

Appendix A

2018 R649, R700, and R707 Natural Gas
Transmission Pipeline 131 Replacement
Projects Draft Initial Study Mitigated
Negative Declaration

**R649, R700, and R707 Natural Gas
Transmission Pipeline 131
Replacement Projects**

**Draft Initial Study Mitigated Negative
Declaration**

Lead Agency:

California Department of Fish and Wildlife



Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534

June 2018

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Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
ACFD	Alameda County Fire Department
ACTC	Alameda County Transportation Commission
ACWD	Alameda County Water District
AIA	Airport Influence Area
ALUC	Airport Land Use Commission Plan
APCD	Air Pollution Control Districts
APMs	Applicant Proposed Measures
AQP	Air Quality Plan
BAAQMD	Bay Area Air Quality Management District
BCP	Business and Commercial Park
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
City	City of Livermore
CMP	Congestion Management Plan
CNDDb	California Natural Diversity Database
CNG	Compressed natural gas
CNPS	California Native Plant Society
County	Alameda County
CP	cathodic protection
CPUC	California Public Utility Commission
CO	carbon monoxide
CO ₂ e	carbon dioxide equivalent
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Ranking
CT Station	cathodic testing station

CTS	California tiger salamander
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted sound level
DOT	U.S Department of Transportation
DPM	Diesel particulate matter
DTSC	Department of Toxic Substances Control
EACCS	East Alameda County Conservation Strategy
EBRPD	East Bay Regional Park District
EIR	Environmental Impact Report
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCCA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
GHG	greenhouse gas
HAP	hazardous air pollutants
HCA	high consequence area
HCP	Habitat Conservation Plan
H ₂ S	Hydrogen sulfide
I-580	Interstate 580
ISMND	Initial Study/Mitigated Negative Declaration
ITP	Incidental Take Permit
L131	Natural Gas Transmission Pipeline 131
LARPD	Livermore Area Recreation and Park District
Leq	equivalent continuous sound level
LPD	Livermore Police Department
LPFD	Livermore-Pleasanton Fire Department
LOS	level of service
LPA	Large Parcel Agriculture
LRA	Local Responsibility Area
LSAA	Lake and Streambed Alteration Agreement
LUST	Leaking Underground Storage Tank
LVJUSD	Livermore Valley Joint Unified District
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MP	mile post
MRZ	mineral resource zone
MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NO ₂	nitrogen dioxide

NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O ₃	Ozone
OHWM	ordinary high water mark
OPS	Office of Pipeline Safety
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCE	Primary constituent elements
PIG	Pipeline inspection gauge
PG&E	Pacific Gas and Electric Company
PHMSA	Pipeline and Hazardous Materials Safety Administration
PIG	pipeline inspection gauge
PM	Particulate Matter
PRC	Public Resources Code
RMG	Resource Management
ROG	reactive organic gas
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SLS	Sacred Lands Search
SMARA	California Surface Mining and Reclamation Act of 1975
SO ₂	sulfur dioxide
SOD	Sudden Oak Death
SR	State Route
SRA	State Responsibility Area
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TPZ	Timberland Protection Zone
UH-4	Urban High Residence
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Services
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VRP	visibility reducing particles

1.0 INTRODUCTION

Pacific Gas & Electric Company (PG&E) is proposing to replace approximately 5 miles of their Natural Gas Transmission Pipeline 131 (L131) north of the City of Livermore (City) in Alameda County (County), California. The sections of L131 that require replacement are located between Interstate 580 (I-580), immediately east of Isabel Avenue and extending northeast to Vasco Road (Figure 1-1). The overall L131 replacement Project is composed of three separate pipeline projects, all of which are located in the same area and require replacement. The three segments, or projects, are collectively referred to as the Proposed Project:

- **R649 Project:** Replace two short segments of L131, as follows: 1) approximately 300 feet between pipeline mile post (MP) 31.83 and MP 31.90, beginning at the south end of the R700 Project and extending to immediately north of Portola Avenue; and 2) approximately 100 feet north of I-580 at MP 32.29 between a residential development and Arroyo Las Positas.
- **R700 Project:** Replace an approximately 4-mile segment of L131 between MPs 28.00 and 31.83, beginning at the south end of the R707 Project and extending south to the north end of the R649 Project north of Portola Avenue. The R700 Project crosses Hartman Road, North Livermore Avenue, May School Road, and Dagnino Road as it continues northeast from Portola Avenue to the R707 Project.
- **R707 Project:** Replace an approximately 1-mile segment of L131 between MPs 27.02 and 28.00, extending from the Vasco Crossover Station adjacent to Vasco Road in the north to a location just east of the end of Dagnino Road to the southwest, at the north end of the R700 Project.

1.1 PURPOSE

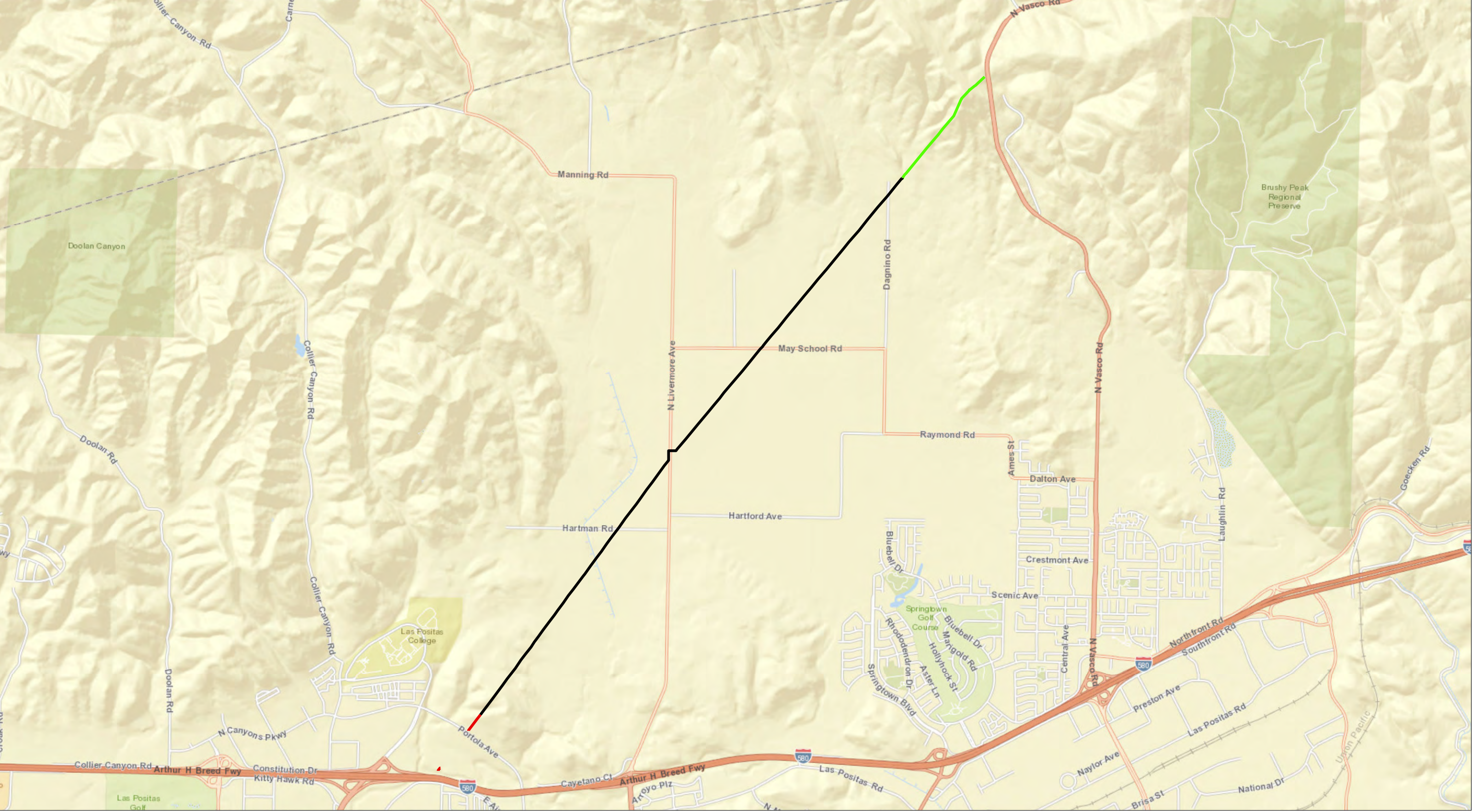
The existing PG&E L131 is a 24-inch-diameter pipeline originally installed in 1944. Recent studies have determined that portions of the original asphalt pipe coating are in poor condition, and corrosion engineering assessments have concluded that a 5-mile section of L131 cannot be adequately protected by the existing cathodic protection (CP) system¹. To address this safety issue, PG&E proposes to replace the 5-mile section of L131 with new 24-inch-diameter pipe. The Proposed Project is scheduled to be completed by the end of 2018-2019.

The R649 Project also would serve to meet design requirements under Code of Federal Regulations (CFR) 49 CFR 192.5, which sets minimum safety standards for pipelines that are within 220 yards of residential housing based on the number of dwelling units. The original L131 alignment pre-dated this safety standard and was constructed in an open field away from residential development.

¹ Cathodic protection is a technique used to control pipeline corrosion by connecting the pipeline to a direct current power source (rectifier) with an insulated anode cable.

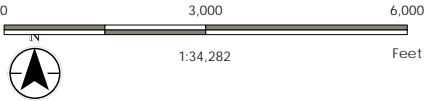
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- Legend
- Proposed Pipeline
- R649
 - R700
 - R707

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R649, R700 and R707 Natural Gas Transmission
Pipeline 131 Replacement Projects

Figure 1-1
Proposed Project Location

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Since the pipeline was originally constructed in 1944, the City of Livermore has continued to grow and a new residential housing development began construction adjacent to the pipeline in 2015. As part of the Proposed Project, PG&E will address the new residential development's proximity to the L131 pipeline by increasing the wall thickness of the pipeline along the R649 alignment. Doing so will bring the pipeline into compliance with 49 CFR 192.5, which establishes safety standards, or class requirements, for natural gas pipelines based on the density and composition of surrounding development.

The R700 Project includes the replacement of pipeline spanning Cayetano Creek by removing the above-ground span and burying a new pipe segment below the creek. Doing so would bring the pipe into compliance with PG&E's internal practices governing intermittent stream crossings and the requirements of CFR Title 49, Part 192, which requires a minimum of 30-inches of ground cover. It would also reduce the risk of damage to the pipe by third-parties.

The R707 Project replaces the pipeline crossing the Greenville Fault, changing the alignment from an 82-degree crossing to a perpendicular crossing with the fault at a 90-degree angle to reduce strain on the pipeline in the event of an earthquake.

