project Site Location, Ecoregion, and Land Use

1.1.1 Project Site Location

The Project site is located along the border of San Joaquin and Alameda Counties in California (Figures 1 and 2). It is generally bound by rolling hills used for wind-energy generation, cattle grazing, and residential housing. The Diablo Mountain Range is between 3 and 5 miles south and west of the Project site. The nearest city is Tracy, California, which is 4.5 miles east of the Project site. Interstate 580 is approximately 1 mile to the northeast and Interstate 205 is approximately 2 miles north of the Project site. The Project site is within Township 2 South, Range 4 East, Section 32 in San Joaquin and Alameda Counties. The Project site is centered at a latitude of 37.710 degrees North and longitude of -121.554 degrees West (in decimal degrees). The Project site is also in the U.S. Geological Survey *Midway* 7.5-Minute Topographic Quadrangle Map (Figure 3). The Project property consists of two parcels with the following Assessor's Parcel Numbers: 20910019 (San Joaquin County) and 99B-7885-2 (Alameda County).

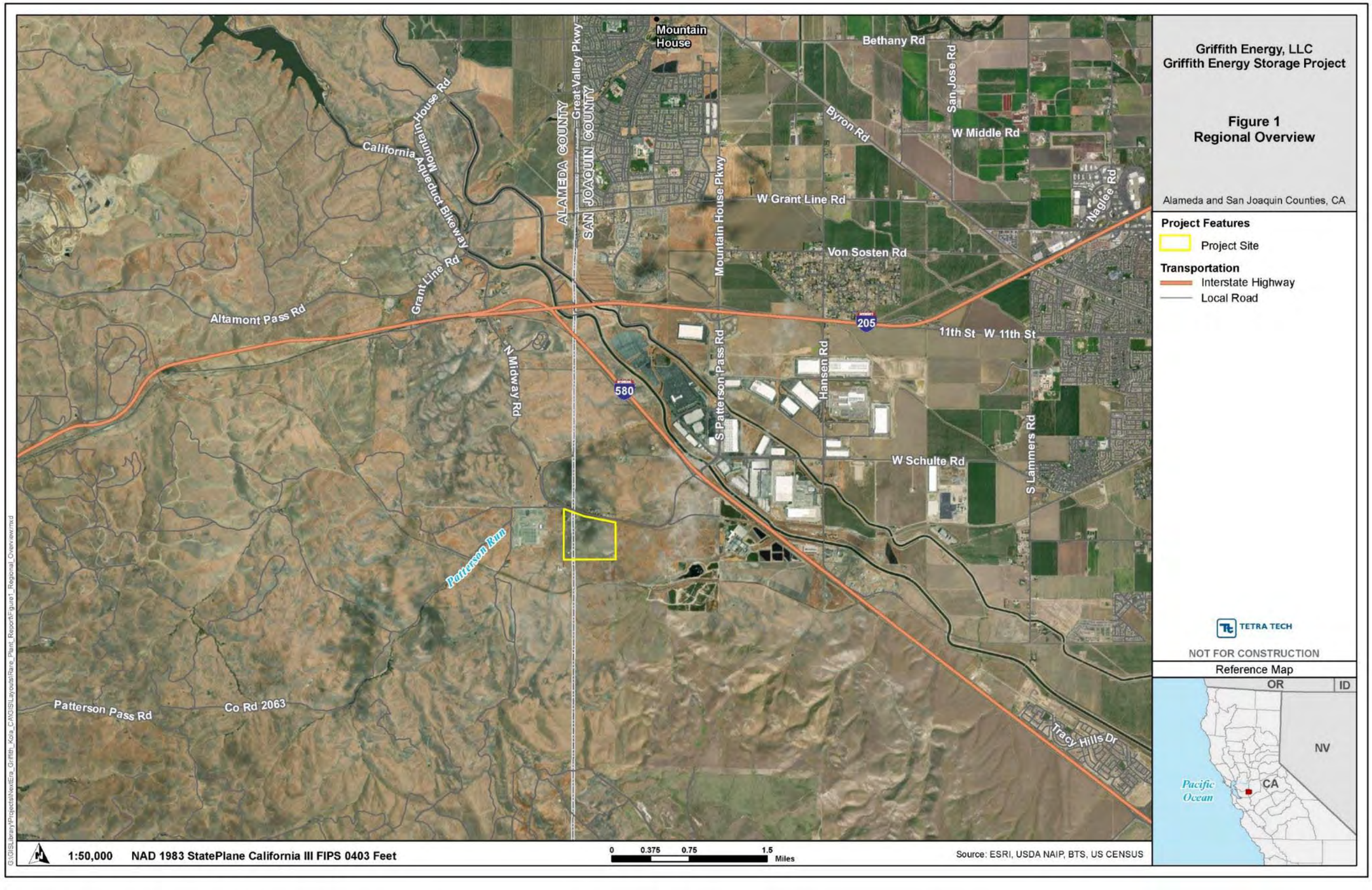
1.1.2 Ecoregion

The Project site is located within the Great Valley Geomorphic Province, which is a broad, flat, alluvial plain about 50 miles wide and 400 miles long in the central part of California between the Sierra Nevada in the east and the Coast Ranges in the west (Jepson Flora Project [eds.] 2021). The Central Valley is composed of two valleys: 1) the northern and smaller valley, known as the Sacramento Valley, which is drained by the Sacramento River; and 2) the southern and larger valley, known as the San Joaquin Valley, which is drained by the San Joaquin River (California Department of

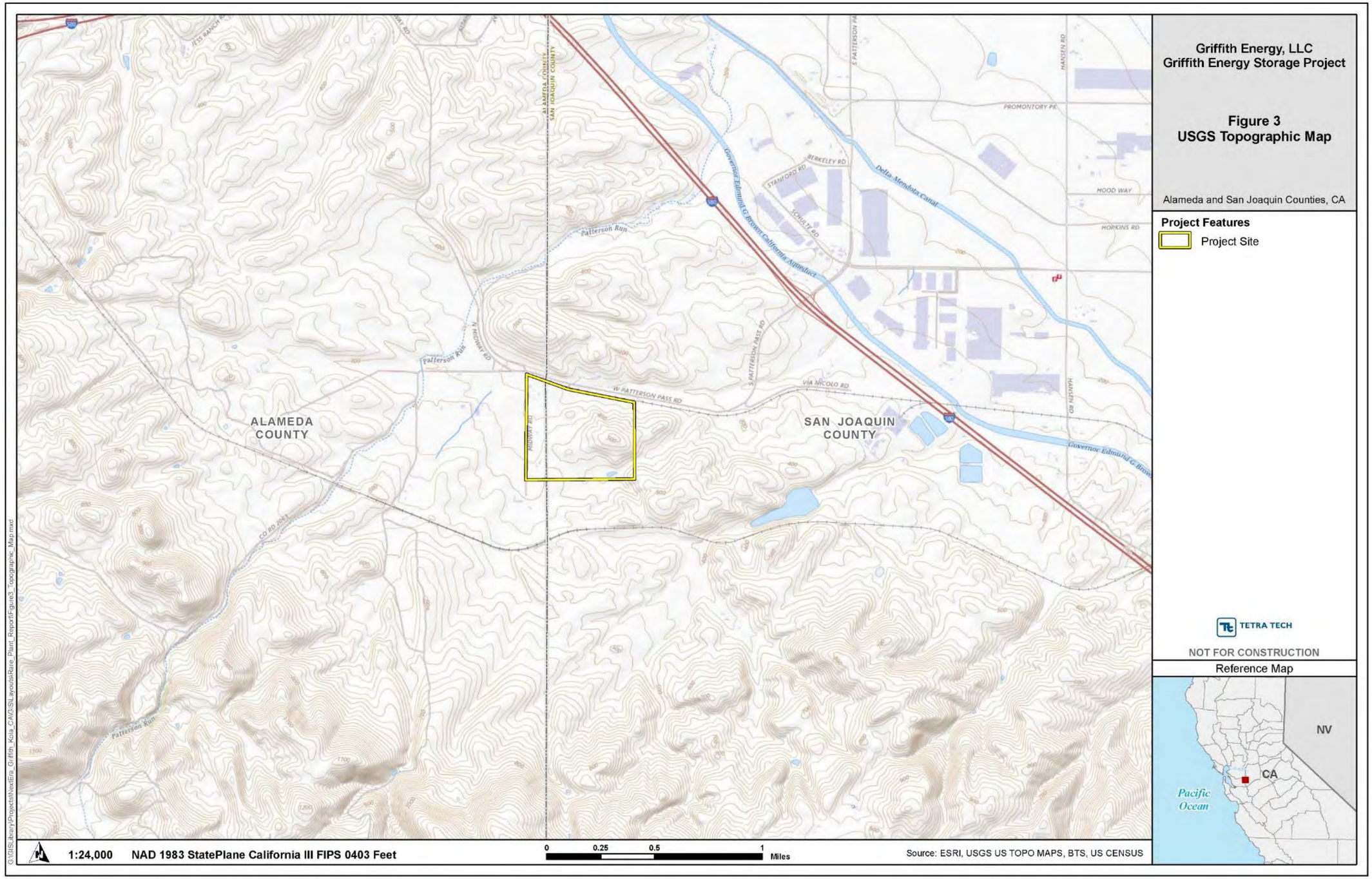
Conservation, California Geological Survey 2002). The Project site is located within the San Joaquin Valley subregion of the Great Valley (Jepson Flora Project [eds.] 2022).

1.1.3 Land Use

Based on historical aerial imagery (Google Earth©), the Project site has consisted of herbaceous vegetation and has been used for grazing since 1985. Three houses were built within the Project site between 1993 and 2003. The topography of the Project site appears unchanged throughout this period and is comprised of four hills with slopes of 25 percent or less. The Project site is annually grazed by cattle and also has three onsite houses with ornamental landscaping. The area of the Project site within San Joaquin County is designated as agriculture and open space land (San Joaquin County Community Development Department 2013), and the portion in Alameda County is designated as an unincorporated, wind-resource area (ICF International 2010). Surrounding land uses consist of agriculture, open space, and developed land. The elevational range of the Project site is approximately 300 to 500 feet above mean sea level.


Griffith Energy, LLC
Griffith Energy Storage Project
Figure 1
Regional Overview
Alameda and San Joaquin Counties, CA
Project Features
Project Site
Transportation
Interstate Highway
Local Road
Mountain House
Bethany Rd
San Jose Rd
Byron Rd
W Middle Rd
Naglee Rd
W Grant Line Rd
Von Sosten Rd
Mountain House Pkwy
Great Valley Pkwy
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
California Aqueduct Bikeway
Mountain House Rd
Grant Line Rd
Altamont Pass Rd
N Midway Rd
205
580
11th St
W 11th St
Hansen Rd
S Patterson Pass Rd
W Schulte Rd
S Lammers Rd
Tracy Hills Dr
Patterson Run
Patterson Pass Rd
Co Rd 2063
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
OR
ID
NV
CA
Pacific Ocean
1:50,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 0.375 0.75 1.5
Miles
Source: ESRI, USDA NAIP, BTS, US CENSUS
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N Midway Rd
Patterson Pass Rd
Co Rd 2063
W Patterson Pass Rd
Midway Rd
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
Griffith Energy, LLC
Griffith Energy Storage Project
Figure 2
Project Location
Alameda and San Joaquin Counties, CA
Project Features
Project Site
Transportation
Local Road
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
1:5,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 250 500 1,000 Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS
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Griffith Energy, LLC
Griffith Energy Storage Project
Figure 3
USGS Topographic Map
Alameda and San Joaquin Counties, CA
Project Features
Project Site
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
W. PATTERSON PASS RD
VIA NICOLO RD
S. PATTERSON PASS RD
N. MIDWAY RD
MIDWAY RD
HANSEN RD
PROMONTORY PK
HOOD WAY
HOPKINS RD
BERKELEY RD
STANFORD RD
SCHULTE RD
Delta-Mendota Canal
Governor Edmund G. Brown California Aqueduct
Patterson Run
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
1:24,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 0.25 0.5 1 Miles
Source: ESRI, USGS US TOPO MAPS, BTS, US CENSUS
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2.0 PROJECT DESCRIPTION

Griffith Energy proposes to construct and operate a 400-megawatt battery energy storage system, substations, and associated infrastructure on approximately 20 acres of a 132-acre site of privately-owned land. Only 128.6 acres of grazing land are available for Project development because 3.4 acres of the Project site consist of residential plots. The precise locations of the facilities and access roads have not been determined as this time.

The Project would include the construction of:

- Battery energy storage system
- Project electrical substations
- Access roads
- Generation tie line
- Perimeter fencing

Construction would include site preparation, grading, preparing staging areas, and construction of the Project. A conceptual design of the Project would be completed prior to initiating the permitting and California Environmental Quality Act process and the design may be refined during the process.

3.0 SURVEY METHODS

A literature review was conducted that included the California Department of Fish and Wildlife California Natural Diversity Database (CNDDB) RareFind 5 online database and the California Native Plant Society online Inventory of Rare and Endangered Plants of California (CDFW 2022). Based on the literature review and general biological survey results, two rare plants were determined to have potential to occur on the Project site: big tarplant and caper-fruited tropidocarpum (CDFW 2022; Tetra Tech 2022). Previous CNDDB records of big tarplant and caper-fruited tropidocarpum are located outside the Project site; big tarplant was previously found approximately 25 feet to the west of the Project site in 2003 and caper-fruited tropidocarpum was found approximately 120 feet to the northwest of the Project site in 1987 (CDFW 2022, CNPS 2021).

Caper-fruited tropidocarpum blooms from March to April and big tarplant blooms from July to November. Therefore, two rare plant surveys were conducted on the Project site to capture the blooming periods of the rare plant species with the potential to occur onsite. The first rare plant survey for caper-fruited tropidocarpum was conducted in March 2022. The second rare plant survey for big tarplant was conducted in September 2022. Two biologists surveyed the entire Project site during each survey by walking meandering transects throughout the Project site. Transects were spaced 30 meters apart to ensure 100 percent visual coverage of the Project site. All plant species found onsite were identified and recorded. The surveys were conducted during daylight hours and clear conditions at temperatures of approximately 60-80 degrees Fahrenheit. Any rare plant populations found onsite were mapped using a sub-meter accuracy Global Positioning System unit and individuals were counted. Photographs that were taken during the surveys are provided in Appendix A.

4.0 SURVEY RESULTS

The Project site is undeveloped other than three small residential areas. All undeveloped areas of the site consisted of *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance. Cattle were actively grazing the site during the rare plant survey in March 2022. Grazing on the site has greatly reduced the cover of non-native grasses such as slender wild oat (*Avena barbata*) and bromes (*Bromus* spp.) as compared to the surrounding non-grazed areas offsite. Most of the site cover was comprised of non-native redstem filaree (*Erodium cicutarium*) with some small patches of non-native cheeseweed (*Malva parviflora*), black mustard (*Brassica nigra*), and greenstem filaree (*Erodium moschatum*). By September 2022, vegetation cover in undeveloped areas of the site was comprised almost entirely of dead non-native annuals such as filarees and mustards with some sprouts of Russian thistle (*Salsola* sp.). Non-native olive trees (*Olea europaea*) and pepper trees (*Schinus* sp.) and ornamental pine trees (*Pinus* sp.) were found in residential areas.