1.2 PROJECT LOCATION AND SETTING

The Proposed Project is located primarily north of the City in unincorporated Alameda County north of I-580 and includes 5 miles of L131 immediately east of Isabel Avenue extending northeast where it crosses Portola Avenue (R649 Project) and continuing northwest where it crosses Hartman Road, North Livermore Avenue, May School Road, and Dagnino Road (R700 Project), terminating at Vasco Road (R707 Project) (Figure 1-1). While the northern portion of the R649 Project, the R700 Project, and the R707 Project are all located within unincorporated areas of the County, the southern portion of the R649 Project is located within the City.

The Proposed Project is located within East Alameda County Conservation Strategy (EACCS) Conservation Zone CZ4, primarily in grazing land parcels containing open space with low hills to the north and east. The Project area (location of the Proposed Project and general vicinity) includes privately owned dry farmland parcels primarily used for pastures and low-intensity agriculture. Portions of the Project site (location of the Proposed Project and associated construction areas) include residences and/or livestock enclosures and agricultural lands.

1.3 CEQA AND PUBLIC AND AGENCY REVIEW

The California Environmental Quality Act (CEQA) is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. The intent of CEQA is to inform the public and decision-makers about the environmental consequences of a proposed project. The California Department of Fish and Wildlife (CDFW) is the Lead Agency under CEQA for the preparation of this Initial Study Mitigated Negative Declaration (ISMND). PG&E has filed applications with CDFW for a Lake and Streambed Alteration Agreement (LSAA) under Fish and Game Code (FGC) Section (§)1600 and Incidental Take Permit (ITP) under FGC §2081 for the Proposed Project. Because approvals of these applications are discretionary actions, the Proposed Project is subject to CEQA review.

Maintenance of PG&E's gas transmission system, including pipeline replacements such as the Proposed Project, is not subject to local planning ordinances because the design, construction, testing, maintenance, and operation of the gas system is under the exclusive jurisdiction of the California Public Utility Commission (CPUC) under General Order 112-E. The CPUC does not require a discretionary permit for this type of maintenance project; therefore, CDFW will act as lead agency for CEQA review of the Proposed Project pursuant to 14 C.C.R. section 15051. Although not required, both PG&E and the CPUC strive for consistency with local land use regulations. The Alameda County East County General Plan allows infrastructure such as pipelines when there is no excessive growth-inducing effect on the County. The Proposed Project is an upgrade to an existing utility pipeline and does not represent a new or expanded use in the area. The Proposed Project would not change the existing capacity of natural gas in the pipeline and is consistent with utility uses allowed by the County's designated land use for the Project site.

The purpose of this document is to present the environmental consequences of implementing the Proposed Project to the decision-makers and the public. This disclosure document is being made available to the public and other local and State agencies for review and comment during the 45-day public review period. Comments received during the review period would be considered by CDFW prior to adoption of the CEQA document and project approval.

If you wish to send written comments (including by e-mail), they must be postmarked by August 12, 2018. Written comments should be addressed to:

Serge Glushkoff, Senior Environmental Scientist
California Department of Fish and Wildlife
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
Phone: (707) 339-6191
Email: Serge.Glushkoff@wildlife.ca.gov

After comments are received from the public and reviewing agencies, CDFW may revise the IS/MND as needed and if appropriate, adopt the IS/MND and approve the LSAA and ITP for the Proposed Project. If needed, CDFW could undertake additional environmental studies to comply with CEQA requirements. If the applications are approved by CDFW, with adoption of the ISMND and issuance of the LSAA and ITP by CDFW and permits by other agencies, PG&E would proceed with the Proposed Project.

The ISMND and supporting documents are available at the CDFW office located at 2825 Cordelia Road, Suite 100, Fairfield, CA 94534, at the Livermore Public Library, 1188 South Livermore Avenue, Livermore, CA 94550, and online by searching the project name at:

<https://www.wildlife.ca.gov/Notices>

If you have questions regarding the ISMND, please call Serge Glushkoff, Senior Environmental Scientist, at Serge.Glushkoff@wildlife.ca.gov or (707) 339-6191.

1.4 DOCUMENT ORGANIZATION

This ISMND is organized as follows:

Chapter 1.0: Introduction. This chapter provides an introduction and describes the purpose and organization of this document.

Chapter 2.0: Project Description. This chapter describes the purpose of and need for the Proposed Project, identifies Proposed Project objectives, and provides a detailed description of the Proposed Project.

Chapter 3.0: Environmental Checklist and Environmental Evaluation. This chapter presents an analysis of a range of environmental issues identified in the CEQA Environmental Checklist and determines if the Proposed Project would result in no impact, a less than significant impact, a less than significant impact with mitigation incorporated, or a potentially significant impact for each topic. If impacts are determined to be potentially significant after incorporation of applicable mitigation measures, an Environmental Impact Report (EIR) would be required. For this Proposed Project, however, mitigation measures have been incorporated where needed, to reduce all potentially significant impacts to a less than significant level.

Chapter 4.0: References. This chapter lists the references used in preparation of this ISMND.

Chapter 5.0: List of Preparers. This chapter identifies report preparers.

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2.0 PROJECT DESCRIPTION

2.1 PROPOSED PROJECT

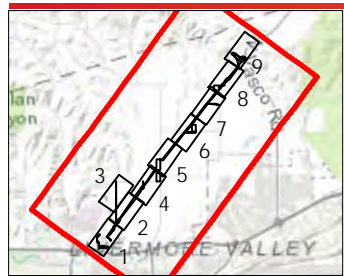
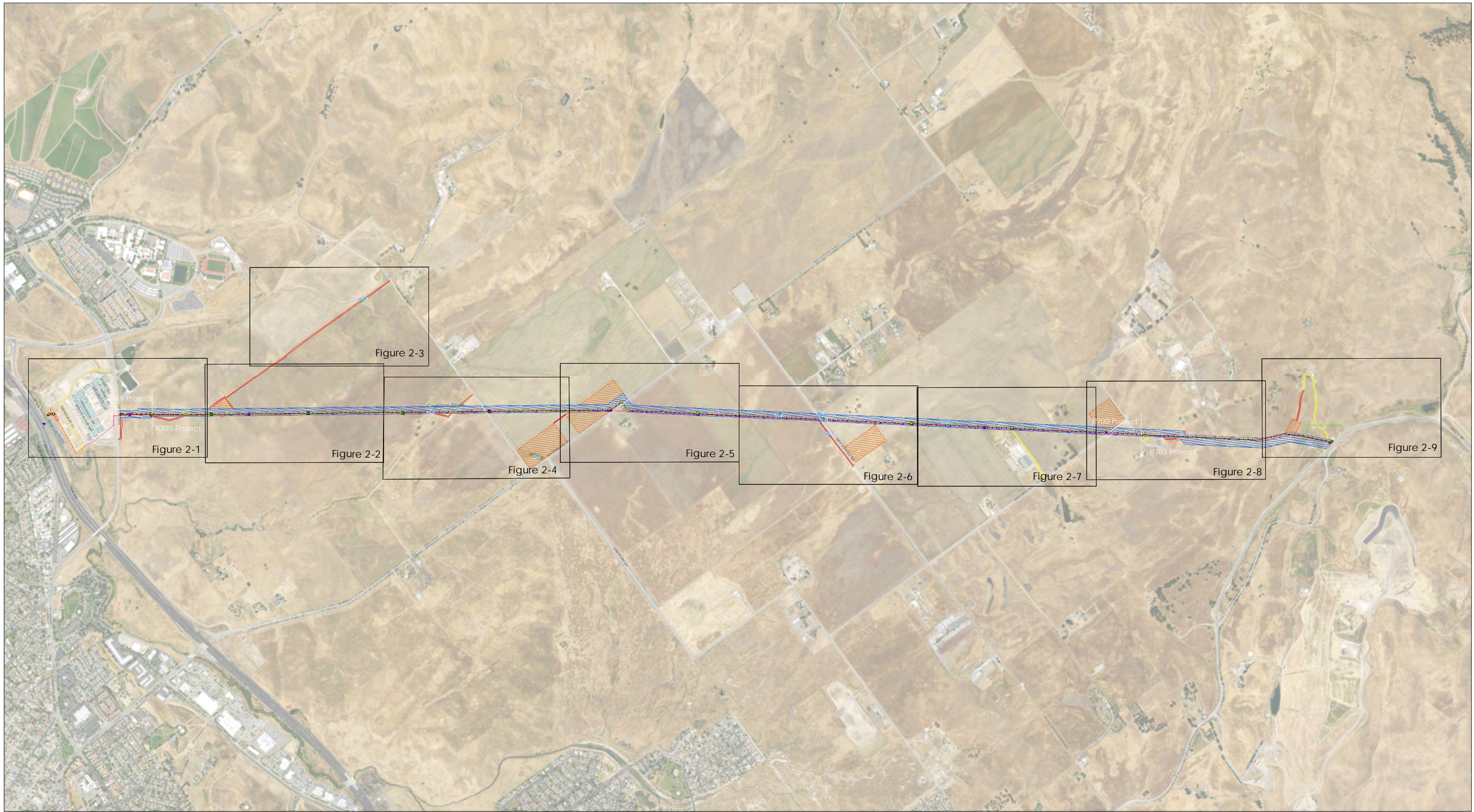
The R649, R700, and R707 Projects (collectively the Proposed Project) are located north of I-580 in Alameda County (Figure 1-1). The Proposed Project would upgrade an approximately 5-mile section of L131 that cannot be adequately protected by the existing CP system. The Proposed Project consists of installing a new pipeline approximately 10 feet from and parallel to the existing pipeline, retiring the existing pipeline along the replacement segments, and replacing the CP system. New pipe would be 24 inches in diameter and located along approximately the same alignment as the existing pipeline. The existing pipeline would be retired and sealed in segments following PG&E's standard procedures and remain buried except for an above-ground span removed as part of the R700 Project. To replace the CP system, existing CP cable and electronic testing stations would be removed, new cathodic testing stations would be installed, and rectifiers would be replaced. New pipeline markers would be installed along the new alignment.

An overview of each project is provided below and shown in Figures 2-0 through 2-9.

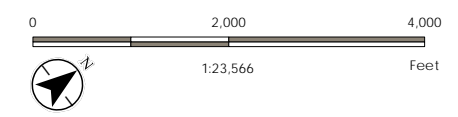
- **R649 Project.** PG&E previously relocated a segment of L131 to accommodate a new residential housing development between I-580 and Portola Avenue. PG&E now plans to replace portions of L131 on either side of the segment that was relocated for the housing development, between MPs 31.83 and 31.90 and at MP 32.29. The new pipe would be buried approximately five (5) feet below ground surface (bgs) as part of the R649 Project. Retired pipe would be cut in sections and remain buried in place.
- **R700 Project.** PG&E would replace an approximately 4-mile segment of L131 between MPs 28.00 and 31.93, beginning at the north end of R649 and extending north to where it intersect Dagnino Road, and terminating at the south end of the R707 Project. From southwest to northeast, the R700 Project crosses Hartman Road, North Livermore Avenue, May School Road, and Dagnino Road. The R700 Project also would include a route deviation around the existing residence located at 4011 North Livermore Avenue, whereby the new pipe would run parallel to North Livermore Avenue approximately 350 feet and cross the road at a 90-degree angle north of the residence. The new pipeline would be primarily installed approximately five (5) feet bgs, increasing to approximately 10 feet bgs when crossing certain roads, streams, and swales. As part of the R700 Project, an approximately 100-foot-long pipe span would be removed from Cayetano Creek (W-4) and replaced with a new approximately 100-foot-long pipeline approximately 10 feet bgs. Retired pipe for the rest of the R700 Project would be cut in sections and remain buried in place.
- **R707 Project.** PG&E would replace an approximately 1-mile segment of L131 between MPs 27.02 and 28.00, extending northeast from the north end of the R700 Project adjacent to Dagnino Road, to the existing Vasco Crossover Station adjacent to North Vasco Road. The new pipeline segment would be installed approximately five (5) feet bgs and parallel to the existing pipe, except where it crosses the Greenville Fault northeast of Dagnino Road. The alignment at that location would be adjusted to cross the fault at a 90-degree angle and retired pipe would be cut in sections and remain buried in place.

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- Legend**
- Proposed L131 Alignment
 - Existing L131 Alignment
 - Existing Cathodic Protection Cable
 - Station Lines
 - Pipeline Milepoint
- Proposed Easements**
- Permanent Easement
 - Temporary Construction Easement
 - Staging Areas (Temporary Construction Easement)
 - Existing Access Road
 - Overland Access Road
- Ephemeral Drainage
 - Seasonal Swale
 - Sniff Hole
 - Existing Electronic Testing Station
 - Proposed Cathodic Testing Station
 - Pipeline Marker



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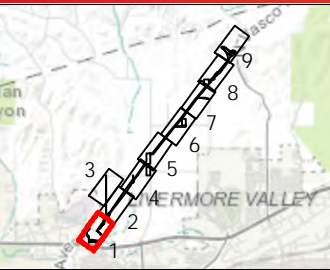
Figure 2-0 Overview
Proposed Project Components

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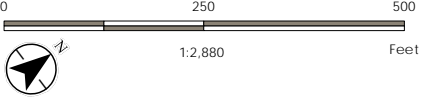
Legend

- Proposed L131 Alignment
- Existing L131 Alignment
- Existing Cathodic Protection Cable
- Station Lines
- Pipeline Milepoint

Proposed Easements

- Permanent Easement
- Temporary Construction Easement
- Staging Areas (Temporary Construction Easement)
- Existing Access Road
- Overland Access Road

- Existing Electronic Testing Station
- Proposed Cathodic Testing Station
- Pipeline Marker



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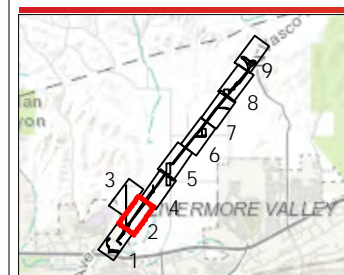
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Pipeline 131 Replacement Projects




Figure 2-1
Proposed Project Components

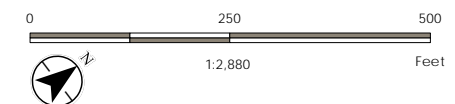
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- Proposed L131 Alignment
- Existing L131 Alignment
- Existing Cathodic Protection Cable
- Station Lines

-  Permanent Easement
-  Temporary Construction Easement
-  Staging Areas (Temporary Construction Easement)
-  Overland Access Road

-  Existing Electronic Testing Station
-  Proposed Cathodic Testing Station
-  Pipeline Marker



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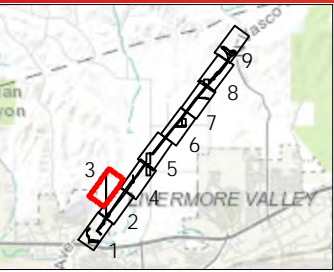
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Figure 2-2
Proposed Project Components

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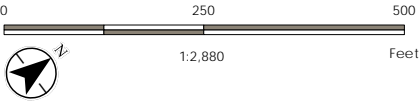
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Legend

 Overland Access Road

 Seasonal Swale



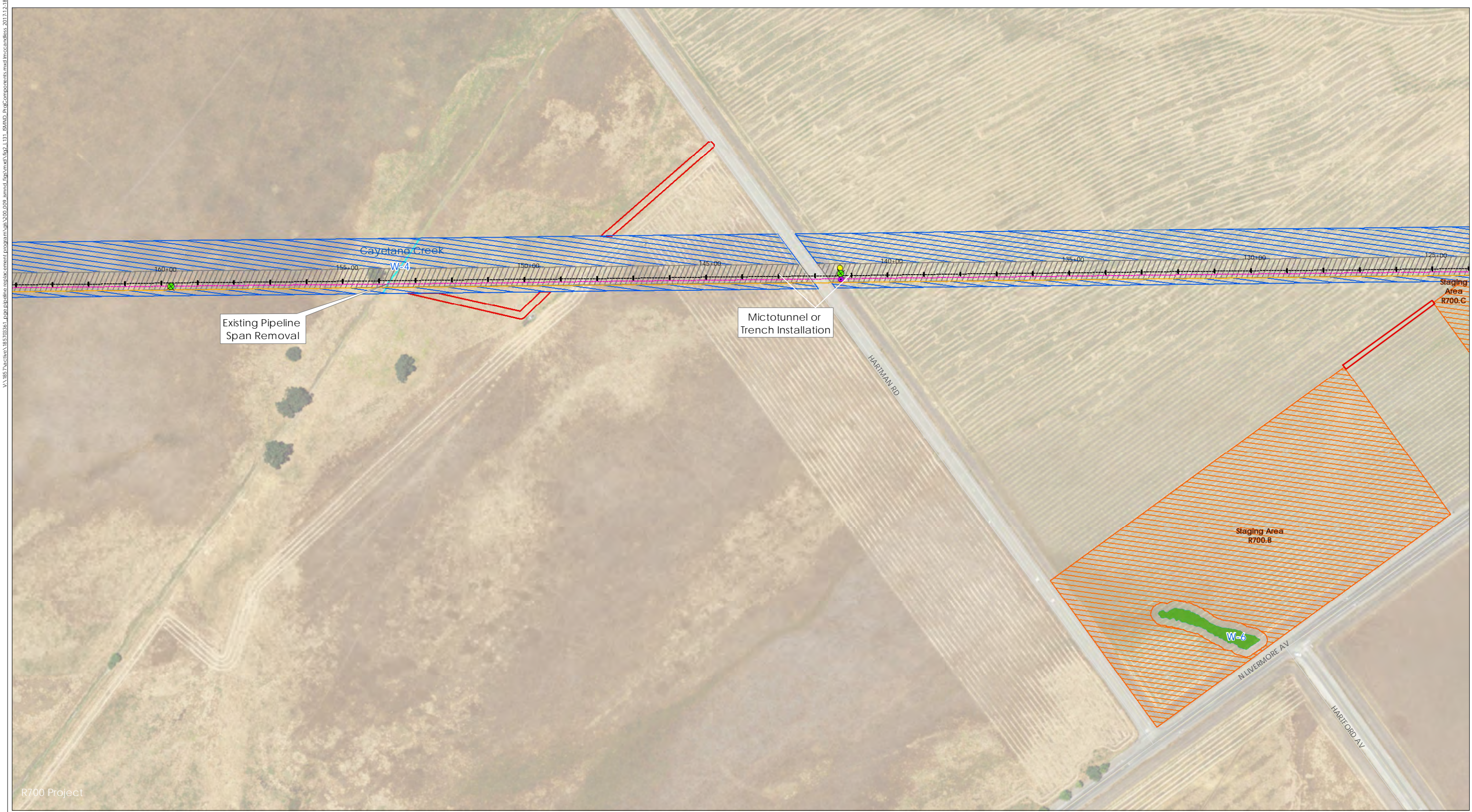
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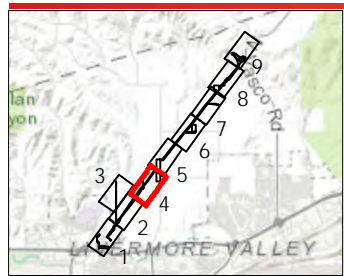
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Figure 2-3
Proposed Project Components

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R700 Project



Legend

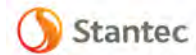
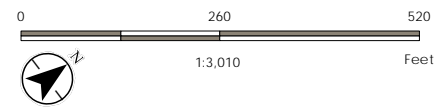
- Proposed L131 Alignment
- Existing L131 Alignment
- Existing Cathodic Protection Cable
- Station Lines

Proposed Easements

- Permanent Easement
- Temporary Construction Easement
- Staging Areas (Temporary Construction Easement)
- Overland Access Road

Ephemeral Drainage

- Seasonal Swale
- Existing Electronic Testing Station
- Proposed Cathodic Testing Station
- Pipeline Marker



Pacific Gas and Electric Company
R649, R700 and R707 Natural Gas Transmission
Pipeline 131 Replacement Projects

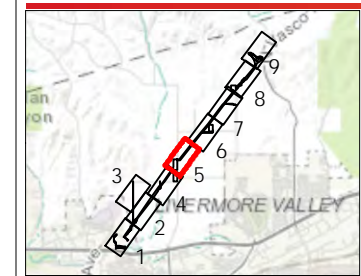
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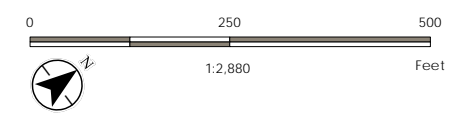
Figure 2-4
Proposed Project Components

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- | | | |
|--|---|--|
| Legend | Proposed Easements | Existing Electronic Testing Station |
| --- Proposed L131 Alignment | Permanent Easement | Proposed Cathodic Testing Station |
| --- Existing L131 Alignment | Temporary Construction Easement | Pipeline Marker |
| --- Existing Cathodic Protection Cable | Staging Areas (Temporary Construction Easement) | |
| --- Station Lines | | |



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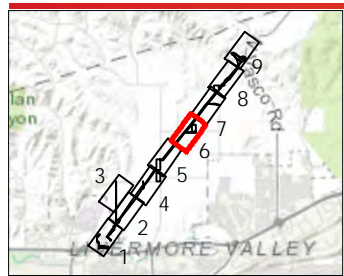
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Figure 2-5
Proposed Project Components