No sensitive natural communities were found during the rare plant surveys.

CNDDB records from 2003 documented an existing offsite population of big tarplant (CRPR 1B.1) approximately 25 feet west of the Project site, across Midway Road (CDFW 2022). This existing offsite population was observed during the September 2022 survey since it occurs directly across from the Project site. Multiple 1.6 meters tall big tarplant and many other shorter big tarplant were observed in this offsite area. Similar to the Project site, this area consisted of *Avena* spp. – *Bromus* spp. herbaceous semi-natural alliance, but had higher cover of non-native grasses than the site and less intensive cattle grazing.

One rare plant species, big tarplant, was found on the western portion of the Project site during the September 2022 rare plant survey. This species was found onsite in erosional areas where soil was disturbed and supported less herbaceous cover. This species is generally known to occur in grasslands and disturbed areas such as burned areas. Specimens of this plant were sent to Dr. Bruce Baldwin of the Jepson Herbarium at University of California, Berkeley and it was verified to be the rare big tarplant by Dr. Baldwin (Baldwin 2022).

Two populations of big tarplant were observed within the Project site. The specific locations and boundaries of these populations are shown in Figure 4. Population 1 consisted of 395 individuals and was 0.09 acres in size. Population 2 consisted of 167 individuals and was 0.15 acres in size. Both populations occurred in ephemeral erosional features that had higher cover of bare soil relative to other areas of the Project site. Although this species can grow to over 1.8 meters tall, individuals on the Project site were stunted, likely due to disturbance by cattle grazing, and were up to 0.6 meters tall. Herbivory by cows was observed on some big tarplant individuals.

Yellow star-thistle (*Centaurea solstitialis*), a species rated “High” by the California Invasive Plant Council (Cal-IPC) was found onsite. Yellow star-thistle was predominantly found along fencelines and in areas with stormwater runoff such as near roads. Species rated High by the Cal-IPC have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment, and most are widely distributed ecologically.

All plant species observed in the Project site are listed in Table 1.

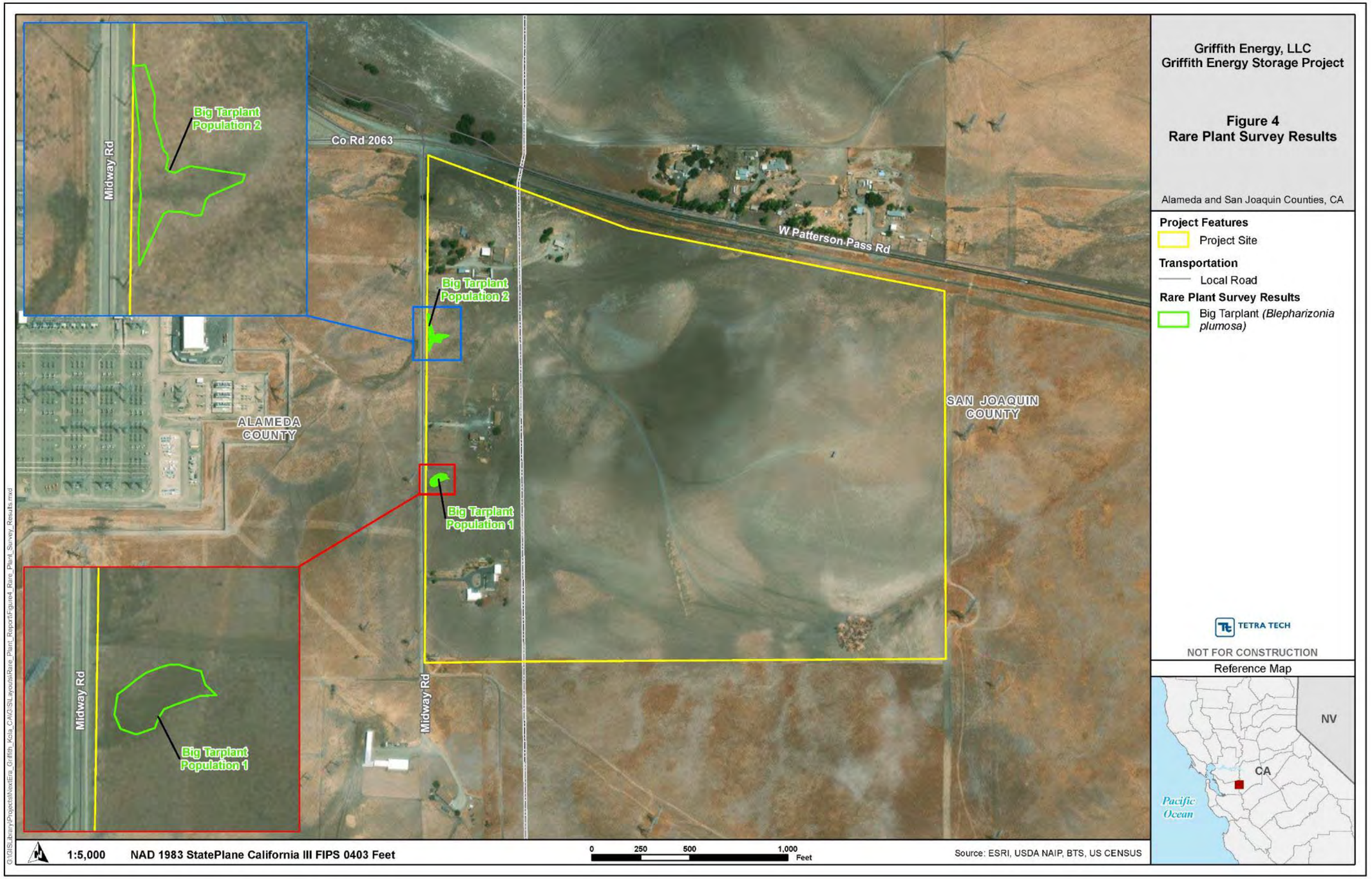
Table 1. Plant Species Observed in the Project Site

Scientific Name	Common Name	Observed During March 2022	Observed During September 2022
Achillea millefolium	Common yarrow	X	-
Achyrachaena mollis	Blow wives	X	-
Acmispon wrangelianus	Chilean trefoil	X	-
Allium sp.	Onion	X	-
Amsinckia menziesii	Common fiddleneck	X	-
Astragalus sp.	Milkvetch	X	X
Avena barbata [A]	Slender wild oat [A]	X	-
Bassia hyssopifolia [A]	Five horn bassia [A]	-	X
Blepharizonia plumosa [C]	Big tarplant [C]	-	X
Brassica nigra [A]	Black mustard [A]	X	-
Bromus diandrus [A]	Ripgut grass [A]	X	-
Bromus hordeaceus [A]	Soft chess [A]	X	-
Calandrinia menziesii	Red maids	X	-
Capsella bursa-pastoris [A]	Shepherd's purse [A]	X	-
Castilleja exserta	Purple owl's-clover	X	-
Centaurea solstitialis [A, D]	Yellow star-thistle [A, D]	X	X
Clarkia purpurea	Purple clarkia	X	-
Claytonia sp.	Miner's lettuce	X	-
Convolvulus arvensis [A]	Bindweed [A]	X	-
Croton setigerus	Doveweed	X	X
Cynara cardunculus [A]	Artichoke thistle [A]	X	-
Datura sp.	Jimson weed	X	X
Dipterostemon capitatus	Blue dicks	X	-
Distichlis spicata	Salt grass	X	X
Erodium cicutarium [A]	Redstem filaree [A]	X	X
Erodium moschatum [A]	Greenstem filaree [A]	X	X
Festuca perennis [A]	Rye grass [A]	X	-
Hordeum murinum [A]	Wall barley [A]	X	-
Lamium amplexicaule [A]	Henbit [A]	X	-
Lepidium chalepense [A]	Lens-podded hoary cress [A]	X	-
Lupinus bicolor	Miniature lupine	X	-
Malva parviflora [A]	Cheeseweed [A]	X	X
Marah sp.	Wild cucumber	X	X
Marrubium vulgare [A]	White horehound [A]	X	X
Matricaria discoidea	Pineapple weed	X	-
Medicago polymorpha [A]	California burclover [A]	X	-
Melilotus indicus [A]	Sourclover [A]	X	-
Olea europaea [A, B]	Olive tree [A, B]	X	X
Pinus sp. [B]	Pine tree [B]	X	X
Plagiobothrys sp.	Popcornflower	X	-

Scientific Name	Common Name	Observed During March 2022	Observed During September 2022
Salsola sp.[A]	Russian thistle[A]	X	X
Schinus sp.[A, B]	Pepper tree[A, B]	X	X
Silybum marianum[A]	Milk thistle[A]	X	-
Sisymbrium orientale[A]	Indian hedge mustard[A]	X	X
Urtica urens[A]	Dwarf nettle[A]	X	-
Xanthium spinosum[A]	Spiny cocklebur[A]	-	X

Notes: "X" = observed during first or second survey; "-" = not observed.

[A] Non-native species.
[B] Found only in residential areas of the Project site.
[C] Big tarplant has a CRPR of 1B.1, meaning it is rare, threatened, or endangered in California and elsewhere, and is seriously threatened in California.
[D] Species rated High by the Cal-IPC.


Big Tarplant Population 2
Midway Rd
Co Rd 2063
W Patterson Pass Rd
Big Tarplant Population 2
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
Big Tarplant Population 1
Midway Rd
Midway Rd
Big Tarplant Population 1
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1:5,000
NAD 1983 StatePlane California III FIPS 0403 Feet
0 250 500 1,000 Feet
Source: ESRI, USDA NAIP, BTS, US CENSUS
Griffith Energy, LLC
Griffith Energy Storage Project
Figure 4
Rare Plant Survey Results
Alameda and San Joaquin Counties, CA
Project Features
Project Site
Transportation
Local Road
Rare Plant Survey Results
Big Tarplant (Blepharizonia plumosa)
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean

5.0 CONCLUSIONS AND RECOMMENDATIONS

The rare plant surveys were conducted during the appropriate blooming periods for the rare plants (caper-fruited tropidocarpum and big tarplant) that could potentially occur onsite. One rare plant species, big tarplant (CRPR 1B.1), was found on the Project site during the surveys. In addition, the survey results are sufficient to determine absence of caper-fruited tropidocarpum on the Project site.

It is recommended that Project impacts avoid the populations of big tarplant if feasible (Figure 4). While big tarplant is not federally or state listed, impacts to this species must be evaluated in the California Environmental Quality Act document and mitigation measures would be required if it cannot be avoided. The following preliminary measures are recommended for this species:

- A qualified biologist will flag a minimum no-disturbance buffer of 10 feet around big tarplant populations in the field, and if feasible, these areas will be avoided during construction. To delineate the areas of avoidance, a pre-construction survey would be required during the blooming period for this species (July to November) during the blooming period that occurs prior to the start of construction. For example, if construction were planned to start in June 2024, the area would be surveyed between July and November 2023 and those results would be used to determine the extent of the population areas.
- For big tarplant areas that cannot be avoided, a restoration/enhancement plan for impacts to big tarplant will be prepared. The plan will include the following components as needed: figures showing the restored areas; invasive plant species management procedures; topsoil and/or seed collection and dispersal protocols; maintenance requirements; monitoring and performance standards; and reporting requirements. Temporary impacts (i.e., impacts in areas that would be restored to natural conditions) may be mitigated by salvaging topsoil during ground disturbance, storing the soil onsite and protecting it from weed seed dispersal, and then returning the soil horizon to its original profile to keep seeds at the appropriate soil depth. Permanent impacts (i.e., impacts in areas that would not be restored to natural conditions) may be mitigated by enhancing other big tarplant habitat within or outside the Project site, through seed collection and planting and invasive plant control. Topsoil would not be salvaged in the case of permanent impacts, and other habitat enhancement methods would be used, such as seed collection and dispersal, in other non-impacted locations. The actual areas impacted will be mapped post-construction to quantify the amount of big tarplant impacted.

6.0 REFERENCES

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APPENDIX A: PHOTOGRAPHS

Photograph 1	
Date: March 2022	
Notes: Site conditions during first rare plant survey. Grazing cattle are shown in the distance. **Location:** Project Site Northwest **Aspect:** Southeast	

Photograph 2	
Date: September 2022	
Notes: Site conditions during the second rare plant survey. This photograph shows the same two hills in Photograph 1. **Location:** Project Site Northwest **Aspect:** East	

Photograph 3	
Date: September 2022	
Notes: Photo of big tarplant population 1. **Location:** Project Site West **Aspect:** Southwest	

Photograph 4	
Date: September 2022	
Notes: Photo of big tarplant population 2. **Location:** Project Site West **Aspect:** East	

Photograph 5	
Date: September 2022	
Notes: Big tarplant was observed outside but adjacent to the site and measured up to 1.6 meters tall. **Location:** West of Project Site **Aspect:** East	

Photograph 6	
Date: January 2022	
Notes: Close up of a big tarplant flower. **Location:** Project Site West **Aspect:** N/A	

Appendix E-3

Biological Resources Technical Memorandum

Technical Memorandum for 2023 Site Visit at NextEra Griffith Energy

Date: July 28, 2023
Attention: Craig Lawrence, Patti Murphy
Company: NextEra Energy Resources
Prepared by: Tetra Tech

1.0 INTRODUCTION

This Memorandum summarizes the methods and results of a site visit that was conducted on June 7, 2023 at the proposed Griffith Energy Project site. Comments from MIG, Inc. (MIG), San Joaquin County's third-party reviewer of the Draft Environmental Impact Report (EIR), were received on May 19, 2023 and July 21, 2023. Multiple comments on the Biological Resources section of the Draft EIR referenced the presence of an ephemeral pond in the southwest portion of the Project property after a historically high rainfall year. The purpose of the site visit was to document current conditions at the Project site to inform the applicant's response to MIG's comments. A detailed impacts analysis will be performed in the EIR.

2.0 METHODS

One biologist visited the Project site on June 7, 2023. The following bullets outline the tasks that were performed during the site visit:

- Map and assess ephemeral pond in southeast portion of property. Assess habitat in this area for western spadefoot (*Spea hammondii*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), California tiger salamander (*Ambystoma californiense*, CTS), and California red-legged frog (*Rana draytonii*). Conduct a jurisdictional delineation.
- Evaluate offsite location where West Patterson Pass Road passes under the railroad and assess for potential barriers to CTS wildlife movement.
- Check standing water location west of Midway Road for potential to support vernal pool invertebrates.
- Map shallow ditch that runs along the southern side of West Patterson Pass Road within 150-meter buffer.

The biologist recorded notes, mapped locations on a tablet synced with a global positioning system (GPS) and took photographs.