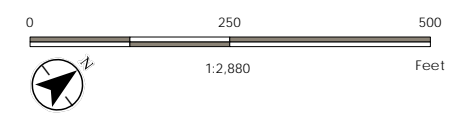
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R700 Project



- | | | |
|--|--|--|
| Legend
- - - Proposed L131 Alignment
- - - Existing L131 Alignment
- - - Existing Cathodic Protection Cable
- - - Station Lines | Proposed Easements
[Grey Box] Permanent Easement
[Blue Box] Temporary Construction Easement
[Orange Box] Staging Areas (Temporary Construction Easement)
[Red Box] Overland Access Road | [Cyan Box] Ephemeral Drainage
[Green Box] Seasonal Swale
[Purple Dot] Existing Electronic Testing Station
[Green Dot] Proposed Cathodic Testing Station
[Yellow Dot] Pipeline Marker |
|--|--|--|



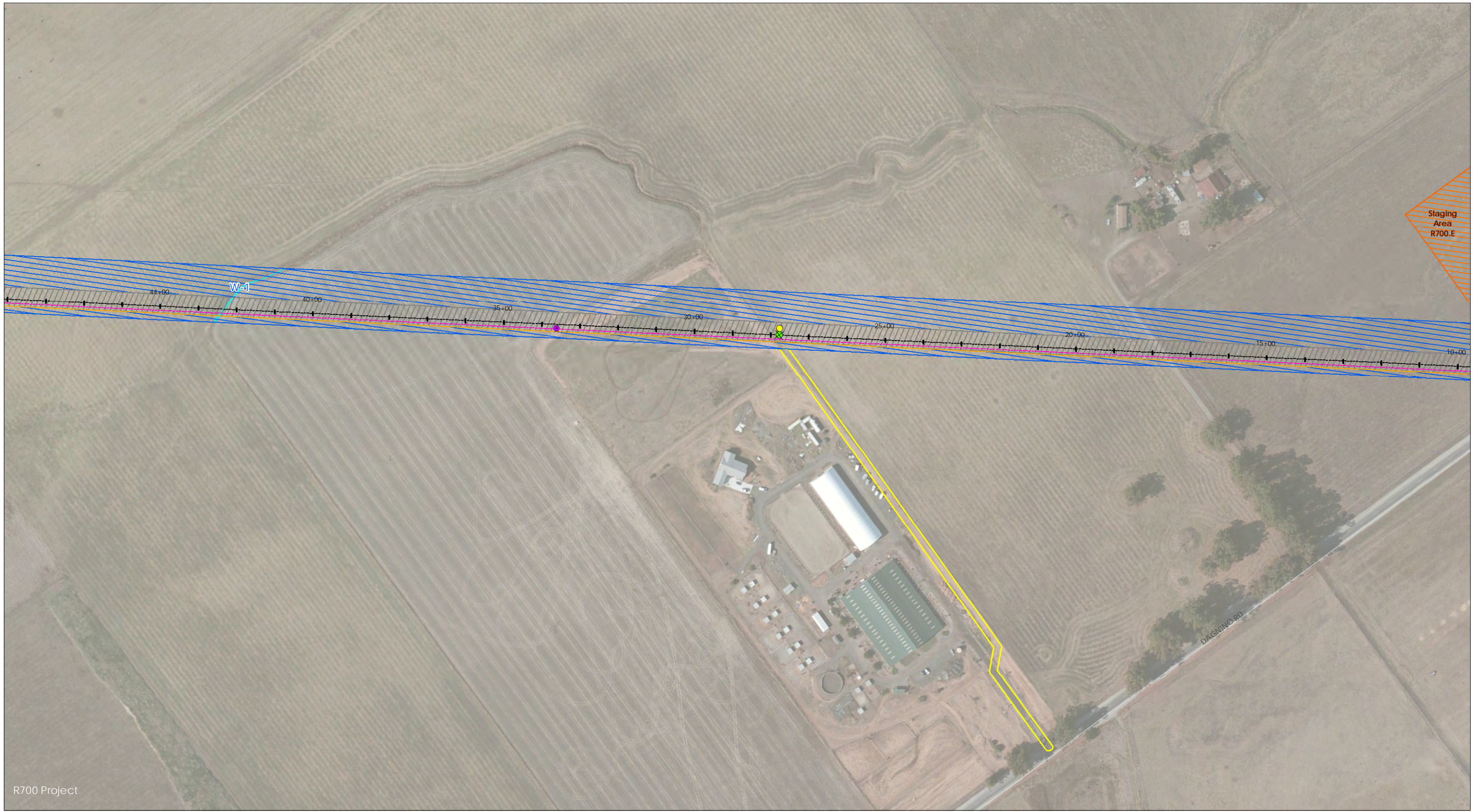
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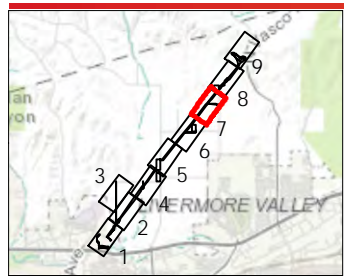
Figure 2-6
Proposed Project Components

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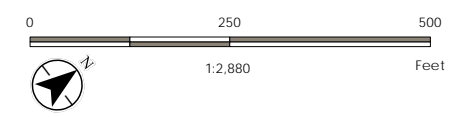
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R700 Project



- | | | |
|--|---|-------------------------------------|
| Legend | Proposed Easements | Ephemeral Drainage |
| --- Proposed L131 Alignment | Permanent Easement | Existing Electronic Testing Station |
| --- Existing L131 Alignment | Temporary Construction Easement | Proposed Cathodic Testing Station |
| --- Existing Cathodic Protection Cable | Staging Areas (Temporary Construction Easement) | Pipeline Marker |
| --- Station Lines | Existing Access Road | |



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Pipeline 131 Replacement Projects

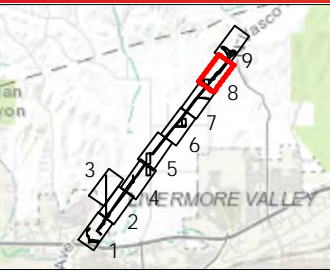
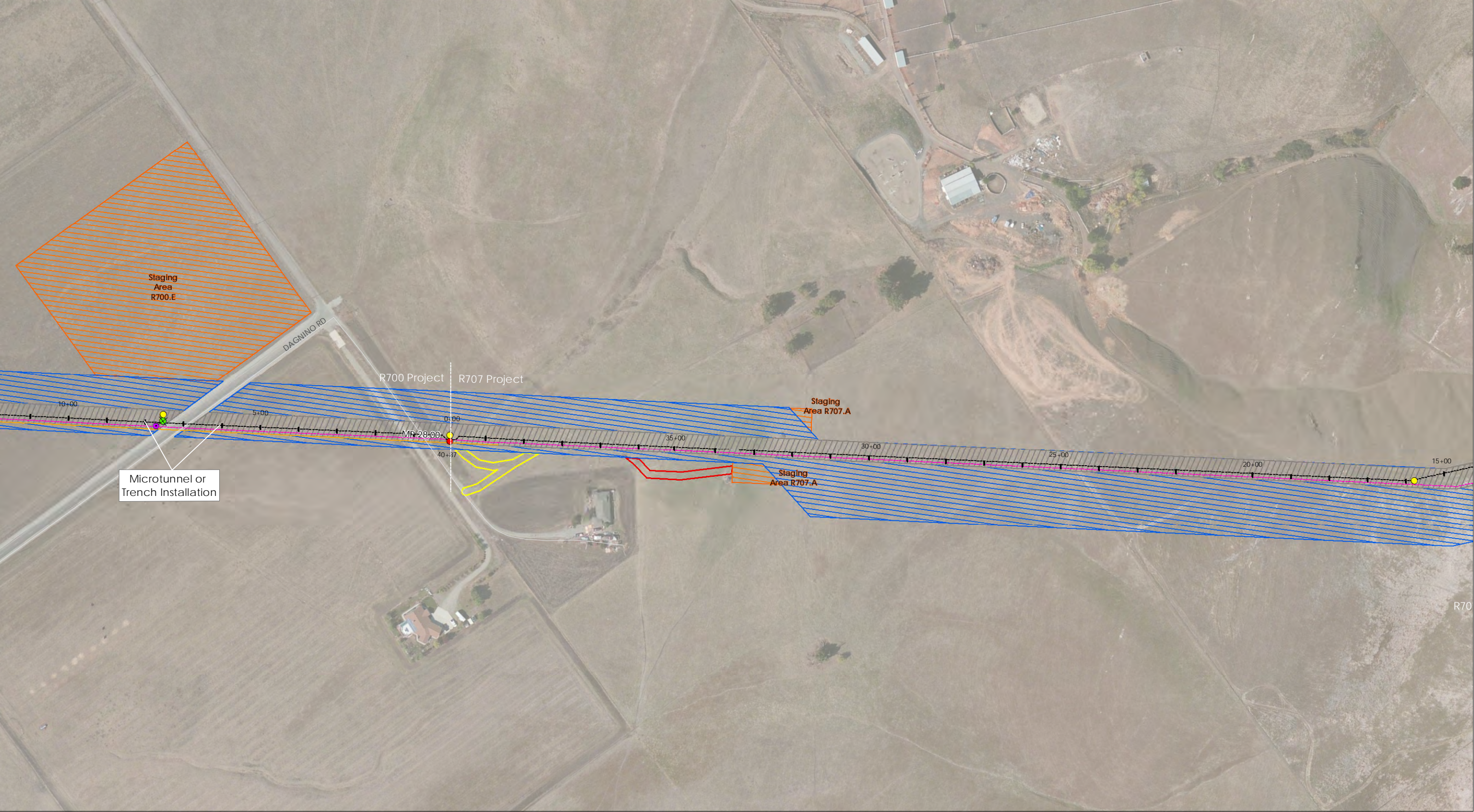
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Figure 2-7
Proposed Project Components

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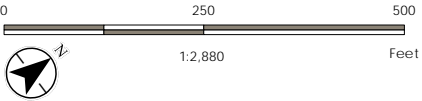
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- Legend**

 - Proposed L131 Alignment
 - Existing L131 Alignment
 - Existing Cathodic Protection Cable
 - Station Lines
 - Pipeline Milepoint
- Proposed Easements**

 - Permanent Easement
 - Temporary Construction Easement
 - Staging Areas (Temporary Construction Easement)
 - Existing Access Road
 - Overland Access Road
- Existing Electronic Testing Station
 - Proposed Cathodic Testing Station
 - Pipeline Marker



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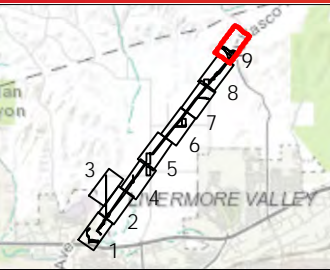
Figure 2-8
Proposed Project Components

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R707 Project



Legend

- Proposed L131 Alignment
- Existing L131 Alignment
- Pipeline Milepoint

Proposed Easements

- Permanent Easement
- Temporary Construction Easement
- Staging Areas (Temporary Construction Easement)
- Existing Access Road
- Overland Access Road

Sniff Hole



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Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet



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Pipeline 131 Replacement Projects

Figure 2-9
Proposed Project Components

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All three Projects would be constructed at the same time and collectively tied into the gas system. The new pipe would be installed and tied-into the gas system after venting gas from the existing pipeline. Retirement of the existing pipeline and replacement of the CP system would occur after the new pipeline is tied into the gas system.