3.0 RESULTS

3.1 Ephemeral Pond

The ephemeral pond was observed in the southeast portion of the property (Figure 1 in Attachment A). The pond appeared to have recently receded, based on the presence of surface soil cracks, but standing water was still present at a depth of approximately 1 to 2 feet deep. The water was turbid and murky, and the soil was a silty clay color of 10YR 3/1. Deep soil cracks were present where the water had receded. Cattle tracks surrounded the pond; cattle were observed elsewhere within the Project property during the site visit. Two debris piles containing cut wood were observed; one is located next to the pond, and one was located in the pond (the general location is shown in Figure 1). Two species of common amphibians were observed to be inhabiting the pond and directly adjacent area, specifically: California toad (*Anaxyrus boreas halophilus*) and Sierran treefrog (*Pseudacris sierra)*. No tadpoles or fairy shrimp were observed in the water. Photographs of the ephemeral pond are included in Attachment B.

3.1.1 Special-status Species

The pond was evaluated for its potential to support special-status species, such as CTS, western spadefoot, and vernal pool invertebrates such as the longhorn fairy shrimp and vernal pool fairy shrimp. If water is present, the ephemeral pond has the potential to support breeding habitat for the CTS and western spadefoot. The pond would not support breeding California red-legged frog due to the lack of emergent vegetation. However, it is infrequently ponded as shown in historic aerial imagery and was not observed during previous Tetra Tech surveys in January, March, and September 2022. This pond is likely only present during high rainfall years, such as the 2022-2023 historically high rainfall year. During a review of available aerial imagery from 1937 to 2022, there was no evidence of ponding water. This pond likely only holds water seasonally during high rainfall years and is typically dry; therefore, the likelihood of longhorn fairy shrimp and vernal pool fairy shrimp presence in this pond is low. Branchiopod cysts can persist in soil substrate for decades, but generally require recurring ponding to continue their lifecycle.

The EIR will include an analysis of the Project's potential impacts to CTS, western spadefoot, California red-legged frog, and vernal pool invertebrates. Measures will be proposed to mitigate Project impacts. Although the ephemeral pond is outside of the Project footprint, it is approximately 40 feet away from the Project footprint boundary and has the potential to be impacted by indirect effects.

3.1.2 Jurisdictional Delineation

The pond was evaluated for hydrophytic vegetation, hydric soils, and wetland hydrology per the *Interim Regional Supplement to the Corps of Engineering Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers [USACE] 2008), a supplement to the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), to determine the presence or absence of wetlands and Waters of the U.S. that are potentially subject to regulation under Section 404 of the Clean Water Act. This delineation methodology was also used to evaluate potential Waters of the State under Regional Water Quality Control Board (RWQCB) jurisdiction. "Waters of the State" are

defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state" (State Water Resources Control Board [SWRCB] 2019). These may include intermittent or ephemeral waters. The ephemeral pond was also assessed for presence of a lake or pool, measured to the top of bank or edge of riparian vegetation, that is subject to California Department of Fish and Wildlife (CDFW) jurisdiction under Section 1602 of the Fish and Game Code.

The pond is mostly unvegetated, with approximately one percent cover of sprouting doveweed (*Croton setigerus*) and black mustard (*Brassica nigra*) along the edges. No wetland vegetation was observed. Vegetation on the adjacent, gradual slopes next to the ephemeral pond include non-native grasses, such as wall barley (*Hordeum murinum*), rye grass (*Festuca perennis*), brome (*Bromus* spp.), and California burclover (*Medicago polymorpha*).

Wetland hydrology was observed due to the presence of surface water which was approximately 1 to 2 feet deep and surface soil cracks where the surface water has evaporated.

Hydric soil was observed due to the presence of redox dark surface (F6) and redox depressions (F8) in each surface layer (0 to 2 inches; 2 to 6 inches; and 6 to 15 inches). The soil was primarily clay/loam with 10 YR, v4/c1 and 10 YR, v3/c1 coloration.

The ephemeral pond is not a USACE wetlands due to the lack of hydrophytic vegetation. This feature is not a Waters of the U.S. because it is hydrologically isolated. However, it is likely jurisdictional to the RWQCB and CDFW.

3.2 Railroad Underpass Along West Patterson Pass Road

There is a 20-foot-long paved road under the railroad tracks bridge (Attachment B). There are steep dirt berms on the east and wide side of the road. Consistent vehicle traffic was noted along the road. CTS may be able to climb the dirt berm, cross the paved road with vehicle traffic, then use the road under the railroad tracks bridge to access nearby grassland areas. Therefore, the Union Pacific railroad is not a complete barrier to CTS migration, but rather is a partial barrier.

3.3 Standing Water West of Midway Road

The standing water observed west of Midway Road within 150-meters of the site has the potential to support vernal pool invertebrates. Aerial imagery indicates that this feature holds water regularly, although ephemerally. However, no standing water was observed in this feature during June 2023, which may indicate that standing water is not present long enough for the entire vernal pool invertebrate lifecycle. Regardless, this area is outside of the Project footprint on the opposite of a paved roadway and will not be impacted directly or indirectly by proposed activities.

3.4 Ditch South of West Patterson Pass Road

A shallow ditch that is located on the south side of West Patterson Pass Road within the 150-meter buffer was observed by Tetra Tech during 2022 surveys and by MIG during their April 2023 site visit. This ditch was mapped by Tetra Tech during the June 2023 site visit and has been added to Figure 1 in Attachment A. This ditch ranges from 1 to 8 feet wide and was mostly dry, except for standing water observed at one location north of the railroad and next to the road near the end of the feature. The

ditch is mostly unvegetated with edges of non-native grasses, including brome, slender wild oat (*Avena barbata*), rye grass, and wall barley as well as yellow star-thistle (*Centaurea solstitialis*), and poison hemlock (*Conium maculatum*).

3.5 Other Special-status Species with Potential to Occur

3.5.1 Crotch's Bumble Bee

Crotch's bumble bee is a candidate for listing under the California Endangered Species Act. Although no bumble bees of any species were observed during the site visit or previous Project biological surveys and there are no known occurrences recorded near the Project Property, floral resources (foraging habitat), burrows and crevices (nesting habitat), and leaf litter (overwintering habitat) were observed. However, the site is routinely grazed and trampled by cattle, which likely interferes with the Crotch's bumble bee habitat requirements and reduces habitat suitability (Xerces Society et al. 2018).

3.5.2 White-tailed Kite

The white-tailed kite is a fully protected species by CDFW. Potential white-tailed kite nesting habitat includes trees located adjacent to the Project Property to the north and northwest. Numerous 8 to 10-foot-tall trees of various species in residential areas have the potential to provide nesting habitat. The open grassland within the Project Property provides potential foraging habitat for white-tailed kites.

3.5.3 Grasshopper Sparrow

Tetra Tech notes that MIG observed a grasshopper sparrow, a CDFW Species of Special Concern, by sight and sound during their April 2023 site visit.

4.0 CONCLUSION

The Project Site design changed after preparation of the Biological Resources Evaluation Report and Rare Plant Survey Report (Tetra Tech 2022a, 2022b). The Draft EIR analyzes potential impacts to biological resources based on the current Project design.

Due to the observation of an ephemeral pond in spring 2023 after a historically high rainfall year, additional special-status species, such as western spadefoot and vernal pool invertebrates, have the potential to occur at the Project Property. Although the ephemeral pond will not be directly impacted by proposed Project activities, there is the potential for indirect effects to the pond itself (which may be jurisdictional to RWQCB and CDFW) and the special-status species that may inhabit the pond. Therefore, the EIR has been revised to analyze these potential effects and include mitigation measures.

Additional species, including the Crotch's bumble bee and white-tailed kite, will be discussed in the EIR and their impacts from the proposed Project activities will be analyzed. Measures will be proposed to mitigate potential impacts to these species.

5.0 REFERENCES

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.

SWRCB. 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. April.

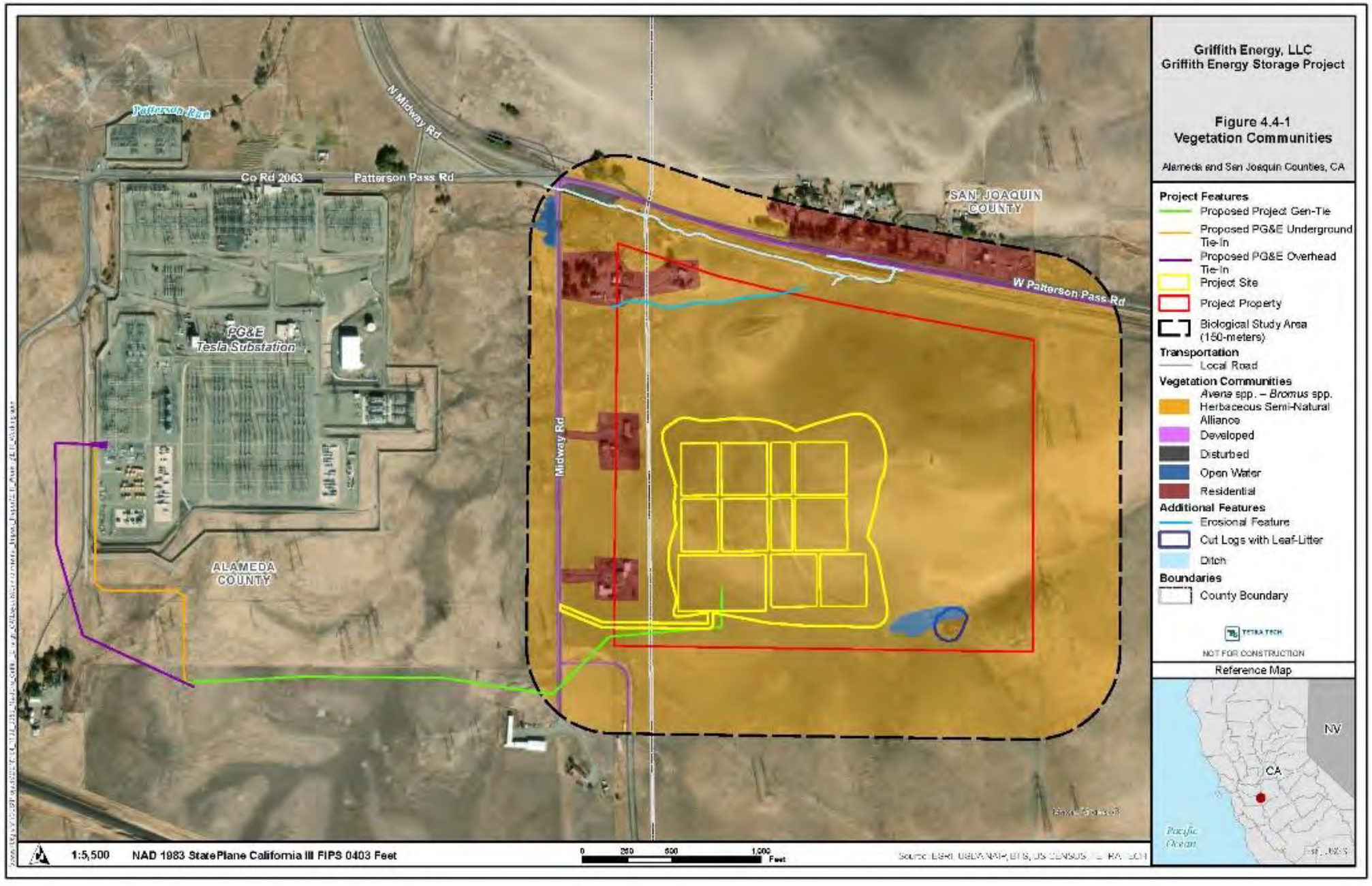
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USACE. 2008. *Interim Regional Supplement to the Corps of Engineering Wetland Delineation Manual: Arid West Region*.

Xerces Society for Invertebrate Conservation, Defenders of Wildlife, and Center for Food Safety. 2018. A Petition to the State of California Fish and Game Commission To List the Crotch bumble bee, Franklin's bumble bee, Suckley cuckoo bumble bee, and western bumble bee as Endangered under the California Endangered Species Act.

ATTACHMENT A: FIGURE


Griffith Energy, LLC
Griffith Energy Storage Project
Figure 4.4-1
Vegetation Communities
Alameda and San Joaquin Counties, CA
Project Features
Proposed Project Gen-Tie
Proposed PG&E Underground Tie-In
Proposed PG&E Overhead Tie-In
Project Site
Project Property
Biological Study Area (150-meters)
Transportation
Local Road
Vegetation Communities
Avena spp. – Bromus spp. Herbaceous Semi-Natural Alliance
Developed
Disturbed
Open Water
Residential
Additional Features
Erosional Feature
Cut Logs with Leaf-Litter
Ditch
Boundaries
County Boundary
NOT FOR CONSTRUCTION
Reference Map
NV
CA
Pacific Ocean
Patterson Pass
Co Rd 2063
N Midway Rd
Patterson Pass Rd
PG&E Tesla Substation
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
W Patterson Pass Rd
Midway Rd
1:5,500
NAD 1983 StatePlane California III FIPS 0403 Feet
0 250 500 1,000 Feet

ATTACHMENT B: PHOTOGRAPHS

Photograph 1 **Notes:** The ephemeral pond observed in June 2023 in the southeast portion of the Project Property. Cattle tracks were observed around standing water, which was approximately 1 to 2 feet deep.	
Photograph 2 **Notes:** The two debris piles were observed; one was in the pond, and one was adjacent to the pond.	

Photograph 3 **Notes:** Cattle tracks were observed throughout and surrounding the ephemeral pond.	
Photograph 4 **Notes:** A paved road that crosses under the railroad tracks bridge was observed. The Union Pacific railroad is not a complete barrier to CTS migration, but rather is a partial barrier.	

Photograph 5	
Notes: The ditch located south of West Patterson Pass Road in the 150-meter buffer.	

Appendix F
Acoustical Analysis Report

ACOUSTICAL ANALYSIS REPORT

Griffith Energy Storage Project

San Joaquin County, California

August 2023



Prepared for

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Acronyms and Abbreviations

µPa	microPascal
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
dB	decibel
dBA	A-weighted decibel
dBL	linear decibel
Hz	hertz
in/sec	inch per second
ISO	International Organization for Standardization
L_{eq}	equivalent sound level
L_P	sound pressure level
kV	kilovolt
NSA	Noise Sensitive Area
PPV	Peak-Particle-Velocity
Project	Griffith Energy Storage
Tetra Tech	Tetra Tech, Inc.
USEPA	United States Environmental Protection Agency
VdB	vibration decibel

1.0 OVERVIEW

Tetra Tech has prepared this noise impact assessment for the proposed Griffith Energy Storage Project (Project) to support an evaluation of compliance with applicable California Environmental Quality Act (CEQA) noise requirements and county noise ordinances, which are detailed in Section 2.0 of this report. Griffith Energy Storage, LLC (Applicant), is proposing to construct and operate the 400-megawatt Griffith Energy Storage Project to provide reliable and flexible power to the local electrical system. The property which the Project would be built on consists of 106 acres (Property) of land in San Joaquin County, while the site disturbance will be limited to 32 acres. The Project would interconnect at the Tesla Substation immediately adjacent to the site in Alameda County via a 230-kilovolt interconnection generation tie (gen-tie) line. The energy storage facility is anticipated to house lithium-ion batteries totaling 400 megawatts of energy. Project construction would be in 2024 and is anticipated to come online in 2025.