PG&E currently has a 15-foot permanent easement for L131 along the existing section of pipe being replaced for the Proposed Project. The existing easements would be augmented and/or replaced to accommodate the new pipeline, resulting in approximately 50 feet of permanent pipeline easement along the entirety of the pipe alignment.

2.2 CONSTRUCTION AREAS

Construction areas identified for the Proposed Project are depicted on Figures 2-0 through 2-9. Construction activities would occur within an approximately 139.4-acre area consisting of a work corridor, designated staging areas, and access roads.

2.2.1 Work Corridor

The work corridor would consist of proposed easements – new/modified permanent pipeline easements and additional temporary construction easements – which would be acquired by PG&E on private property. These temporary easements would return to the property owner after construction. The work corridor would be approximately 150 to 200 feet wide along the replacement pipeline alignment and typically provide sufficient space for pipe installation (trenching/boring, pipe stringing, welding operations), a passing lane for construction vehicles, and activities for pipeline retirement and CP system replacement.

2.2.2 Staging Areas

Temporary construction easements also would be obtained on private property for staging areas. Several staging areas are proposed along the pipeline alignment to allow for construction crew parking and meetings, longer-term storage of equipment and materials, additional stockpiling of soils, and workspace for other pipeline preparation activities such as for pipeline fabrication. Staging areas would total approximately 38 acres. The eight potential staging areas identified for the Proposed Project from south to north are referred to as:

- **Staging Area R649:** Located north of I-580, east of Isabel Avenue, south of Portola Avenue, and south of the new Shea Homes Development; accessible from Portola Avenue.
- **Staging Area R700.A:** Located north of Portola Avenue and accessible from Hartman Road.
- **Staging Area R700.B:** Located at the northwest corner of Hartman Road and North Livermore Avenue; contains a small onsite seasonal swale (W-6) shall be avoided within the staging area; accessible from North Livermore Avenue.
- **Staging Area R700.C:** Located along North Livermore Avenue east of the roadway and north of Hartford Avenue and accessible from North Livermore Avenue.

- **Staging Area R700.D:** Located on the north side of May School Road east of Bel Roma Road and accessible from May School Road.
- **Staging Area R700.E:** Located on the west side of the road at the northern end of Dagnino Road and accessible from Dagnino Road.
- **Staging Area R707.A:** Located northeast of the northern end of Dagnino Road and accessible from Dagnino Road.
- **Staging Area R707.B:** Located west of Vasco Road; and accessible from Vasco Road.

Temporary Electricity

Temporary offices within designated staging areas may obtain electricity from a temporary drop off line from the local electrical distribution system along roadways adjacent to the staging areas. Portable electric generators would be used at staging areas without electrical connection during construction.

Water Source

Construction would require an estimated amount of 1,520,000 gallons of water for dust suppression. There would be four 4,000 gallon water trucks on site each day for dust suppression that would be filled once a day. Construction would also require an additional 250,000 gallons for hydrotesting the pipeline. Pipeline cleaning is anticipated to require approximately 42,500 gallons of water.

Site Security

Site security during construction activities would consist of a 6- to 8-foot-high chain-link fence installed around the perimeter of active staging areas. Each work space separated by an existing roadway or access route would be fenced separately and would have its own entrance point.

Lighting

Night lighting from two 4,000 W light towers may be necessary at the lay-down yards for security and safety purposes. The maximum height of the lights would be approximately 28 feet. The lights would be powered by a small, 12 horsepower diesel engine. No nighttime work is anticipated at this time although if night work becomes necessary due to unforeseen circumstances, lights may also be required at the temporary locations. Per APM BIO-9 lighting would be faced downward.

2.2.3 Access Roads

The Project site is accessible by vehicles from North Vasco Road, Dagnino Road, May School Road, North Livermore Avenue, Hartman Road, and Portola Avenue. To access the Project site from public roadways, additional access routes along private driveways, existing dirt roads, and temporary overland routes are necessary. Mowing, blading, and temporary grading may be required for overland access routes. Temporary routes would be approximately 20 feet wide except the overland road providing access north from Portola Ave for the R649 Project, which is

approximately 40 feet wide. Access roads would be restored to approximate pre-Project conditions upon completion of the Proposed Project.

Three seasonal swales, W-5 (Figure 2-4), W-7, and W-8 (Figure 2-7) are located along access routes to the R700 Project. At these locations, vegetation would be mowed and mats/plates would be installed if needed to facilitate access and minimize disturbance. No grading or blading or other discharge of material would occur at these locations. Construction equipment would also routinely cross two ephemeral drainages, W-1 (Figure 2-8) and W-4 (Figure 2-5), for access along the work corridor. At these locations, PG&E would use clear span temporary bridges to facilitate access without impacting the drainages.

2.3 SITE PREPARATION AND MAINTENANCE

The workspace and staging areas are predominately flat, grazing or dryland farmed fields. The first phase of the construction process is to prepare the site for the staging of construction equipment and crews and create a safe working environment. Preparation of the construction areas consists of mowing, vegetation removal, debris disposal, topsoil salvaging and segregation at locations where required by landowners or environmental approvals, and installation of erosion control measures. Agricultural fencing would be temporarily removed and replaced to accommodate construction activities. If grading occurs, it shall be minor and temporary and all existing contours would be restored to approximate pre-Project conditions after construction activities.

Vegetation removed at the Project site would consist of grasses and other herbaceous vegetation, one oak tree adjacent to ephemeral drainage W-4, and potentially other trees identified prior to/during construction activities. Mowing of vegetation would occur within the Project site and adjacent areas, including outside of designated work areas, as deemed necessary for fire protection. The top approximately 6 to 12 inches of topsoil would be stripped from the work areas where requested by landowners or required by environmental approvals. The excavated subsoil would be maintained in a separate windrow, or linear pile, to be used as trench backfill and for passive reseeding of native plants following installation of the pipe. Erosion controls would be installed as needed and as required by agencies, prior to or immediately following initial disturbance of the soils, and would be maintained throughout the construction to contain excavated material within the approved temporary use areas. Construction areas would be continuously inspected and maintained to ensure erosion control measures, dust control measures, and waste management practices remain effective.

The Proposed Project is anticipated to require approximately 1,812,500 gallons of water during the site preparation and construction phases for soil conditioning and dust control, among other uses. Additional water would be required for hydrostatic testing and pipeline cleaning (Section 2.4). Water would be obtained through a local water supply municipality (from Livermore) and trucked to the Project site. Portable restroom facilities would be placed near active construction areas, but away from sensitive resources. These facilities would be regularly cleaned and maintained to meet health and safety codes. Waste containers would be distributed throughout the work areas to make it easy for workers to utilize them. Workers would make regular sweeps to ensure the worksite is clean and safe.

2.4 CONSTRUCTION ACTIVITIES

Standard pipeline construction procedures are composed of specific activities that make up a linear construction sequence. The operations include:

- Trenching and boring;
- Pipe stringing, bending, and welding;
- Pipe coating;
- Backfilling; and
- Testing and inspection

Prior to trenching, PG&E would test for the presence of other buried utilities. A preliminary review of the County records was conducted and no other utilities were identified for relocation except those owned by PG&E and covered under the Proposed Project. CP cabling and rectifiers area are all located within the Project site.

2.4.1 Trenching and Boring

The existing L131 pipeline would be located using potholing, which involves the use of high-pressure water from a truck to break apart the soil while a vacuum removes the water/soil mix to expose the top of the underground pipelines. After the pipeline has been located, trenching activities would take place. Except where noted in mechanical boring, the entire pipeline replacement would be dug using trenching. Trenching would begin by removing approximately 6 to 12 inches of topsoil (depending on landowner preferences and environmental considerations) and segregating it on the edge of the construction area for replacement following construction. The excavated subsoil would be maintained in a separate windrow, or linear pile, to be used as trench backfill. Trenches excavated for installation of the new pipe would typically be 10 feet deep and extend to approximately three feet below the bottom of the pipe to allow for adequate construction access. Subsoils from the second excavation also would be segregated in a separate windrow until they are ultimately returned to the trench as native backfill. At drainages W-1 and W-4, PG&E would use clear span temporary bridges to facilitate access without impacting the drainages.

While generally not expected, groundwater could be encountered in construction-related excavations. If encountered, groundwater would be conveyed via piping into temporary storage tanks before it is tested and hauled off-site for disposal at an approved facility.

Mechanical Boring

Mechanical (trenchless) boring would be used for the installation of pipe beneath May School Road as part of the R700 Project to avoid potential impacts to ephemeral drainage W-2. Mechanical boring may also be used at other road crossings including Hartman Road, North Livermore Avenue, and Dagnino Road, to avoid temporarily impacting roadways. Each bore would require excavation of entry and exit pits down to the new pipeline depth and installation of pipe following a horizontal auger bore. Bore pits would be excavated to approximately 3 feet

below the bottom of the pipe to allow for adequate construction access. After installation of the pipeline, excavated subsoil would be placed into the bore pits followed by placement of segregated topsoil to restore the original grade to approximate pre-Project contours and grade.

Welding and Coating

Pipe-stringing trucks would be used to transport segments of pipeline from the shipment point or storage yards to the Project site. Side-boom tractors or vacuum lifts would unload the pipe from the stringing trucks and lay them end to end beside the trench line for line-up and welding. The pipe may be bent both vertically and horizontally to fit the contour of the trench using portable machinery. Once the pipe has been bent to fit the contours of the trench, a welding crew would weld pipeline segments in place and increase the thickness of the weld. All pipeline welds would be radiographically inspected using an X-ray machine.

After the pipeline has been welded and inspected, state-of-the-industry pipe coating would be applied to protect the pipeline from corrosion. Where welds are made to join pipe sections, field-applied epoxy coating would be used to provide a continuous coating along the pipeline. Epoxy would be applied after the pipe has been welded and radiographically inspected. Polyken tape, wax tape, and tape primer; or other appropriate coating material may be used to coat the welds or fittings.

Hydrostatic Testing

Before becoming part of PG&E's integrated gas transmission system, the newly installed pipe segments would be hydrostatically pressure-tested (hydrotested) with water to verify the maximum operation pressure and ensure that the pipe is free of leaks. The hydrostatic test process involves filling the pipe with water and slowly raising the pressure to the appropriate test pressure, which is typically 1.5 times the maximum operating pressure, for a minimum of 8 hours. At the end of the test, the piping would be emptied of water and the water would be collected in temporary storage tanks. The water would then be tested before being hauled off-site to an appropriate disposal site, discharged to a sewer drain connecting to a publicly owned treatment network, or used on-site for dust control. If hydrostatic test water is used for on-site dust control, free standing water would not be allowed to collect on-site, or allowed to enter on-site wetlands. Hydrostatic testing is anticipated to require approximately 250,000 gallons of water. Hydrostatic testing water would be obtained through a local water supply municipality/company and trucked to the work area.

Backfilling

After installing the pipeline, excavated subsoil would be placed into the trenches followed by placement of topsoil, if segregated, to restore approximate pre-Project contours and grade. Backfill material would be composed primarily of the excavated trench spoils. Imported material would be used as backfill if determined necessary for installation and safety of the pipeline during construction and would be used in accordance with APM GEO-1 (refer to Section 2.10 below for a description). Unusable spoils material or contaminated soils would be disposed of according to applicable regulations. Before being returned to the trench, spoils would be screened using standard construction screening equipment. Soil that is free of rocks would be separated out to

be used to create a padding and shading zone around the pipeline. This would protect the pipeline from abrasion and other damage, which could compromise the coating. The pipe would be covered along the sides with a maximum of six inches of native, rock-free fill and then covered with a minimum of 12 inches of additional fill. In certain areas where damage might occur to the coating from abrasive spoils, clean sand or earth backfill would be used to pad the pipeline. Any padding material not obtained from trenching spoils would be purchased from local commercial sources. Previously segregated topsoil would then be placed on top of the trench spoils to promote revegetation.

New Pipeline Connection

A segment of the existing L131 would be temporarily taken out of service when connecting the newly installed pipeline to the existing pipeline. In taking the line temporarily out of service, approximately 5.5 miles of the existing pipeline would be isolated and purged of natural gas. Purged gas would be safely released from points on the line located at the Vasco Station and/or the East Airway Blvd Station (South of I-580). The inline pressure would be drawn down to 125 psi when purged, and this natural gas would not be flared. The typical procedure for isolating and purging a section of gas line begins with allowing the system or customers to draft and draw down the pressure in the pipeline by simply consuming gas. Once the system's draw or consumption of gas lowers the pressure in the pipeline to approximately 100-125 psig, the pipeline will be fully isolated and purging or release of the remaining gas in the now isolated section will take place. This procedure of lowering the line pressure by the system itself, minimizes and mitigates the amount of gas eventually released and vented. With this said, the maximum pressure that would be purged is 125 psi. The newly installed pipeline would then be extended and welded to the existing pipeline at both ends of the Proposed Project. Gas would then be conveyed into the new pipeline segment for operation.

To ensure that natural gas is not leaking out of the pressurized portion of L131, PG&E would excavate a sniff hole at MP 27.2, just west of Vasco Road along the existing pipeline north of the northern tie-in point and within the construction area. At the sniff hole location, a probe with an electronic gas detector would be inserted into the existing pipeline to detect gas leaks. This early detection would enable personnel to take appropriate measure to mitigate safety hazards. The probe would be removed and the sniff hole excavation backfilled after the new pipeline is operational.

Compressed natural gas (CNG) would be temporarily provided to existing customers while gas is purged from L131, as necessary. CNG is back fed directly into the customer's gas service connection at the property via trailers with CNG, flow regulators, and hoses. CNG trailers are parked within the project ROW at the customer's property for the duration of time L131 is out of service. No excavation, grading, or other improvements to the properties are associated with use of CNG trailers. The ISMND assumes 4 potential injection points with a total of 8 trips (one to drop off and another to pick up the trailer) at each CNG location.

CP System Replacement

Retirement of the CP system consists of excavating and removing existing CP cables along the existing pipeline alignment and extending to rectifiers and removing existing electronic testing

stations (ETS) and rectifier equipment attached to wood poles. New CP cables would be installed with the new pipeline in the same trench. New cathodic testing stations (CT Stations) would be installed and located adjacent to fence lines and roadways to the extent possible. Figures 2-0 through 2-9 show the approximate location of CT Stations but CT Stations could be installed anywhere within the proposed permanent easement. New rectifiers would be installed on existing wooden poles where the existing rectifiers are being removed, along roadways, and adjacent to the pipeline alignment. Existing and proposed CP cabling is approximately one-inch-wide and buried approximately three feet deep. ETS/CT Stations consist of small plastic tubing extending from the pipelines up to four feet above-ground.

2.4.2 Pipeline Retirement

Pipeline Cleaning

Retired sections of L131 may require cleaning to remove contaminants, such as mercury, that may have built up inside the pipe. If cleaning is necessary, pipeline inspection gauge (PIG) launchers and receivers would be temporarily installed on the deactivated pipe to insert PIGs and liquids (water or cleaning fluids) into the pipeline. Air compressors staged at both the launching and receiving ends of each cleaning section would propel the PIGs and liquids through the pipeline. Multiple cleaning runs may be necessary to remove all contaminants. Upon completion of each PIG run, the PIGs and liquids would be removed from the pipeline and collected in temporary storage tanks connected to PIG receivers by temporary pipes/hoses. Secondary containment such as rubber berms with lips, larger layflat hose, or other suitable materials would be used. PIGs and liquids would be sampled and disposed of off-site in accordance with all environmental regulations. Pipeline cleaning is anticipated to require approximately 42,500 gallons of water.

Pipeline Segmentation

After cleaning, the pipeline would be cut into segments approximately 3,200- to 4,000-foot or less in length for inspection. An above-ground segment of the pipeline would be segmented and removed from ephemeral drainage W-4 (discussed further below). Small excavations would then be installed to expose the remaining portions of buried pipe. These bell holes would be located within the construction area and sited to avoid drainages and roadways. At intermittent locations, a minimum 24-inch segment would be removed and the pipeline interior would be inspected. The removed sections of pipe would be sampled and disposed of off-site in accordance with all environmental regulations. The remaining segments of retired pipe would be abandoned in-place and may be filled with cellular concrete slurry beneath roadways and ephemeral drainages, where determined necessary to prevent potential settling due to potential long-term corrosion of the deactivated pipe. The remaining buried portions of the pipeline would be filled with inert gas to maintain pressure inside the pipeline. The cut pipeline sections would then be capped by welding a steel plate at the end and reburied beneath the ground surface.

Removal of Pipeline Span at Cayetano Creek

An approximately 100-foot above-ground, pipeline section spanning ephemeral Cayetano Creek (W-4) would be removed to prevent atmospheric corrosion after deactivation of the pipeline. First, excavations would be conducted by equipment or by hand at pipeline transitions into either bank

of the drainage. An approximately 10-foot wide by 10-foot long by 10-foot deep excavation will be made at both ends of the pipe within the creek banks. The above-ground portion of the pipe would be removed by fixing a strap attached to an excavator or crane arm to the pipe. After removal, the cut ends of the pipe in the bank would be capped by welding a steel plate, and the ends would be reburied. All contours of the creek bank would be restored to existing conditions, as practicable.

2.4.3 Signage

During construction, temporary project signs would be installed adjacent to gates and fences along the Project site to identify the project owner and operator and provide emergency public contact information, including a telephone number. Additionally, temporary project signs would be placed on the perimeter fences and at all entry points. These signs also would include a no trespassing statement.

After all other construction activities are complete, PG&E would install pipeline markers at along the new alignment to identify where the pipeline is buried. Markers consist of small metal poles with approximately one-foot-by-three-foot plastic paddles with reflective surfaces that are easily visible. Marker height would typically be 10 feet. The bases of the signs are anchored with buried concrete footings approximately one to two feet deep and one to two feet wide. Markers would be installed adjacent to fence lines and roadways to the extent possible. Figures 2-0 through 2-9 show the approximate locations planned for markers, but installation could be anywhere within the Proposed Project's permanent easement.

2.5 SITE RESTORATION

Site restoration would begin immediately after the construction activities (retirement of the existing pipeline, and installation of new pipeline and CP system. Construction equipment and materials would be removed from all work areas immediately following construction activities. All temporarily affected work areas would be restored to approximate pre-Project conditions. All areas subject to ground disturbance would be revegetated with hydroseeding or hand seeding using an appropriate seed mix, except agricultural areas, which would be returned to the landowner for continued agricultural use. No container stock would be utilized for revegetation to limit potential for introduction of pathogens during restoration. In agricultural areas, the new pipeline alignment would not prevent replanting of existing agricultural uses, which are predominantly field grasses and row crops.

2.6 CONSTRUCTION SCHEDULE

Construction is planned to occur over a 7-month period, currently anticipated to be from July through October or November 2018. In the event that work cannot be completed during before the onset of winter rains (typically between October 15 and December 1), work may be resumed in the Spring of 2019. All work related to the Proposed Project would occur during daytime, unless operational, safety, or emergency conditions warrant night work. One situation that may warrant nighttime construction is work within or adjacent to roadways where a specified encroachment permit requires nighttime construction to reduce traffic congestion. During construction of the

Proposed Project, crews typically would work from 7:00 a.m. to 5:00 p.m., Monday through Saturday. Occasionally, work may extend beyond these hours to complete a necessary task for safety reasons or other urgent requirements (i.e. completing a weld, hydrotest, or scheduled pipeline clearance/outages and tie-in work), and is allowed from half an hour after sunrise to half an hour before sunset. Sunday work may also be required.

Construction would begin following approval of permits from regulatory agencies and other entitlements, final engineering, and procurement activities. Although PG&E is not required to comply with local regulations, as discussed in Chapter 1, all proposed construction activities would be completed within work times that are consistent with the hours described in Chapter 6.60 of the Alameda County Municipal Code, to the extent feasible. Construction activity for a segment of R649 would occur in the City and would be consistent with the hours set forth in Chapter 9.36 of the City's Municipal Code, as feasible.