1.1 Project Setting

The Property is approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy, adjacent to Pacific Gas and Electric's (PG&E) Tesla Substation, as shown on Figure 1. The Project site is private land zoned as Agricultural General-160 and designated as General Agriculture. The site includes Grazing Land and Farmland of Local Importance, as classified by the California Department of Conservation.

1.2 Acoustical Metrics and Terminology

All sounds originate with a source, whether it is a human voice, motor vehicles on a roadway, or a combustion turbine. Energy is required to produce sound and this sound energy is transmitted through the air in the form of sound waves – tiny, quick oscillations of pressure just above and just below atmospheric pressure. These oscillations, or sound pressures, impinge on the ear, creating the sound we hear. A sound source is defined by a sound power level (abbreviated "LW"), which is independent of any external factors. By definition, sound power is the rate at which acoustical energy is radiated outward and is expressed in units of watts.

A source sound power level cannot be measured directly. It is calculated from measurements of sound intensity or sound pressure at a given distance from the source outside the acoustic and geometric near-field. A sound pressure level (abbreviated "L_P") is a measure of the sound wave fluctuation at a given receiver location and can be obtained through the use of a microphone or calculated from information about the source sound power level and the surrounding environment. The sound pressure level in decibels (dB) is the logarithm of the ratio of the sound pressure of the source to the reference sound pressure of 20 microPascals (µPa), multiplied by 20. The range of sound pressures that can be detected by a person with normal hearing is very wide, ranging from about 20 µPa for very faint sounds at the threshold of hearing, to nearly 10 million µPa for extremely loud sounds such as a jet during take-off at a distance of 300 feet.


NSA-01
NSA-05
NSA-11
NSA-03
NSA-04
NSA-08
NSA-09
NSA-06
NSA-07
NSA-10
NSA-02
Patterson Pass Rd
W Patterson Pass Rd
Midway Rd
Alameda County
San Joaquin County
Mountain House Pkwy
S Patterson Pass Rd
Via Nicolo Rd
W Schulte Rd
Schulte Rd
580
2063
Griffith Energy Storage Project
Figure 1
Project Location
SAN JOAQUIN COUNTY, CA
Project Area
County Boundary
Interstate Highway
County Highway
Local Roads
Noise Sensitive Receptor
TETRA TECH
NEXTera ENERGY RESOURCES
Reference Map
OR
ID
UT
NV
CA
1:12,000
WGS 1984 UTM Zone 10N
0 0.13 0.25 0.5 0.75 1
Miles
NOT FOR CONSTRUCTION

Sound can be measured, modeled, and presented in various formats, with the most common metric being the equivalent sound level (L_{eq}). The L_{eq} has been shown to provide both an effective and uniform method for comparing time-varying sound levels and is widely used in acoustic assessments in the State of California. Estimates of noise sources and outdoor acoustic environments, and the comparison of relative loudness are presented in Table 1. Table 2 presents additional reference information on terminology used in the report.

Table 1. Sound Pressure Levels and Relative Loudness of Noise Sources and Acoustic Environments

Noise Source or Activity	Sound Level (dBA)	Subjective Impression
Vacuum cleaner (10 feet)	70	Moderate
Passenger car at 65 miles per hour (25 feet)	65	
Large store air-conditioning unit (20 feet)	60	
Light auto traffic (100 feet)	50	Quiet
Quiet rural residential area with no activity	45	
Bedroom or quiet living room; Bird calls	40	Faint
Typical wilderness area	35	
Quiet library, soft whisper (15 feet)	30	Very quiet
Wilderness with no wind or animal activity	25	Extremely quiet
High-quality recording studio	20	
Acoustic test chamber	10	Just audible
	0	Threshold of hearing

Adapted from: Kurze and Beranek (1988) and USEPA (1971)

Table 2. Acoustic Terms and Definitions

Term	Definition
Noise	Typically defined as unwanted sound. This word adds the subjective response of humans to the physical phenomenon of sound. It is commonly used when negative effects on people are known to occur.
Sound Pressure Level (L_P)	Pressure fluctuations in a medium. Sound pressure is measured in dB referenced to 20 µPa, the approximate threshold of human perception to sound at 1,000 Hz.
Sound Power Level (L_W)	The total acoustic power of a noise source measured in dB referenced to picowatts (one trillionth of a watt). Noise specifications are provided by equipment manufacturers as sound power as it is independent of the environment in which it is located. A sound level meter does not directly measure sound power.
Equivalent Sound Level (L_{eq})	The L_{eq} is the continuous equivalent sound level, defined as the single sound pressure level that, if constant over the stated measurement period, would contain the same sound energy as the actual monitored sound that is fluctuating in level over the measurement period.
A-Weighted Decibel (dBA)	Environmental sound is typically composed of acoustic energy across all frequencies. To compensate for the auditory frequency response of the human ear, an A-weighting filter is commonly used for describing environmental sound levels. Sound levels that are A-weighted are presented as dBA in this report.
Unweighted Decibels (dBL)	Unweighted sound levels are referred to as linear. Linear decibels are used to determine a sound's tonality and to engineer solutions to reduce or control noise as techniques are different for low and high frequency noise. Sound levels that are linear are presented as dBL in this report.
Propagation and Attenuation	Propagation is the decrease in amplitude of an acoustic signal due to geometric spreading losses with increased distance from the source. Additional sound attenuation factors include air absorption, terrain effects, sound interaction with the ground, diffraction of sound around objects and topographical features, foliage, and meteorological conditions including wind velocity, temperature, humidity, and atmospheric conditions.

1.3 Vibration Metrics and Terminology

Vibration is an oscillatory motion that is described in terms of displacement, velocity, or acceleration. Velocity is the most common descriptor used when evaluating human perception or structural damage. Velocity represents the instantaneous speed of movement and more accurately describes the response of humans, buildings, and equipment to vibrations.

Peak-Particle-Velocity (PPV) and root mean square velocity are typical metrics used to describe vibration levels in units of inches per second in the United States. However, to evaluate annoyance to humans, the vibration dB (VdB) notation is commonly used. The decibel notation acts to compress the range of numbers required to describe vibration. In the United States, the accepted velocity reference for converting to dB is 1x10-6 inches per second. The abbreviation "VdB" is used for vibration dB to reduce the potential for confusion with sound decibels.

In contrast to airborne noise, ground-borne vibration is not an everyday occurrence for humans. The background vibration velocity levels within residential areas are usually 50 VdB or lower, which is well below the human perception threshold of approximately 65 VdB. However, human response to vibration is not usually significant unless the vibration exceeds 70 VdB. For a significant impact to occur, vibration levels must exceed 72 VdB during frequent events, 75 VdB for occasional events, and 80 VdB during infrequent events (Federal Transit Administration 2006). Outdoor sources that generate perceptible ground-borne vibrations are typically construction equipment, steel-wheeled trains, and traffic on rough roadways. Table 3 provides common vibration sources as well as human and structural response to ground-borne vibrations.

Table 3. Typical Levels of Ground-Borne Vibration

Human/Structural Response	PPV (in/sec)	Velocity Level (VdB)*	Typical sources (50 feet from source)
Threshold, Minor Cosmetic Damage, Fragile Buildings	0.4	100	Blasting from Construction Projects
	0.17-0.2	92-94	Heavy Tracked Construction Equipment
Difficulty with Tasks, Such as Reading a Computer Screen	0.125	90	
	0.074	85	Commuter Rail, Upper Range
Residential Annoyance, Infrequent Events	0.04	80	Rapid Transit, Upper Range
	0.013	75	Commuter Rail, Typical
	0.023	72	Bus or Truck Bump Over
Residential Annoyance, Frequent Events	0.013	70	Rapid Transit, Typical
Approximate Threshold of Human Perception	0.007	65	
	0.005	62	Bus or Truck, Typical
	0.0013	50	Typical Background Vibration Levels

*RMS Vibration Velocity in VdB reference to 10-6 inches/second
Source: FTA (2006)

The degree of annoyance cannot always be explained by the magnitude of the vibrations alone. Phenomena, such as ground-borne noise and rattling, visual effects (e.g., movement of hanging objects), and time of day, all influence the response of individuals. The American National Standards Institute (ANSI) and the International Organization for Standardization (ISO) has developed criteria for evaluation of human exposure to vibrations. The recommendations of these standards and other studies evaluating

human response to vibrations have been incorporated into the Federal Transit Administration's Transit Noise and Vibration Impact Assessment Manual (May 2006). The criteria within this manual are used to assess noise and vibration impacts from transit operations.

1.4 Noise Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. These locations are referred to as noise sensitive areas (NSAs). Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate also are NSAs. Commercial and industrial uses are considered the least noise sensitive. As shown in Figure 1, there are multiple residences near the proposed Project site. The NSAs are also divided into participating and non-participating properties. The participating properties have an agreement with Griffith Energy, LLC in which the property owner accepts that Project noise levels may be higher than regulatory thresholds at their property. A summary of the NSAs is shown below in Table 4.

Table 4. NSA Summary

NSA	Participation Status	UTM Coordinates (meters)		Distance to Project (feet)	Jurisdiction
		Easting	Northing		
NSA-1	Non-participant	628459	4176119	5,500	San Joaquin County
NSA-2	Non-participant	627076	4174143	1,100	Alameda County
NSA-3	Non-participant	627580	4175135	1,310	San Joaquin County
NSA-4	Non-participant	627733	4175104	1,350	San Joaquin County
NSA-5	Non-participant	628927	4175671	5,500	San Joaquin County
NSA-6	Participant	627115	4174455	375	Alameda County
NSA-7	Participant	627139	4174478	300	Alameda County
NSA-8	Participant	627122	4174991	650	Alameda County
NSA-9	Participant	627146	4174731	300	Alameda County
NSA-10	Non-participant	626174	4174293	3,500	Alameda County
NSA-11	Non-participant	627422	4175128	1,300	San Joaquin County

2.0 NOISE AND VIBRATION LEVEL REQUIREMENTS AND GUIDELINES

Potential noise impacts associated with the Project were evaluated with respect to the applicable CEQA noise requirements, the San Joaquin County Ordinance Code, and the Alameda County Ordinance Code. Details regarding each set of requirements are provided below.

2.1 California Environmental Quality Act

CEQA requires that significant environmental impacts be identified and that such impacts be eliminated or mitigated to the extent feasible. Appendix G of the CEQA Statutes and Guidelines (State Clearing House, Office of Planning and Research and the Natural Resources Agency, 2023) sets forth a series of suggested thresholds for determining a potentially significant impact. Under the thresholds suggested in Appendix G, the proposed Project could be considered to have significant noise and vibration impacts if it results in one or more of the following:

a) Generation of 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 in other applicable local, state, or federal standards?

b) Generation of excessive groundborne vibration or groundborne noise level?

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan had 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?

2.2 San Joaquin County Ordinance Code

San Joaquin County regulates noise through Chapter 9-1025 within the County Ordinance Code. Per Table 9-1025.9 Part II of the San Joaquin County Ordinance Code, exterior noise at noise sensitive areas is limited to 50 dBA during the daytime (7:00 a.m. to 10:00 p.m.) and 45 dBA during the nighttime (10:00 p.m. to 7:00 a.m.). Further, maximum noise levels are not permitted to exceed 70 dBA during the daytime and 65 dBA during nighttime. Noise sources associated with construction are exempt from these maximum noise levels, provided construction does not occur before 6:00 a.m. or after 9:00 p.m. on any day.

Chapter 9-1025.5 goes on to set limits on maximum displacement due to vibration but also exempts operations involved in the construction or demolition of structures or infrastructure.

2.3 San Joaquin County General Plan

The San Joaquin County General Plan does not contain regulations for acceptable noise levels. However, for a CEQA analysis, the General Plan defines a significant impact as 3 dB above the ambient level.

2.4 Alameda County Ordinance

Alameda County regulates noise through Chapter 6.60 within the County Ordinance Code. Per Table 6.60.040A of the Alameda County Ordinance Code, exterior noise at noise sensitive areas is limited to 50 dBA during the daytime (7:00 a.m. to 10:00 p.m.) and 45 dBA during the nighttime (10:00 p.m. to 7:00 a.m.). Further, maximum noise levels are not permitted to exceed 70 dBA during the daytime and 65 dBA

during nighttime. Noise sources associated with construction are exempt from these maximum noise levels, provided construction does not occur before 7:00 a.m. or after 7:00 p.m. on a weekday, and before 8:00 a.m. or after 5:00 p.m. on the weekend.

Section 6.60.050(8) states the limits related to vibration. Operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty (150) feet (forty-six (46) meters) from the source if on a public space or public right-of-way.

2.5 Alameda County General Plan and East County Area Plan Noise Element

The Alameda County General Plan Noise Element does not contain regulations for acceptable noise levels. The ECAP does contain one policy that pertains to acceptable noise levels and is applicable to the Project (Alameda County 2000):

> ***Policy 288***: *The County shall endeavor to maintain acceptable noise levels throughout East County.*

3.0 EXISTING SOUND ENVIRONMENT

The Project is bounded to the north by grazing land, rural residences, the West Patterson Pass, and the Union Pacific Railroad. To the east lies grazing land and open space. Rural residences, grazing land, and open space bound the Project to the south. The Project is bounded by rural residences, grazing land, and the PG&E Tesla Substation to the west.

The most significant sources of noise in the vicinity of the Project are vehicular traffic on Interstate 580 and the local street network. Railroad trains intermittently generate noise levels that are significant along the railroad tracks. General aviation aircraft using the Tracy Municipal Airport also contribute to intermittent noise levels. Noise is also generated on individual parcels whether industrial, office, retail or residential.

The San Joaquin County 2035 General Plan EIR contains ambient noise monitoring results at several locations within the County. The closest monitoring location is approximately 2.5 miles northeast of the Project site and shows an L_{eq} ranging from 39-45 dBA during the morning, 44-50 dBA during the afternoon, and 40-47 dBA during the night. The General Plan also shows an L_{max} ranging from 51-66 dBA during the morning, 58-78 dBA during the afternoon, and 47-68 dBA during the night.

4.0 PROJECT CONSTRUCTION

4.1 Noise Calculation Methodology

Acoustic emission levels for activities associated with Project construction were based upon typical ranges of energy equivalent noise levels at construction sites, as documented by the United States Environmental Protection Agency (USEPA 1971) and the USEPA's "Construction Noise Control Technology Initiatives" (USEPA 1980). The USEPA methodology distinguishes between type of construction and construction stage.

The basic model assumed spherical wave divergence from a point source located at the center of the Project site to each receptor structure. Furthermore, the model conservatively assumed that all pieces of construction equipment associated with an activity would operate simultaneously for the duration of that activity. An additional level of conservatism was built into the construction noise model by excluding potential shielding effects due to intervening structures and buildings along the propagation path from the site to receiver locations such as residential buildings.

4.2 Projected Noise Levels During Construction

The construction processes are anticipated to occur during a period of approximately 15 months and begin in 2024. Project construction would generally consist of five major stages. The first stage would include mobilization, site preparation, fencing, and laydown. The second stage would involve excavation, trenching and trench backfill. The medium-voltage stations would sit on concrete foundations or driven piles, pending final design. The construction noise analysis conservatively assumes pile driving will be required for this activity as part of the second stage. Pile driving would be the worst-case option in terms of noise as opposed to using concrete foundations. The third stage includes installation of cables and utilities. The fourth stage includes construction and installation of the battery storage units, and also includes commissioning and testing. The final stage includes road paving. Table 5 summarizes the proposed equipment to be used for each stage and the associated noise level of the equipment. Table 6 summarizes the received construction noise levels at each NSA.

Noise levels resulting from the construction activities would vary significantly depending on several factors such as the type and age of equipment, specific equipment manufacture and model, the operations being performed, and the overall condition of the equipment and exhaust system mufflers. Project construction would occur between 7:00 a.m. and 7:00 p.m., in compliance with the County's Code. Although the County's ordinance may exempt daytime construction noise from the County's typical noise requirements, construction noise may still be considered an impact under CEQA. The Federal Transit Administration has published construction noise impact criteria levels of an 80 dBA 8-hour L_{eq} for the day and a 70 dBA 8-hour L_{eq} for the night for residential land uses. Table 6 shows that the highest construction noise levels at a non-participating receptor will be 63 dBA L_{eq} and 69 dBA L_{max} at NSA-11. This level is below the FTA guidance level of 70 dBA L_{eq} and is within the range of measured ambient L_{max} values published in The San Joaquin County 2035 General Plan EIR, is within the range of measured ambient L_{max} values published in The San Joaquin County 2035 General Plan EIR, which show an L_{max} ranging from 51 to 66 dBA during the morning, 58 to 78 dBA during the afternoon, and 47 to 68 dBA during the night. Due to these circumstances, the temporary increase in noise due to construction is considered to be a less than significant impact.

Table 5. Construction Equipment Noise Levels by Stage (dBA L_{max})

Construction Stage	Equipment			
	Equipment Type	Quantity	Usage Factor (%)	USEPA Construction Noise Level (50 feet), dBA L_{max}
Site Clearing and Preparation (Stage 1)	Air Compressors	4	40	80
	Tractors/Loaders/Backhoes	2	40	80
	Graders	2	40	85
	Off-Highway Trucks	8	40	55
	Rollers	2	20	85
	Rubber Tired Dozers	2	40	85
	Rubber Tired Loaders	2	40	80
	Skid Steer Loaders	4	40	80
	Trenchers	2	50	82
	Dump Trucks	8	40	84
	Generators	4	50	82
Energy Storage Enclosure and Substation Installation (Stage 2)	Air Compressors	4	40	80
	Cranes	2	16	85
	Excavators	4	40	85
	Generator Sets	4	50	82
	Forklifts	2	50	85
	Plate Compactors	2	20	80
	Rollers	2	20	85
	Tractors/Loaders/Backhoes	6	40	80
	Pile Driver	1	20	95
Gen-Tie Line Foundation and Tower Erection (Stage 3)	Air Compressors	2	40	80
	Cranes	2	16	85
	Forklifts	2	50	85
	Generator Sets	2	50	82
	Pumps	2	50	77
	Welders	2	40	73
Gen-Tie Line Pulling and Stringing (Stage 4)	Forklifts	2	50	85
	Generator Sets	2	50	82
	Tractors/Loaders/Backhoes	2	40	80
Testing and Commissioning (Stage 5)	Off-Highway Trucks	3	40	55

Table 6. Received Construction Equipment Noise Levels by Stage (dBA L_{eq}, L_{max})

NSA	Participation Status	UTM Coordinates (meters)		Distance to Center of Construction (feet)	Construction Noise Levels									
		Easting	Northing		Stage 1		Stage 2		Stage 3		Stage 4		Stage 5	
					L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
NSA-1	Non-participant	628459	4176119	6075	52	56	52	57	47	51	46	49	14	18
NSA-2	Non-participant	627076	4174143	1850	62	67	62	68	57	62	56	59	24	28
NSA-3	Non-participant	627580	4175135	1850	62	67	62	68	57	62	56	59	24	28
NSA-4	Non-participant	627733	4175104	1975	62	66	62	67	57	61	56	59	24	28
NSA-5	Non-participant	628927	4175671	6125	52	56	52	57	47	51	46	49	14	18
NSA-6	Participant	627115	4174455	1025	68	72	68	73	62	67	61	64	30	34
NSA-7	Participant	627139	4174478	925	68	73	69	74	63	68	62	65	30	34
NSA-8	Participant	627122	4174991	1550	64	68	64	69	59	63	58	61	26	30
NSA-9	Participant	627146	4174731	900	69	73	69	74	64	68	62	66	31	35
NSA-10	Non-participant	626174	4174293	4125	56	60	56	61	50	55	49	52	18	21
NSA-11	Non-participant	627422	4175128	1700	63	67	63	69	58	62	57	60	25	29

4.3 Construction Best Practice Design Measures

As shown in Section 4.2 the noise generated from the construction of the project would not generate a significant impact. However, since construction machines operate intermittently, and the types of machines in use at the Project site change with the stage of construction, noise emitted during construction would be mobile and highly variable. Therefore, to help minimize noise impacts the Project's construction management protocols would implement the following best practice noise reduction design measures:

- Maintain all construction tools and equipment in good operating order according to manufacturers' specifications;
- Limit use of major excavating and earth-moving machinery to daytime hours (7:00 a.m. to 7:00 p.m.);
- To the extent practicable, schedule construction activity during normal working hours on weekdays when higher sound levels are typically present and are found acceptable. Some limited activities, such as concrete pours, would be required to occur continuously until completion;
- Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks;
- For construction devices that utilize internal combustion engines, ensure the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible;
- Limit possible evening shift work to low noise activities such as welding, wire pulling, and other similar activities, together with appropriate material handling equipment; and
- Utilize a Complaint Resolution Procedure to address any noise complaints received from residents.

5.0 VIBRATION CALCULATION METHODOLOGY

Vibration levels for activities associated with Project construction were based on the average of source levels in PPV published with the Federal Transit Administration (2006) Noise and Vibration Manual, which documents several types of construction equipment measured under a wide variety of construction activities. Using the documented vibration levels as input into a basic propagation model, construction vibration levels were calculated at the nearest Project site boundary and then at the NSA structure.

5.1 Projected Vibration Levels During Construction

As discussed in Section 4.2, Project construction would be completed in five work stages. This vibration analysis evaluated the worst-case vibration source, which would be the pile driver. Based on vibration propagation calculations, construction vibration levels are predicted to be 0.00255 PPV in/sec, or 56 VdB, at the nearest non-participating residential receptor, which is approximately 1,000 feet from the site. These levels are based on the worst-case vibration producing equipment and it is expected that other vibration generating equipment proposed for the Project construction would result in lower vibration levels. Vibration levels at the nearest non-participating sensitive receptor will be below the minimum vibration level for human perception of 65 VdB.

6.0 OPERATIONAL NOISE

This section describes the model utilized for the assessment; input assumptions used to calculate noise levels due to the Project's normal operation; a conceptual noise mitigation strategy, and the results of the noise impact analysis.

6.1 Noise Prediction Model

The Cadna-A® computer noise model was used to calculate sound pressure levels from the operation of the Project equipment in the vicinity of the Project site. An industry standard, Cadna-A® was developed by DataKustik GmbH to provide an estimate of sound levels at distances from sources of known emission. It is used by acousticians and acoustic engineers due to the capability to accurately describe noise emission and propagation from complex facilities consisting of various equipment types like the Project and in most cases, yields conservative results of operational noise levels in the surrounding community.

The current ISO standard for outdoor sound propagation, ISO 9613 Part 2 – "Attenuation of Sound during Propagation Outdoors," was used within Cadna-A (ISO 1996). The method described in this standard calculates sound attenuation under weather conditions that are favorable for sound propagation, such as for downwind propagation or atmospheric inversion, conditions which are typically considered worst-case. The calculation of sound propagation from source to receiver locations consists of full octave band sound frequency algorithms, which incorporate the following physical effects:

- Geometric spreading wave divergence;
- Reflection from surfaces;
- Atmospheric absorption at 10 degrees Celsius and 70 percent relative humidity;
- Screening by topography and obstacles;
- The effects of terrain features including relative elevations of noise sources;
- Sound power levels from stationary and mobile sources;
- The locations of noise-sensitive land use types;
- Intervening objects including buildings and barrier walls, to the extent included in the design;
- Ground effects due to areas of pavement and unpaved ground;
- Sound power at multiple frequencies;
- Source directivity factors;
- Multiple noise sources and source type (point, area, and/or line); and
- Averaging predicted sound levels over a given time.

Cadna-A allows for three basic types of sound sources to be introduced into the model: point, line, and area sources. Each noise-radiating element was modeled based on its noise emission pattern. Larger dimensional sources such as the transformers were modeled as area sources.

Off-site topography was obtained using the publicly available United States Geological Survey digital elevation data. A default ground attenuation factor of 0.5 was assumed for off-site sound propagation over acoustically "mixed" ground.

The output from Cadna-A includes tabular sound level results at selected receiver locations and colored noise contour maps (isopleths) that show areas of equal and similar sound levels.

6.2 Input to the Noise Prediction Model

The Project's general arrangement was reviewed and directly imported into the acoustic model so that on-site equipment could be easily identified; buildings and structures could be added; and sound emission data could be assigned to sources as appropriate. Figure 2 shows the Project equipment layout based on the layout, which was provided to Tetra Tech from Griffith Energy Storage, LLC.

The primary noise sources during operations are the transformers and battery storage heating, ventilation and air conditioning units. It is expected that all equipment would operate in a consistent manner during both daytime and nighttime hours. Reference sound power levels input to Cadna-A were provided by Griffith Energy Storage, LLC (Burns & McDonnell 2021). The sound levels that were provided show that operation of the inverter/transformers will produce a sound pressure level of 80.5 dBA measured at 3 feet, and that operation of the battery storage and heating, ventilation and air conditioning equipment will produce 70 dBA measured at 3 feet.

The proposed battery energy storage system would deliver power to the Tesla Substation located adjacent to the Project Site in Alameda County through a new 230 kilovolt gen-tie line. The Applicant would construct the gen-tie from the Project substation to the point south of the Tesla Substation. There are no planned modifications to the Tesla Substation as part of the Project. The Electric Power Research Institute has conducted several studies of corona effects (EPRI 1978, 1987). The typical noise levels for transmission lines with wet conductors are shown in Table 7, and as such a noise level of 40 dBA was used for the transmission line in the noise model.

Table 7. Transmission and Sub-transmission Line Voltage and Audible Noise Levels

Line Voltage (kV)	Audible Noise Level Directly Below the Conductor (dBA)
138	34
240	40
360	51


Griffith Energy Storage Project
Figure 2
Facility Equipment Layout
SAN JOAQUIN COUNTY, CA
Project Area
BESS Locations
Inverter Transformer
Transmission Line
County Boundary
County Highway
Local Roads
Reference Map
OR
ID
UT
NV
CA
TETRA TECH
NEXTera ENERGY RESOURCES
N Hindsley Rd
Patterson Pass Rd
W Patterson Pass Rd
Midway Rd
Alameda County
San Joaquin County
1:5,000
WGS 1984 UTM Zone 10N
0 0.03 0.05 0.1 0.15 0.2
Miles
NOT FOR CONSTRUCTION

6.3 Results of the Noise Prediction Model

Broadband (dBA) sound pressure levels were calculated for expected normal Project operation assuming that all components identified previously are operating continuously and concurrently at the representative manufacturer-rated sound. The sound energy was then summed to determine the equivalent continuous A-weighted downwind sound pressure level at a point of reception. Sound contour plots displaying broadband (dBA) sound levels presented as color-coded isopleths are provided in Figure 3. The sound contours are graphical representations of the cumulative noise associated with full operation of the equipment and show how operational noise would be distributed over the surrounding area of the Project site. The contour lines shown are analogous to elevation contours on a topographic map, i.e., the noise contours are continuous lines of equal noise level around some source, or sources, of noise.

Table 8 shows the projected exterior sound levels at the property boundary of each NSA. The results indicate that the Project will not comply with the San Joaquin County 45 dBA nighttime noise regulation at 7 non-participating NSAs.

6.3.1 Mitigated Noise Model Results

In order for the Project to reach compliance, mitigation was designed in the form of sound walls. For this specific application, wall geometry (i.e., height, length, and location) is more important than the acoustic mitigation properties of the wall material, provided the wall material is of sufficient mass. Most of the noise received by the neighboring properties would be noise traveling over and around the walls, not through them.

The sound wall configuration runs along the perimeter of the Project and between select battery storage units. The sound walls' geometric properties are provided below.

- 20-foot-tall section totaling 1,998 linear feet
- 26-foot-tall section totaling 1,995 linear feet
- 26-foot-tall section totaling 302 linear feet
- 26-foot-tall section totaling 308 linear feet
- 26-foot-tall section totaling 650 linear feet

Table 8 and Figure 4 shows the projected exterior sound levels at the property boundary of each NSA with mitigation. The results indicate that the Project will comply with the San Joaquin County 45 dBA limit at all non-participating receptors with the implementation of the sound barriers. The highest level at a non-participating receptor will be 45 dBA at NSA 2.