2.7 CONSTRUCTION MANAGEMENT AND EQUIPMENT

Construction contractors would prepare the Project site, deliver and install pipe, retire the existing line, replace the CP system, and complete final cleanup and restoration of the Project area. It is projected that three crews consisting of approximately 20 workers each, per day, would be on-site for a period of seven months. The peak construction workforce is not anticipated to exceed 60 workers. The following types of construction equipment would be used:

- | | | |
|--------------------|------------------|-----------------------|
| - Light Duty Truck | - Welding Rig | - Tractor Trailer |
| - Heavy Duty Truck | - Air Compressor | - Vibratory Compactor |
| - Excavator | - Pipe Bender | - 10 Wheel Dump Truck |
| - Grader | - Bore Rig | - Fork Lift |
| - Bulldozer | - Grader | - Back Hoe |
| - Side Boom | - Polaris Razor | - Trencher |
| - Flat Bed Truck | - Semi Truck | - Trailer |

Access to the Project site for construction personnel and construction deliveries would be from Isabel Avenue to Portola Avenue; North Livermore Avenue to Hartman Road, May School Road, and Dagnino Road and Vasco Road. The access roads would be maintained as needed to facilitate on-site circulation for emergency vehicles during all weather conditions. The Project site access roads are illustrated on Figures 2-0 through 2-9.

All materials for construction of the Proposed Project would be delivered by truck. All truck traffic would occur on designated truck routes and existing streets to access routes designated for the Proposed Project, as discussed in Section 2.2.3. Deliveries of construction materials may be made from the west heading east on I-580 or from the east heading west on I-580, on fully surfaced regional transportation routes, to either Isabel Avenue or North Livermore Avenue and then to designated access routes. Deliveries are anticipated to come from Benicia, Stockton, and/or Modesto.

Construction traffic exiting the Project site would travel south on Vasco Road, south on North Livermore Avenue, and south on Isabel Avenue to I-580 to access other points in Alameda County. Traffic from construction activities would be temporary and would occur along area roadways as

workers and materials are transported to and from the Project site. Materials (e.g., pipe, support structures, and pipeline interconnection equipment), with the exception of pre-assembled components, would be brought to the Project site and assembled. Approximately 532 truck trips are assumed for all construction-related deliveries, including water and CNG, over the 6-month construction period. Following construction activities, construction area roadways would be restored to respective pre-construction conditions.

During construction, all employees would park within the Project site boundary. Equipment used during construction activities would be used within the Project site in the work corridor, access roads, and staging areas.

2.8 OPERATIONS AND MAINTENANCE

Once in operation, PG&E would maintain approximately a 50-foot-wide permanent easement along the length of the new pipeline alignment. Control of deep-rooted vegetation would be performed as needed to maintain a 20-foot-wide corridor centered over the proposed pipeline. Because most of the route is grassland and agricultural field grasses, few areas are expected to require vegetation maintenance by PG&E. In agricultural areas, the new pipeline alignment would not prevent replanting of existing field grasses and crops.

The level of vehicle activity entering and leaving the site during operations would be limited to infrequent scheduled and emergency maintenance visits and would be similar in nature to what PG&E currently does. Scheduled maintenance would occur as needed. Emergency maintenance would occur at any time, as needed for the situation; however, maintenance and emergency service during daylight hours would be encouraged, to maximize worker safety.

2.9 REQUIRED AGENCY APPROVALS

Approvals/actions for the Proposed Project would include, but are not limited to, the following:

- California Department of Fish and Wildlife, Lake and Streambed Alteration Agreement.
- California Department of Fish and Wildlife, Incidental Take Permit.
- U.S. Army Corps of Engineers, Clean Water Act Section 404 Permit.
- Regional Water Quality Control Board, Clean Water Act Section 401 Water Quality Certification.
- U.S. Fish and Wildlife Service, Section 7 Federal Endangered Species Act (ESA) Biological Opinion.
- SWRCB, NPDES Construction General Permit (Storm Water Pollution Prevention Plan [SWPPP]).
- Alameda County Public Works Agency, Encroachment Permit.

2.10 APPLICANT-PROPOSED MEASURES

PG&E has identified several Applicant Proposed Measures (APMs) that will be implemented before, during, and after construction of the Proposed Project to avoid and minimize potential

impacts on environmental resources. PG&E's APMs include construction techniques, avoidance measures, and best management practices (BMPs) as well as the requirements of applicable agency permits that will be implemented during construction. The proposed APMs are incorporated into the Proposed Project and listed below and re-identified in Chapter 3.0, Environmental Checklist and Environmental Evaluation, where applicable.

The following APM's would be implemented as part of the Proposed Project:

APM AIR-1: BAAQMD Basic Control Measures

The following Bay Area Air Quality Management District (BAAQMD) basic control measures will be implemented with the Proposed Project:

- All exposed surfaces (i.e., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or more if necessary. Watering shall be done in such a manner that no puddles are formed and impacts to wetlands and waters are avoided. Chemical additives used for dust suppression must be reviewed and approved by CDFW and shall not cause harm to sensitive species or habitats.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

APM AIR-2: Minimize Exhaust Emissions. Exhaust emissions shall be minimized during construction activities with the use of off-road equipment engines that meet or exceed CARB's Tier 3 or Tier 4 engine emissions standards for large (greater than 120 HP) off-road equipment. At a minimum, all welding rigs, dozers, and graders shall be certified as compliant with the Tier 4 engine emissions standards, as provided in the California Code of Regulations, title 13, section 2423(b)(1)(B). Engines can achieve these standards through the use of late model engines, low-emission diesel products,

alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.

APM AES-1: Construction Area Cleanup. Construction and staging areas shall be maintained in a clean condition with regular cleanup after construction activities to minimize clutter. Construction waste and debris would not be left in the open visible places and will be disposed of as soon as possible or contained in bins. All staging areas shall be reclaimed to approximate pre-Project conditions immediately following completion of their use, unless otherwise requested by landowners.

APM BIO-1: Worker Education and Training. PG&E will develop a construction employee education program which covers all sensitive environmental resources potentially onsite and the measures and regulations associated with their protection (i.e., from APMs, MMs, statute and regulation). The training will be a component of weekly Project meetings and will be provided to everyone working onsite. At minimum, the training program will include:

- A sign-in sheet to document the attendance for all employees who attend.
- A brief presentation, to be conducted by persons knowledgeable in the sensitive environmental resources described in the Proposed Project IS/MND or protected by statute or regulation, to explain necessary protections to contractors, their employees, and agency personnel involved in the Proposed Project.
- For biological resources, the program will include:
 - A description of local and special-status species and their habitat needs;
 - An explanation of the status of each special-status species and their protection under ESA and CESA and a list of measures being taken to reduce effects during construction and implementation and penalties for non-compliance.
 - Fact sheets conveying this information and an educational brochure containing color photographs of all special-status species in the Project site will be prepared for distribution to the training attendees and anyone else who may enter the Project site.

APM BIO-2: Pipe Storage and Inspection. Pipes, culverts and similar materials shall be stored so as to prevent wildlife from using these as temporary refuges (i.e., securely capped where possible). These materials will be inspected each morning for the presence of animals prior to being moved, buried or capped.

APM BIO-3: Prohibited Activities. The following shall not be allowed in or near the Project site for Project activities: trash dumping, firearms, open fires (such as barbecues), hunting, and pets.

APM BIO-4: Debris Abatement. All trash and debris within the Project site shall be placed in containers with secure lids before the end of each work day to reduce the likelihood of wildlife being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. Containers will be emptied as necessary to prevent overflow. All trash would be disposed of at an appropriate off-site location.

APM BIO-5: Vehicle Parking. Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas or areas approved by the biological monitor after determining wildlife or habitat resources will not be adversely affected.

APM BIO-6: Off-Road Travel. Off-road vehicle travel shall be minimized. If off-road vehicle travel is necessary, it will be confined to the PG&E-designated overland access routes, as shown in Figures 2-0 through 2-9.

APM BIO-7: Speed Limits. Vehicles shall not exceed a speed limit of 15 mph in undeveloped portions of the workspaces (i.e., unpaved access roads).

APM BIO-8: Vehicle Cleaning. Vehicles shall arrive in sensitive vegetation habitats (i.e., sensitive natural communities and areas with special status plant populations) clean of muddy debris. If work occurs in Project areas with heavy weed infestation, vehicles will be cleaned before moving to a sensitive habitat if that area does not contain a substantial weed component. Degree of infestation by noxious weeds (defined as those that are listed on the Cal-IPC high or moderate lists) across the entirety of the Project alignment shall be determined by a biologist prior to construction (see Mitigation Measure BIO-1). Cleaning will occur by brushing, washing, or other means of manual or mechanical removal and shall be confirmed clean by a biological monitor before entering sensitive habitats.

APM BIO-9: Night Work Restriction. All construction activities shall cease 30 minutes before sunset and will not begin prior to 30 minutes after sunrise. If construction cannot be avoided because of safety or emergency reasons, it shall proceed only for the minimum time necessary to abate the risk to safety or emergency. If standard nighttime construction cannot be avoided, night work will be limited to a maximum of a total of 7 nights at each individual grassland or riparian Work Area. Night work shall be limited in extent, duration, and brightness. Prior to commencing night work, PG&E will provide CDFW with notice of where and when work will occur and measures implemented to protect sensitive biological resources. If more than 7 total nights of work are necessary at any Work Area with habitats that support nesting birds or sensitive species, due to requirements in local permits or unforeseen circumstances, additional nights of work will only occur if approved by CDFW. Lighting shall be faced downward and will only be used in the immediate workspace to achieve a safe working environment. A CDFW- and USFWS-approved biologist will be present during all construction activities in areas with sensitive species habitat including all night work, and will ensure that lighting is used to the minimum extent feasible.

APM BIO-10: Refueling and Equipment Maintenance. Vehicle and equipment fueling and maintenance operations shall be conducted in designated areas only; these will be equipped with appropriate spill control materials and containment. Vehicles or equipment shall not be refueled within 150 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

APM BIO-11: Erosion Control Materials. Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the Proposed Project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds that are non-toxic and approved by CDFW.

APM BIO-12: Stockpiling. Stockpiling of material shall occur outside of seasonal swales and ephemeral drainages.

APM BIO-13: Access Across Jurisdictional Features. Seasonal swales W-5, W-7, and W-8 are located within overland access routes. If access routes are wet or rutting is possible, matting or other protective plates shall be placed across these swales prior to use. Matting/plates will be removed immediately after use of the access road is complete. Access across ephemeral drainages W-1 and W-4 will occur using temporary bridges. Equipment will be operated from on top of the channel bank to install/remove bridges. Matting/platting/bridges shall not be installed within 24 hours of significant rain events (defined as $\frac{1}{4}$ of inch of rain or more within a 24-hour period).

APM BIO-14: Work Area Delineation. The Project site shall be delineated with high visibility temporary flagging or other barriers, such as T-post and rope (where cattle are not present), to prevent encroachment of construction personnel and equipment outside of the Project site. Flagging or other materials will be inspected and maintained daily until completion of the Proposed Project. The materials will be removed only when all construction equipment is removed from the site.