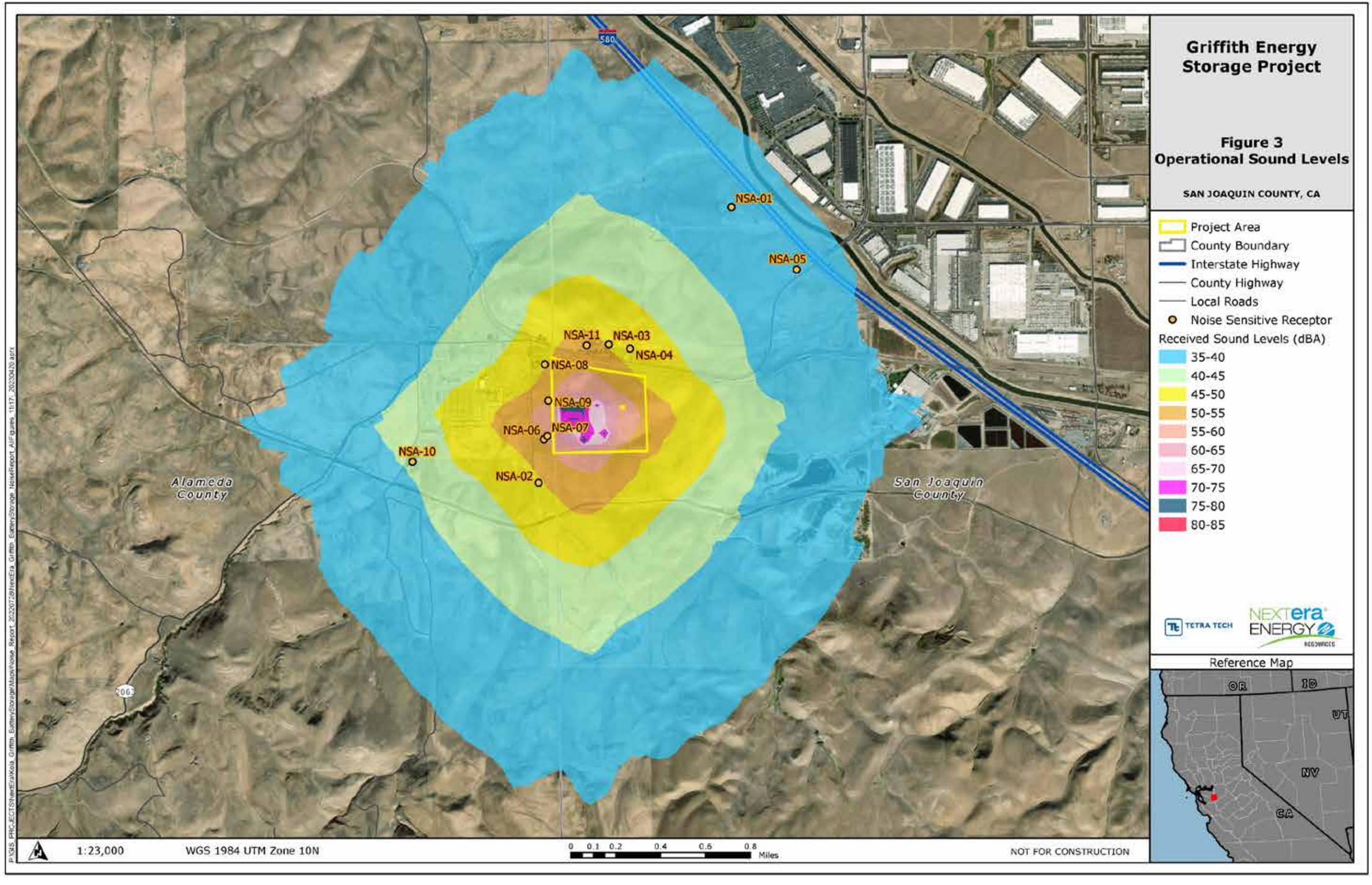
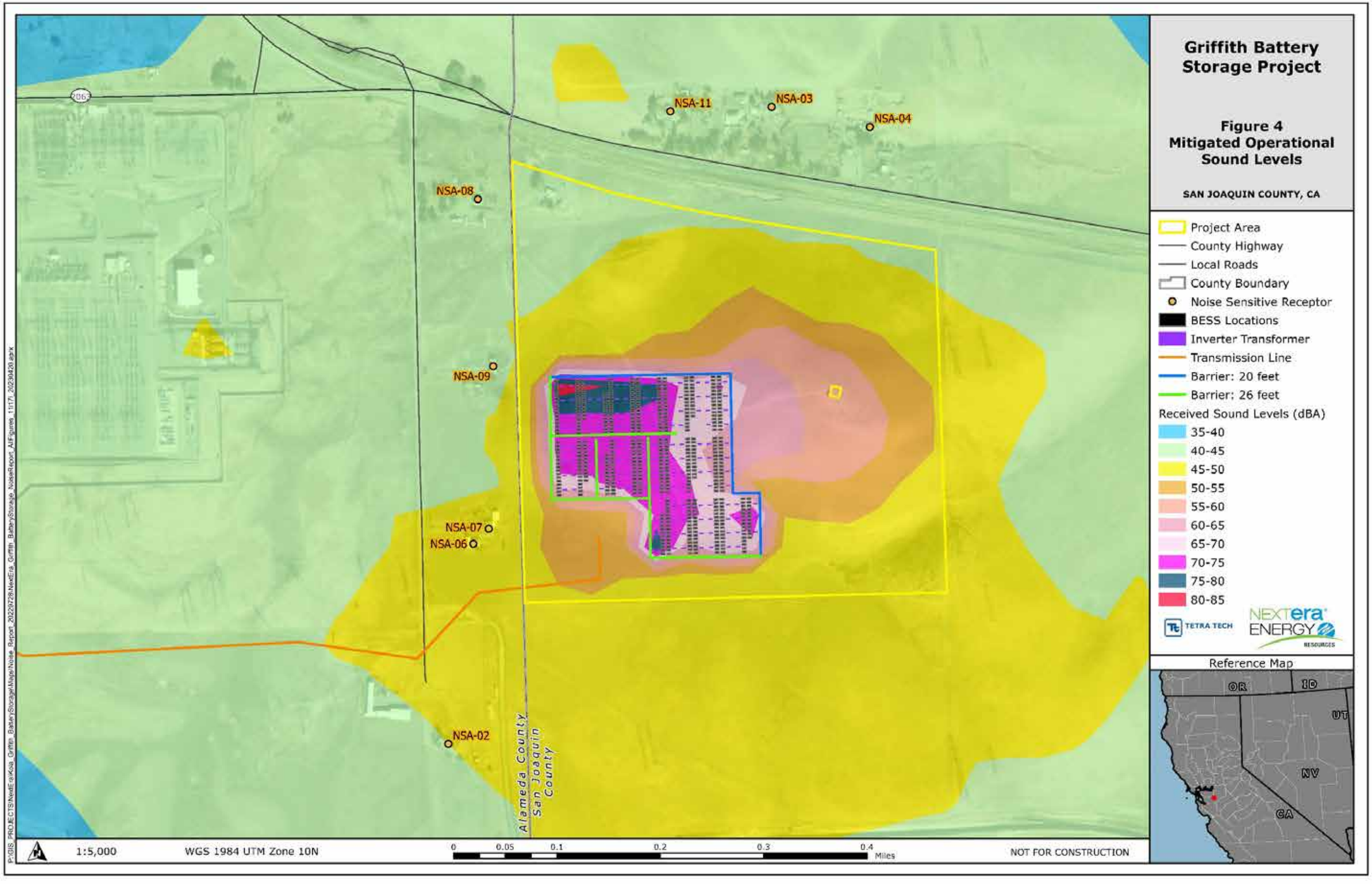

Griffith Energy Storage Project
Figure 3
Operational Sound Levels
SAN JOAQUIN COUNTY, CA
Project Area
County Boundary
Interstate Highway
County Highway
Local Roads
Noise Sensitive Receptor
Received Sound Levels (dBA)
35-40
40-45
45-50
50-55
55-60
60-65
65-70
70-75
75-80
80-85
NSA-01
NSA-02
NSA-03
NSA-04
NSA-05
NSA-06
NSA-07
NSA-08
NSA-09
NSA-10
NSA-11
580
Alameda County
San Joaquin County
Reference Map
OR
ID
UT
NV
CA
1:23,000
WGS 1984 UTM Zone 10N
0 0.1 0.2 0.4 0.6 0.8 Miles
NOT FOR CONSTRUCTION

Table 8. Acoustic Modeling Results Summary

NSA Property Line	Participation Status	UTM Coordinates (meters)		Modeled Operational L_{eq}, dBA	Mitigated Modeled Operational L_{eq}, dBA
		Easting	Northing		
NSA-1	Non-participant	628459	4176119	35	33
NSA-2	Non-participant	627076	4174143	49	45
NSA-3	Non-participant	627580	4175135	49	44
NSA-4	Non-participant	627733	4175104	48	43
NSA-5	Non-participant	628927	4175671	35	33
NSA-6	Participant	627115	4174455	54	46
NSA-7	Participant	627139	4174478	55	46
NSA-8	Participant	627122	4174991	49	44
NSA-9	Participant	627146	4174731	53	44
NSA-10	Non-participant	626174	4174293	43	39
NSA-11	Non-participant	627076	4174143	50	44


Griffith Battery Storage Project
Figure 4
Mitigated Operational Sound Levels
SAN JOAQUIN COUNTY, CA
Project Area
County Highway
Local Roads
County Boundary
Noise Sensitive Receptor
BESS Locations
Inverter Transformer
Transmission Line
Barrier: 20 feet
Barrier: 26 feet
Received Sound Levels (dBA)
35-40
40-45
45-50
50-55
55-60
60-65
65-70
70-75
75-80
80-85
TETRA TECH
NEXTera ENERGY RESOURCES
Reference Map
OR
ID
UT
NV
CA
NSA-11
NSA-03
NSA-04
NSA-08
NSA-09
NSA-07
NSA-06
NSA-02
Alameda County
San Joaquin County
1:5,000
WGS 1984 UTM Zone 10N
0 0.05 0.1 0.2 0.3 0.4 Miles
NOT FOR CONSTRUCTION

7.0 CONCLUSION

Project construction would occur between 7:00 a.m. and 7:00 p.m., in compliance with the San Joaquin County Ordinance Code and is exempt from noise regulations during this time. The highest construction noise levels at a non-participating receptor will be 63 dBA L_{eq} and 69 dBA L_{max} at NSA-11. This level is below the FTA guidance level of 70 dBA L_{eq} and is within the range of measured ambient L_{max} values published in The San Joaquin County 2035 General Plan EIR, which show an L_{max} ranging from 51 to 66 dBA during the morning, 58 to 78 dBA during the afternoon, and 47 to 68 dBA during the night. Due to these circumstances, the temporary increase in noise due to construction is considered to be a less than significant impact.

During Project construction, the worst-case vibration source would be the pile driver. Based on vibration propagation calculations, construction vibration levels are predicted to be 0.00255 PPV in/sec, or 56 VdB, at the nearest non-participating residential receptor, which is approximately 1,000 feet from the site. These levels are based on the worst-case vibration producing equipment and it is expected that other vibration generating equipment proposed for the Project construction would result in lower vibration levels. Vibration levels at the nearest non-participating sensitive receptor will be below the minimum vibration level for human perception of 65 VdB.

Normal Project operations would occur during the daytime and nighttime periods. Noise modeling shows that the Project will not meet compliance with the 45 dBA limit at 7 non-participating receptors; however, with the implementation of the proposed noise barriers, the Project will meet compliance at all non-participating receptors. The highest noise level associated with the mitigated Project operations is 45 dBA at NSA-3, while the ambient noise level ranges from 39 to45 dBA during the morning, 44 to 50 dBA during the afternoon, and 40 to 47 dBA during the night.

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Appendix G
Traffic Impact Study

TRAFFIC IMPACT STUDY

Griffith Energy Storage Project

San Joaquin County, California



February 1, 2023

Griffith Energy Storage, LLC

EXECUTIVE SUMMARY

The construction and operation of the Griffith Energy Storage Project (Project) would result in a less than significant impact to San Joaquin County Infrastructure. At peak construction, there would be approximately 60 workers and 10 to 20 trucks per day. The peak period is approximately five months and total construction is approximately twelve months, plus an additional three months of testing and commissioning. The analysis was performed with consideration for vehicle miles traveled. This resulted in impacts that are considered acceptable from both construction and operations Project-related traffic.

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APPENDICES

Appendix A. Traffic Data
Appendix B. Calculations

ACRONYMS AND ABBREVIATIONS

°	decimal degrees
AC	alternating current
BESS	battery energy storage system
CEQA	California Environmental Quality Act
DC	direct current
Facility	Griffith Energy Storage Facility
GHG	greenhouse gas
Guide	Guide for the Preparation of Traffic Impact Studies
MW	megawatt
PG&E	Pacific Gas & Electric
Project	Griffith Energy Storage Project
TIS	Traffic Impact Study
VMT	Vehicle Miles Traveled

1.0 OVERVIEW

Griffith Energy, LLC (Applicant) is proposing to construct and operate the 400-megawatt (MW) Griffith Energy Storage Project (Project) in San Joaquin County, California. Tetra Tech Inc. performed a technical analysis of traffic impacts related to the Project on behalf of the Applicant using the Caltrans *Transportation Impact Study Guide* (Guide; Caltrans 2020) which replaced the Caltrans *Guide for the Preparation of Traffic Impact Studies* (GPTIS; Caltrans 2002). Per the new California Environmental Quality Act (CEQA) requirements, the Guide provides direction on performing a vehicle miles traveled (VMT) analysis. This Traffic Impact Study (TIS) will focus on:

- Existing traffic volumes and current local infrastructure conditions/characteristics.
- Projected VMT with the presence of the Project.
- Peak construction impacts during the month(s) of construction that would have the largest number of workers and deliveries as well as implications for the remaining construction process.
- Post construction, operational impacts of the Project.
- Discussion of the results and implications.

The purpose of this TIS is to qualify and quantify impacts of construction and operations traffic to the local transportation infrastructure. It provides San Joaquin County with the information necessary for approval of the Project and to satisfy requirements of the Guide.

2.0 PROJECT DESCRIPTION

On behalf of the Applicant, Tetra Tech Inc. has prepared this Traffic Impact Study to assess the potential transportation impacts of the proposed construction and operation of the Project. The Project consists of constructing and operating a 400-MW Energy Storage Project to provide reliable and flexible power to the local electrical system. The Project would contain pad-mounted energy storage units, in addition to inverters, supervisory control and data acquisition equipment, a collector substation, and an interconnection gen-tie line to the Tesla Substation. The Tesla Substation is adjacent to the Project to the west, in Alameda County. The Project would also include related and supporting facilities such as on-site service roads, gates and security fencing, and temporary laydown and construction areas. Each enclosure would be equipped with heating, ventilation, and air conditioning systems for thermal management of the batteries. The power for the heating, ventilation, and air conditioning system would be provided through a connection to the on-site station service transformer with connection lines installed above and/or below ground.

The Project would support the state policies necessary to meet the California renewable energy standards. California has proceeded to advance energy storage uses to support the grid, including the passage of AB 2514, as well as the resulting California Public Utilities Commission decision for energy procurement targets for each of the investor-owned utilities. The proposed Project would substantially increase local energy storage capacity and address the limitations of the electrical grid by the increasing demand for renewable energy. The Project would support the state policies necessary to meet the California renewable energy standards. California has proceeded to advance energy storage uses to support the grid, including the passage of AB 2514, as well as the resulting California Public Utilities Commission decision for energy procurement targets for each of the investor-owned utilities. The proposed Project would substantially increase local energy storage capacity and address the limitations of the electrical grid by the increasing demand for renewable energy.

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be operated by the Applicant or an affiliated company remotely. Periodic augmentation of batteries within the Project site may occur. Only occasional, on-site maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

During operation of the Project substation, operation and maintenance staff would visit the substation periodically for switching and other operation activities. Routine operations would require one or two workers in a light utility truck to visit the facility on a weekly basis. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one major maintenance inspection would take place annually.

2.1 PROJECT LOCATION

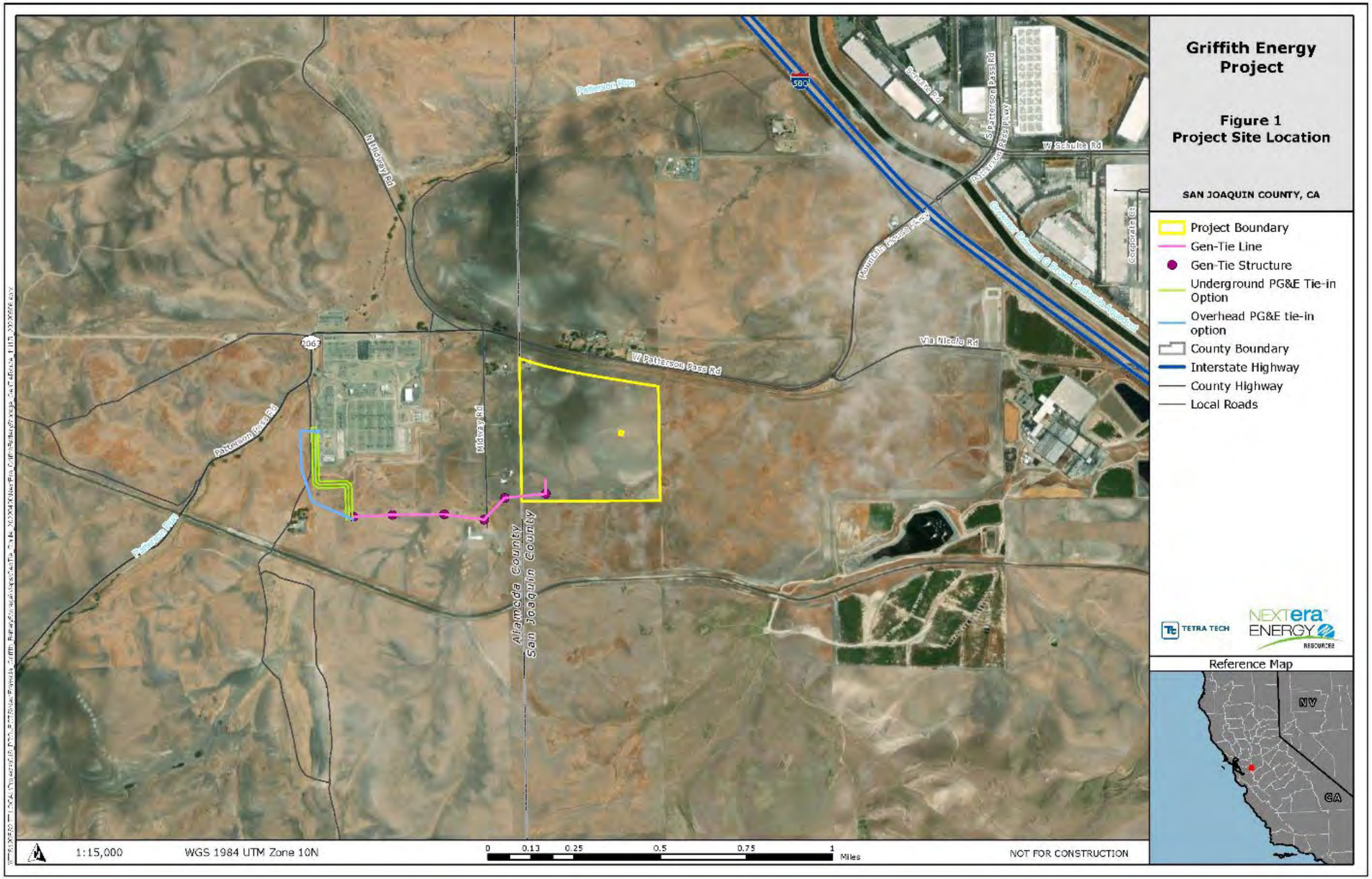
The Project site is located along the western edge of San Joaquin County. The Project sits approximately 0.9 mile southwest of Interstate 580 and approximately 5 miles southwest of the city of Tracy, adjacent to PG&E Tesla Substation, as shown on Figure 1. The Project site is private land zoned as Agricultural General-160 and designated as General Agriculture. Division 14, Section 9 115.580 of the San Joaquin County Municipal Ordinance Code allows any major utilities on Agricultural General zoned land through a Site Approval application (San Joaquin County 2021). Land uses on the Project site consist of private land used for grazing and includes two rural residences.

The Project is bounded to the north by grazing land, rural residences, the West Patterson Pass, and the Union Pacific Railroad. To the east lies grazing land and open space. Rural residences, grazing land, and open space bound the Project to the south. The Project is bounded by rural residences, grazing land, and the PG&E Tesla Substation to the west.

More specifically, the Project site is entirely within SN 32 2S 4E Township 4 East, Range 2 South, Section 32. The Project site is centered at approximately latitude 37.711° and longitude of -121.553° (in decimal degrees).

For the purposes of the TIS, an Area of Interest or Project Area is not a finite bounded area, but rather the nearby towns and cities where workers may stay and commute from, the routes they will take with regards to mileage, and any locations where materials for the project may be acquired. The areas of interest for this project are as follows:

- City of Tracy
- City of Livermore
- City of Manteca
- City of Dublin
- Port of Oakland



PROJECT SITE LOCATION
FIGURE 1

2.2 PROJECT SCHEDULE

The Project is scheduled to go through the permitting process and the CEQA review during 2023. Construction is anticipated to begin as early as 2024 and would be underway for 15 months.

More specifically, site civil grading and preparation work would occur for approximately 4 months, at which point the energy storage enclosure and substation construction would take place for approximately 4-9 months. After this, the gen-tie foundations would be poured and the towers would be erected for 5 weeks, then the gen-tie lines would be pulled and strung on the towers over the course of another 5 weeks. Finally, testing and commissioning would take place for approximately 11 weeks.

Project Contacts

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2.3 METHODOLOGY

This study was designed to evaluate potential impacts to the environment from emissions due to vehicle use. This was accomplished by evaluating the additional VMT caused by construction and operations.

2.3.1 Vehicle Miles Traveled

The VMT metric is project-based and is implemented to help quantify traffic induced by construction and operations. The VMT metric is used to align effects on traffic with greenhouse gas (GHG) emissions. VMT is presented as a time-dependent value, i.e., the number of additional VMT per week during construction and operations, as well as a total VMT value for the entire Project. The California Natural Resources

Agency adopted changes to the CEQA identifying VMT as “the most appropriate metric to evaluate a project’s transportation impacts…Thus, to achieve the State’s long-term climate goals, California needs to reduce per capita VMT.” The VMT values calculated should be compared to a jurisdictionally determined threshold of significance that ultimately dictates whether a project’s traffic impacts are significant and require mitigation or are a less than significant impact.

San Joaquin County has not yet developed a threshold of significance for VMT, so in lieu of that the criteria as stated in the Technical Advisory on Evaluating Transportation Impacts in CEQA (CEQA 2018) would apply:

> The VMT metric can support the three statutory goals: “the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” (Pub. Resources Code, § 21099, subd. (b)(1)) However, in order for it to promote and support all three, lead agencies should select a significance threshold that aligns with state law on all three. State law concerning the development of multimodal transportation networks and diversity of land uses requires planning for and prioritizing increases in complete streets and infill development but does not mandate a particular depth of implementation that could translate into a particular threshold of significance. Meanwhile, the State has clear quantitative targets for GHG emissions reduction set forth in law and based on scientific consensus, and the depth of VMT reduction needed to achieve those targets has been quantified. Tying VMT thresholds to GHG reduction also supports the two other statutory goals. Therefore, to ensure adequate analysis of transportation impacts, OPR [Office of Planning and Research] recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so.

3.0 TRIP GENERATION

Trip generation data for a BESS facility are not available in the Institute of Transportation Engineers *Trip Generation Manual*; however, detailed traffic volumes are known for the Project site from planning and scheduling of the construction activities as well as the Applicant's experience with construction and operation of similar BESS facilities. This data is included in Appendix A—Construction and Traffic Data. Trip generation is summarized in tabular format in Table 3. The values shown are conservative and may be higher than actual daily traffic. Given the short distance between urban areas and the Project site, it is anticipated that workers would be unlikely to carpool.

Peak hours for the Project are expected to be between 7:00 and 8:00 AM and 5:00 and 6:00 PM, when construction workers would commute to and from the site. Once constructed, the Project would operate 7 days per week and 365 days per year. The facility would be operated by the Applicant or an affiliated company remotely. Periodic augmentation of batteries within the Project site may occur. Only occasional, on-site maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. No permanent sanitary facilities would be required.

During operation of the Project substation, operation and maintenance staff would visit the substation periodically for switching and other operation activities. Routine operations would require one or two workers in a light utility truck to visit the facility on a weekly basis. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one major maintenance inspection would take place annually. Due to the self-operating nature of the facilities and the infrequency of on-site visits, there would be no impact to peak hour traffic associated with the routine operations of the Project.

Table 1. Trip Generation

Phase	Daily	
	Workers	Trucks
Average Construction Traffic	37	20
Peak Construction Traffic	60	20
Operations	0*	0*
20-year horizon operations	0*	0*

* Operations short and long term are expected approximately twice a year resulting in no trips to the site on an average day.

3.1 TRIP DISTRIBUTION

The Project traffic distribution is a reasonable estimate based on the battery equipment manufacturer, proximity to cities, commonality of the remaining materials like fencing and concrete, location of hotels, size of local communities for both attractiveness for workers to stay there, and likelihood that there are local residents that would work on the Project. Based on these considerations, it is expected that the Project battery equipment would arrive by ship to the Port of Oakland, which is 47 miles from the project location. The battery equipment would likely be delivered with standard five-axle semi-trucks by way of I-5 to the Project location and are assumed to be 50% of the total materials loads. The remaining materials and equipment (construction equipment, aggregate, concrete, fencing, cables and electrical equipment, etc.) are assumed to be found locally and split 50% from Oakland and 50% from Stockton.

Workers could reside in any number of local communities or hotels. Due to the close proximity of the City of Tracy and good availability of hotels and lodging there, it is likely many workers will stay there. The

other closest residential locations to the Project are the hotels in Ulmar, Livermore, and Pleasanton. Additional nearby communities include Verona, Asco, Dublin, Lathrop, and Manteca. The nearest large urban areas are Tracy, (9 miles, 18 minutes) and Ulmar (12 miles, 18 minutes). Because both are close in proximity, both will be included in analysis as possible commuting locations. Because so many local communities exist, the analysis did not consider all possible locations. It has been simplified to be representative and conservative. The communities in addition to Tracy and Ulmar that are included are Dublin (25 miles, 28 minutes) and Manteca (27 miles, 40 minutes). An estimated 40% of workers are estimated to come from Tracy, 30% from Ulmar, 15% from Dublin, and 15% from Manteca.

4.0 PROJECT IMPACTS

4.1 VEHICLE MILES TRAVELED

The VMT analysis aims to quantify the total number of vehicle miles added to the roads as a direct result of the construction and operations of the Project. The analysis looked at the estimated number of workers expected on site for each construction phase and multiplied that by the approximate distance traveled and the number of times per week that distance is traversed (i.e., commutes happen 10 times per week = 2 times per day). The distances were estimated as follows:

- The site is located within 20 miles of several communities and towns. The nearby communities include Tracy, Dublin, Ulmar, Livermore, Verona, Asco, Lathrop, and Manteca. The nearest large communities include Trace and Ulmar. The closest possible housing to the site are hotels located in Tracy and Ulmar, with additional lodging available in the other communities listed previously. In an effort to conservatively estimate where workers would come from, 40% of workers were assumed to come from Tracy, 30% from Ulmar, 15% from Dublin, and 15% from Manteca.
- Battery equipment is assumed to be 100% sourced from the Port of Oakland as a conservative estimate of the distance battery equipment may have to travel to reach the Project site.
- For construction materials that can be locally sourced, 50% are assumed to be sourced from Oakland and 50% from Stockton.

Table 2 provides the results of the VMT analysis. The significance of the total VMT and impact implications are discussed in Section 4.1.1. The full analysis with week by week VMT is shown in Appendix B.

Table 2. Construction Vehicle Miles Traveled

Source Location	Distance	Occurrences per week*	Totals
Worker Commute from/to Tracy	9.4	10	128,066
Worker Commute from/to Ulmar	11.3	10	115,463
Worker commute from/to Dublin	24.4	10	124,660
Worker Commute from/to Manteca	23.1	10	118,018
Battery Equipment Deliveries from the Port of Oakland	46.7	53	198,008
Materials Deliveries from Oakland	46.7	27	99,004
Materials Deliveries from Stockton	30.4	26	64,448
Total Passenger Vehicle VMT			486,207
Total Heavy Vehicle VMT			361,460
Grand Total Construction VMT			847,667

*Average over all stages.

4.1.1 Operations VMT

Operational VMT is considerably smaller than the construction VMT. As mentioned previously, on a typical day, no worker would be visiting the site. A conservative estimate of the VMT for operations would assume 2 workers from the city of Oakland every week, a maximum of 4,857 VMT per year during operations. This rate would be typical throughout the operational life of the facility. There would likely be occasional larger repair operations, but these would be infrequent and of short duration. Given the short duration and infrequency of the repairs, these occurrences would add so few VMT that it is not a meaningful inclusion in the analysis. Over the next 20-years, the total VMT for operations is likely less than 97,136 miles.

5.0 CONCLUSIONS

5.1 SIGNIFICANCE OF IMPACTS

5.1.1 Vehicle Miles Traveled

As noted in Section 1.3.1, there is no established threshold of significance for VMT in San Joaquin County. Since no quantitative, qualitative, or performance level is identified, the significance of 847,667 additional miles traveled must be evaluated based on the three guidance criteria from the CEQA Technical Advisory, and based on the following CEQA criteria, the Project is a less than significant impact for VMT:

Reduction of GHG Emissions. The Project is a battery energy storage system facility and the chief aim of constructing such facilities is to increase local energy storage capacity. This Project would support the state policies necessary to meet the California renewable energy standards. California has proceeded to advance energy storage uses to support the grid, including the passage of AB 2514, as well as the resulting California Public Utilities Commission decision for energy procurement targets for each of the investor-owned utilities. The proposed Project would address the limitations of the electrical grid by the increasing demand for renewable energy. Layering energy storage systems into the energy grid improves grid reliability and makes it more resilient to disturbances and peaks in energy demand. The Project and other energy storage systems are used to supply power during brief disturbances, reduce outages and associated impacts to the community, and substitute for certain large footprint transmission and disruption upgrades.

Additionally, Griffith conducted an *Air Quality and Greenhouse Gas Technical Report* for San Joaquin County which concluded a “less than significant impact” for both construction and operations emissions. The GHG technical report identified a quantitative threshold of significance for GHG emissions. The analysis included in that report accounted for construction traffic emissions to determine the total emissions for the Project. Using this definitive quantitative metric yielded a “less than significant impact.” Based on this conclusion a threshold value for VMT would likely be much higher than the Project generated VMT. This assertion is in line with the fact that the guidance for conducting VMT analysis originated with GHG emissions reduction regulations and goals and the guidance states “OPR recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so.”

Diversity of Land Use. Diversity of land use is a more difficult criteria to quantify for a comparative analysis. According to CEQA (2018), “State law concerning the development of multimodal transportation networks and diversity of land uses requires planning for and prioritizing increases in complete streets and infill development but does not mandate a particular depth of implementation that could translate into a particular threshold of significance.”

The Project would diversify land use by changing the current use from undeveloped cropland grazing land to renewable energy storage. While the Project would increase the VMT from undeveloped to developed conditions, nearly all of the VMT are added during a relatively short construction time window. The expected facility maintenance would generate infrequent and light traffic during operations, and it is anticipated that eventually maintenance visits would be reduced to once a month or less and not impact peak hour traffic. Development of the Project would therefore support California’s statutory energy goals—reduction of GHGs through development of a storage facility for renewable energy, development of multimodal transportation networks, and a diversity of land uses.

Development of Multimodal Transportation networks. This CEQA guidance criteria is not relevant to the Project.

5.2 CONCLUSION STATEMENT

The additional vehicle miles that would be traveled by workers and delivery trucks during construction of the Project is considered a less than significant impact. The Project would have no permanent impact on VMT during the operational lifecycle due to the very low maintenance and on-site staff need on a weekly basis.

6.0 REFERENCES

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CEQA (California Environmental Quality Act). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. State of California, Governors Department of Planning and Research.

Tetra Tech. 2022. *Air Quality and Greenhouse Gas Technical Report - Griffith Energy Storage Project*.

Appendix A. Construction and Traffic Data

Stage	Description	Duration (Days)	Week Nos.
1	Site and Substation Preparation and Grading	80	1-16.
2	Energy Storage Enclosure and Substation Installation	180	17-52
3	Gen-Tie Line Foundation and Tower Erection	30	41-46
4	Gen-Tie Line Pulling and Stringing	30	47-52
5	Testing and Commissioning	60	53-64

Construction Phase	Equipment			Daily Worker Vehicle Trips[1]	Daily Vendor Trips[1]	Total Haul Truck Trips[2]
	Equipment Type	Quantity	Usage Hours			
Site Clearing and Preparation	Air Compressors	4	8	40	4	3,680
	Tractors/Loaders/Backhoes	2	8			
	Graders	2	8			
	Off-Highway Trucks	8	8			
	Rollers	2	8			
	Rubber Tired Dozers	2	8			
	Rubber Tired Loaders	2	8			
	Skid Steer Loaders	4	8			
	Trenchers	2	8			
	Dumpers/Tenders	8	8			
	Generators	2	24			
	Generators	2	8			
Energy Storage Enclosure and Substation Installation	Air Compressors	4	8	120	20	3,600
	Cranes	2	8			
	Excavators	4	8			
	Generator Sets	4	8			
	Forklifts	2	8			
	Plate Compactors	2	84			
	Rollers	2	84			
	Tractors/Loaders/Backhoes	6	80			
Gen-Tie Line Foundation and Tower Erection	Air Compressors	2	8	40	4	600
	Cranes	2	8			
	Forklifts	2	8			
	Generator Sets	2	24			
	Pumps	2	8			
	Welders	2	8			
Gen-Tie Line Pulling and Stringing	Forklifts	2	8	49	4	600
	Generator Sets	2	8			
	Tractors/Loaders/Backhoes	2	8			
Testing and Commissioning	Off-Highway Trucks	3	8	100	0	0

Appendix B. Calculations

Stage	Duration (Days)	Worker Commute Trips	vendor trips	Miles to Tracy (40%)	Miles to Ulmar (30%)	Miles to Dublin (15%)	Miles to Manteca (15%)	VMT per Stage
1	90		44	9.40	11.3	24.4	23.1	56529
2	180		140	9.40	11.3	24.4	23.1	359730
3	30		44	9.40	11.3	24.4	23.1	18843
4	30		54	9.40	11.3	24.4	23.1	23125.5
5	60		40	9.40	11.3	24.4	23.1	34260
					Total Passenger Veh. VMT			492488

Stage	Duration (Days)		Total Truck Haul Trips	Miles Port of Oakland (50%)	Miles to Oakland (25%)	Miles to Stockton (25%)	VMT per Stage
1	90		3,680	46.70	46.7	30.4	156860
2	180		3,600	46.70	46.7	30.4	153450
3	30		600	46.70	46.7	30.4	25575
4	30		600	46.70	46.7	30.4	25575
5	60		0	46.70	46.7	30.4	0
				Total Truck VMT			361460

Grand Total Construction VMT 853948

Appendix H

Water Supply Assessment

WATER SUPPLY ASSESSMENT

Griffith Energy Storage Project

San Joaquin County, California



February 22, 2023

Griffith Energy Storage, LLC

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ACRONYMS AND ABBREVIATIONS

AFY	acre-feet per year
CEQA	California Environmental Quality Act
DWR	California Department of Water Resources
GSA	Groundwater Sustainability Plan
HR	Hydraulic Region
MW	megawatts
PG&E	Pacific Gas & Electric
SGMA	Sustainable Groundwater Management Act
WSA	Water Supply Assessment

PURPOSE

In compliance with California Senate Bill 610 and amended Water Code sections 10910 and 10912, certain development projects require land use planning entities to assess the availability of water supplies from public water system that will provide water for the proposed project.

Per California Water Code Section 10910(a), a Water Supply Assessment (WSA) is required for a project for which an environmental impact report, negative declaration, or mitigated negative declaration will be prepared for the purposes of CEQA compliance. California Water Code Section 10912(a)(5) defines a project as “A proposed industrial manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acers of land, or having more than 650,000 square feet of floor area.”

The Griffith Energy Storage Project (Project) falls under this description of a project which requires a Water Supply Assessment.

1.0 PROJECT DESCRIPTION

The Project is a proposed energy storage facility housing lithium-ion batteries totaling 400-megawatts of energy on a 106-acre property of land in San Joaquin County. The Project property is approximately 0.9 miles southwest of Interstate 580 and approximately 5 miles southwest of the City of Tracy, directly east to the Pacific Gas and Electric's Tesla Substation.

The energy storage facility would interconnect at the Tesla Substation immediately adjacent to the site in Alameda County via a 230-kilovolt interconnection generation tie (gen-tie) line. The Project would substantially increase energy storage capacity and address limitations of the electrical energy grid by increasing the efficacy of renewable energy. This Project and other energy storage systems are used to supply power during brief disturbances, reduce outages and associated impacts to the community, and substitute for certain large footprint transmission upgrades.

Construction of the Project is anticipated to last approximately 12-months, plus 3 months for commissioning, with an estimated 10,000,000 gallons of non-potable water (approximately 30.7 acre-feet) needed for dust suppression, soil compaction, and other construction related purposes.

During the Project operation and maintenance phase, the expected maintenance would generate little worker traffic and no heavy equipment would be utilized during normal operation. No permanent sanitary facilities would be required during operations. Fire protection service is expected to be provided by the Tracy Rural Fire District. The project site is approximately 3 miles west of the Tracy Rural Fire District Fire Station 94.

2.0 SUPPLY AND DEMAND ANALYSIS

The WSA assesses if the demand associated with a project is available. The Project is estimated to require 10,000,000 total gallons of water (30.7 acre-feet) for construction use for a 12-month duration, plus 3 months of Project commissioning. That volume of water is equal to roughly 30 gallons per minute continuously for 12 months of construction use.

One existing domestic well is located within the Project site. Per historic boring reports the well is 200 feet deep with the static water level depth at 32 feet. Downhole video surveys and a pumping test will be needed to confirm these values, the condition of the well, and if rehabilitation of the well will be needed prior to use.

There is no public water system that provides water to the Project site, but the Project site is adjacent to the City of Tracy which has a public water system. The expectation is that the construction contractor may choose to haul water from the City of Tracy.

This analysis includes both groundwater sources as well as public water supply sources from the City of Tracy.

2.1 SAN JOAQUIN RIVER HYDROLOGY REGION (TRACY SUBBASIN)

The Project site is located within the Tracy Subbasin (Basin 5-022.15) of the San Joaquin River Hydrologic Region. Per the California Groundwater Update 2020 (Bulletin 118) the San Joaquin River Hydrological Region covers 15,200 square miles in Central California and provides nearly 4 million acre-feet per year of water to the area.

The California Department of Water Resources (DWR) has identified the basin as a medium priority basin and therefore requires a Groundwater Sustainability Plan (GSP) pursuant to the Sustainable Groundwater Management Act (SGMA) (DWR 2019).

SGMA requires medium- and high-priority basins to develop groundwater sustainability agencies (GSAs), develop GSPs, and manage groundwater for long-term sustainability. The Tracy Subbasin GSP was finalized in 2021 (GEI 2021) and will be updated every 5 years as additional information for the subbasin becomes available. The GSP identifies sustainability indicators for the subbasin, defines significant and undesirable results, minimum thresholds, and measures objectives that will be used to guide and define sustainable conditions and overall groundwater management goals within a 20-year period (GEI 2021).

The GSP describes the six agencies throughout the subbasin (GSAs) that are responsible for sustainably managing groundwater in the subbasin, with each GSA having jurisdiction within their respective areas. Key components for defining sustainable conditions include water quality and groundwater level monitoring and monitoring of land subsidence via satellite-based-radar measurements. The GSP also provides technical information used to develop water budgets under historical and current conditions and under future use conditions with climate change consideration. The water budgets were developed using a state-developed model for the entire Central Valley. The water budgets show a surplus for the historic conditions and a deficit for future conditions with climate change. The GSP presents management actions for the subbasin to resolve deficits predicted by the model-based future groundwater budget. The management actions include one project that can resolve the deficit that includes reducing groundwater pumping by 1,000 AFY. There are also two supplemental projects: one project that benefits the Upper aquifer by reducing pumping by up to 3,000 acre-feet per year (AFY) and a second project that can increase recharge to the Lower aquifer by up to 3,000 AFY (GEI 2021).

Table 1 provides the projected water budget for the Tracy Subbasin. Under future usage, with expectations of future developments and population growth and no climate change component through the year 2065,

the balance shows a slight surplus. Recharge from net deep percolation, subsurface inflow, and diversion made up about 85 percent of the subbasin inflows (similar to the historical water budget). The largest inflow component is deep percolation and pumping is the largest outflow component, constituting of 47 percent of the total outflow. The resulting average surplus for the projected water budget is 4,806 AFY (GEI 2021). The Project requires only 30.7 acre-feet, so there is ample water supply from the Tracy Subbasin.

Table 1: Projected Tracy Subbasin Water Budget – Annual Averages (2016 to 2065)

Type of Inflow	Inflow (AFY)	Type of Outflow	Outflow (AFY)
Streams and Rivers	58,633	Streams and Rivers	93,446
Deep Percolation	180,334	Pumping	199,549
Small Watersheds	6,458	Subsurface	129,538
Diversion Recharge	74,015		
Subsidence	608		
Subsurface	107,290		
Total Inflow	**427,338**	**Total Outflow**	**422,532**

Source: GEI 2021

2.2 CITY OF TRACY

The Project site is not within the City of Tracy water service area, but as the closest public water system, the contractor can truck water from the City of Tracy to the Project site.

The City of Tracy obtains water from both surface water and groundwater sources described within its Urban Water Management Plan (2020 UWMP, City of Tracy) as the following:

- Purchased Central Valley Water via the Delta-Mendota Canal which is treated at the City's John Jones Water Treatment Plant.
- Purchased Stanislaus River Water which is treated at the Nick C. DeGroot Water Treatment Plant, located near Woodward Reservoir in San Joaquin County.
- Local groundwater via groundwater supply wells which represents 6% of the City's water supply come from the City's nine active municipal wells that overly the Tracy Subbasin.

Per the City of Tracy 2020 UWMP the 2020 available water supply was estimated to be 19,527 acre-feet and is expected to increase to 40,168 acre-feet by 2045. Total demand was 19,527 acre-feet in 2020 and demand is expected to increase to 39,379 by 2045.

Under normal conditions water supplies are expected to exceed demands with surplus water supply ranging from 5,374 acre-feet in year 2025 to 789 acre-feet in 2045 as shown in Table 2. With the inclusion of the Project, the surplus water would be reduced by 30.7 acre-feet resulting in a surplus of 5,343 acre-feet in 2025 and 758 acre-feet in 2045. Under normal conditions, for all years ranging from current to 2045, there is ample supply for the Project.

Table 2: City of Tracy Normal Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals	26,883	28,560	31,701	34,768	40,168
Demand Totals	21,509	25,167	28,871	32,603	39,379
Difference	**5,374**	**3,393**	**2,830**	**2,165**	**789**

Source: City of Tracy 2020 UWMP
Note: Units are in acre-feet

Under a single dry year (Table 3) the City of Tracy will have a water deficit. In the year 2025 that deficit will be 3,053 acre-feet and increases to 9,120 acre-feet in 2045. Project demands would be additive to this deficit.

Table 3: City of Tracy Single Dry Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals	18,456	20,618	23,759	24,859	30,259
Demand Totals	21,509	25,167	28,871	32,603	39,379
Difference	**-3,053**	**-4,549**	**-5,112**	**-7,744**	**-9,120**

Source City of Tracy 2020 UWMP
Note: Units are in acre-feet

Under multiple-dry-year scenarios the City would have a surplus if the scenario started in 2025 or 2030, but is expected to result in a deficit if the scenario started in 2035 or later (see Table 4). For both the 2025 scenario and the 2030 scenario, the surplus at the end of 5 years is greater than the Project demand of 30.7 acre-feet, so the City would have adequate water supply to support the Project. If the Project were constructed in 2035 or later, the project would increase the water deficit.

Table 4: City of Tracy Multiple Dry Years Supply and Demand Comparison

		2025	2030	2035	2040	2045
First Year	Supply Totals	21,947	23,624	26,765	29,892	35,292
	Demand Totals	21,509	25,167	28,871	32,603	39,379
	Difference	438	-1,543	-2,106	-2,711	-4,087
Second Year	Supply Totals	20,507	22,669	25,811	26,671	32,071
	Demand Totals	21,509	25,167	28,871	32,603	39,379
	Difference	-1,001	-2,498	-3,061	-5,933	-7,308
Third Year	Supply Totals	20,507	22,669	25,811	26,671	32,071
	Demand Totals	21,509	25,167	28,871	32,603	39,379
	Difference	-1,001	-2,498	-3,061	-5,933	-7,308
Fourth Year	Supply Totals	20,507	22,669	25,811	26,671	32,071
	Demand Totals	21,509	25,167	28,871	32,603	39,379
	Difference	-1,001	-2,498	-3,061	-5,933	-7,308
Fifth Year	Supply Totals	23,669	25,345	28,487	31,614	37,014
	Demand Totals	21,509	25,167	28,871	32,603	39,379
	Difference	2,160	178	-384	-990	-2,365

Source: City of Tracy 2020 UWMP
Note: Units are in acre-feet

3.0 DEMAND ANALYSIS AND SUFFICIENCY DETERMINATION

Water demand for construction activity could be met by hauling water from the City of Tracy.

The water demand of this Project (30.7 acre-feet) accounts for only 0.02 percent of the average annual pumping demand (199,549 AFY) within the Tracy Subbasin and the groundwater budget indicates that there is a surplus supply of just over 4,800 AFY, so the Tracy Subbasin could easily support this Project.

The City of Tracy has surplus water in normal years in both the near term and the long term and could provide water for the Project. In single dry years, the City has a deficit and may not be able to support the Project. However, in a multi-dry-year scenario occurring by the year 2030 or earlier, the City has a surplus of water adequate to supply the Project.

Based on the forgoing, there is sufficient groundwater available for construction of the Project. The proposed water demand is small compared to the available water budget and the Tracy Subbasin can easily support the Project.

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