APM BIO 15: Seasonal Work Restriction. Grading and construction activities shall be conducted during the dry season, between April 15 and October 15, to the extent possible. Should work need to occur outside of this period, PG&E will request authorization from the and CDFW at least 10 days prior of the date of the proposed extension, for intervals of up to 1 week. Work will only be conducted in accordance with CDFW and approval, and shall be subject to weather conditions.

APM CUL-1: Prehistoric or Historic-Period Materials Discovered during Construction. If concentrations of prehistoric or historic-period materials are encountered during ground-disturbing work, all work within a 50-ft. radius of the discovery shall be halted until a qualified archaeologist can evaluate the significance of the resource. If the resource is determined to be significant and the landowner consents, PG&E will determine the appropriate avoidance measures or other appropriate mitigation in consultation with a qualified archaeologist, landowner, and CDFW. Consultation shall include the lead tribal monitor if the discovery involves a prehistoric resource. With the permission of the landowner, significant cultural materials will be curated according to current professional standards.

APM CUL-2: Human Burials Encountered during Construction. Section 7050.5(a) of the California Health and Safety Code (HSC) states that it is a misdemeanor to knowingly disturb a human burial. If human remains are encountered during any activity related to the Proposed Project:

- Stop all work within 100 feet;
- Immediately contact a PG&E Cultural Resource Specialist, who will then notify the County Coroner (the Coroner typically makes a determination regarding the origins of the remains within two working days following notification).
- Immediately upon discovery, secure the location by closing access to the area, and covering the discovery with tarp; do not touch or remove remains and associated artifacts during this process.

- While awaiting the County Coroner's arrival, do not remove associated cultural materials, artifacts, or objects, or pick through them.
- Record the location and keep notes of all calls and events.
- Treat the find as confidential and do not publicly disclose the location or details of the burial.
- If the human remains are of Native American origin, the County Coroner must notify the Native American Heritage Commission (NAHC) within 24 hours of such identification (HSC Section 7050.5[c]). Standard protocol is for the most likely descendant (MLD) to visit the discovery site, with permission of the land owner, within 48 hours of notification by the NAHC (PRC Section 5097.98[a]). The PG&E Cultural Resource Specialist will work with the MLD to develop a treatment plan for re-burial in situ, re-interment in a new location, or other disposition of the human remains and any associated artifacts.
- No additional work shall take place within 50-ft. of the burial(s) until the appropriate actions have been implemented.

APM CUL-3: Workers Awareness Training. Prior to the start of construction, all field personnel shall receive a worker's environmental awareness training module on cultural, paleontological, and tribal cultural resources utilizing PG&E's Cultural Resources Awareness and Response Brochure. The training will provide a description of cultural, paleontological, and tribal cultural resources that may be encountered in the Project area, outline steps to follow in the event that an inadvertent discovery is made, and provide contact information for the Proposed Project Archaeologist, Proposed Project Paleontologist, on-site cultural resources monitor(s) and tribal cultural monitor(s). The training may be conducted concurrent with other environmental training (natural resources awareness training, safety training, etc.).

APM CUL-4: Archaeological and Tribal Cultural Resources Construction Monitoring. Archaeological and tribal cultural resources construction monitoring will be conducted within portions of the Project site designated as having moderate to high archaeological buried site sensitivity, as follows: Cayetano Creek and approximately 1,500 feet to the southwest and 4,450 feet to the northeast of the creek. An archaeological monitor qualified under the Secretary of the Interior's professional standards for archaeology, as well as a tribal monitor, will be present during ground disturbing activities within 500 feet of the creek. The archaeological and tribal monitors will conduct spot-check monitoring along the alignment from 3,500 feet north of the sensitive area near Cayetano Creek and 1,000 feet southwest of the sensitive area around the creek. The duration and frequency of the spot-check archaeological and tribal monitoring will be based on the nature of the subsurface soils, and the potential for encountering cultural or tribal cultural resources.

Archaeological and tribal monitors will observe all ground disturbing activities where monitoring is required and will identify the depth of excavation, type of ground disturbance, soils and stratigraphy, and any subsurface cultural resources that are encountered. All areas of ground disturbance, will be inspected by the archaeological and tribal monitors, including checks of excavated areas and refuse piles and material.

If an archaeological resource is found, all work within a 50-ft. radius of the discovery will be stopped until a qualified archaeologist can evaluate the significance of the find. The significance of the resource will be determined by PG&E in consultation with SHPO. If the resource is prehistoric resource, consultation shall also be with appointed representatives of the consulting tribe. If the find is determined to be significant and the landowner consents, PG&E would determine the appropriate measures to avoid or minimize impacts on the resource in consultation with a qualified archaeologist, and with the consulting tribe if the resource is prehistoric, as well as with the landowner. PG&E would notify CDFW of decisions made during consultation. With the permission of the landowner, significant cultural or tribal cultural materials would be curated according to current professional standards.

APM CUL-5: Paleontological Resources Discovered during Construction. If paleontological fossils or geologic units containing evidence of paleontological resources are encountered during ground-disturbing work, all work within 50-ft. of the discovery shall be halted until a paleontologist who meets the minimum qualification standards established by the Society for Vertebrate Paleontology can evaluate the significance of the find. If the find is determined to be significant and the landowner consents, PG&E will determine the appropriate avoidance measures or other appropriate mitigation in consultation with a qualified paleontologist, landowner, and shall inform CDFW. With the permission of the landowner, significant fossil resources will be curated according to current professional standards.

APM GEO-1: Backfill Operations. All backfill above the pipe shall be mechanically compacted to at least 95% relative compaction. On-site soils will be acceptable for use as backfill in non-structural areas only. All imported fill shall consist of granular, non-expansive soil with an Expansion Index of 20 or less. Soil will not contain any contaminated soil, expansive soil, debris, organic matter, or other materials unsuited as backfill.

APM GEO-2: Geotechnical Report Recommendations. PG&E shall incorporate site-specific recommendations identified in the Geotechnical Study dated September 6, 2016, into the pipeline design. Specifically, the replacement pipeline would be constructed at a 90-degree angle where the northeastern section of the Proposed R707 Project crosses the Greenville fault. The geotechnical recommendations and pipeline design shall be reviewed and approved by a structural engineer to ensure all seismic related impacts are reduced to a less than significant level.

APM HAZ-1: Hazardous Substance Control and Emergency Response. PG&E will implement its hazardous substance control and emergency response procedures as needed. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they will be managed in accordance with all applicable regulations. Material safety data sheets shall be maintained and kept available on-site, as applicable.

In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil

will be tested and, if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.

All hazardous materials and hazardous wastes shall be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources.
- Emergency response and reporting procedures to address hazardous material spills.
- Stopping work and contacting the Alameda County Fire Department (ACFD) immediately if visual contamination or chemical odors are detected. CDFW shall be informed of the occurrence. Work would be resumed after any necessary consultation and approval by ACFD.
- PG&E shall complete its Emergency Action Plan Form as part of the pre-construction meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and other relevant information.

APM HAZ-2: Fire Avoidance and Suppression. California Department of Forestry and Fire Protection (CAL FIRE) requires that PG&E select a welding site that is void of native combustible material and/or clearing such material for 10 feet around the area where the work is to be performed. PG&E will follow its standard practice for clearing in wildland areas. Proposed Project personnel shall be directed to drive on areas that have been cleared of vegetation; park away from dry vegetation; and carry water, shovels, and fire extinguishers in times of high fire hazard. PG&E also will prohibit trash burning. Additionally, fire-suppression materials and equipment shall be kept adjacent to work areas and would be clearly marked as required by the Hot Work permit that would be obtained for the Proposed Project. Where Hot Work is occurring in undeveloped and dry areas, PG&E shall use a water truck to provide additional fire protection, as deemed necessary.

APM HWQ-1: SWPPP Development and Implementation, Erosion, and Sedimentation. Following approval of the Proposed Project, PG&E shall obtain a National Pollutant Discharge Elimination System (NPDES) General Construction permit for the Proposed Project and prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP will help stabilize disturbed areas and reduce erosion and sedimentation.

The plan shall designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, will be installed before the onset of winter rains or any anticipated storm events. Suitable stabilization measures will be used to protect exposed areas during construction activities, as necessary. During construction activities, measures shall be in place to prevent contaminant discharge from vehicles and

equipment. A monitoring program shall be established to ensure that the BMPs prescribed in the SWPPP are followed throughout construction.

The Proposed Project SWPPP shall include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, shall be designed by using specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following:

- Defining ingress and egress within the Project site.
- Implementing a dust control program during construction.
- Properly containing stockpiled soils.

Erosion control measures identified shall be installed in an area before construction begins. Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, shall remain in place until disturbed areas have stabilized. The plan will be updated during construction as required by the State Water Resources Control Board (SWRCB).

APM HWQ-2: Worker Environmental Awareness Program Development and Implementation. The worker environmental awareness program shall communicate environmental issues and appropriate work practices specific to the Proposed Project. This shall include spill prevention and response measures and proper BMP implementation. The training will emphasize site-specific physical conditions to improve hazard prevention (such as identification of flow paths to nearest water bodies) and will include a review of all site-specific water quality requirements, including applicable portions of erosion control and sediment transport BMPs, health and safety plan, and hazardous substance control and emergency response plan.

APM HWQ-3: Secondary Containment. Secondary containment, such as rubber berms with lips, larger layflat hose, or other suitable materials, shall be provided for water piping/hoses, frac tanks, and other equipment used to convey and temporarily store water and cleaning fluids.

APM NOI-1: Notify Residents and Ranchers of Construction Activities. Notification and coordination shall include the following: Prior to construction, PG&E shall give at least a 7-day advance notice of the start of construction-related activities. Notification shall be provided by mailing notices to all properties within 500 feet of the Project area. The announcement shall:

- Describe where and when construction is planned.
- Describe the dates and type of any planned nighttime work.
- Provide contact information for a point of contact for complaints related to construction activities.

Prior to commencing ground disturbing or noise generating activities, PG&E will submit a copy of the template used for the notification letter and a list of the landowners notified to CDFW. Reporting of Complaints. PG&E will document all complaints and strategies for resolving complaints in monthly reports to CDFW during construction activities.

APM NOI-2: Noise Minimization with Quiet Equipment. Quiet equipment (e.g., noisy equipment that incorporates noise-control elements into the design) shall be used during construction whenever feasible. This means that engine exhaust points will be equipped with a muffler, and quiet model air-compressors or generators will be used, if available. Use of equipment such as hammers, pile drivers, pneumatic tools, or other impact device that may create loud or unusual noise shall be avoided at night or will be shrouded or provided with barriers to achieve a 5-decibel (dB) reduction during night work.

APM T&T-1: Traffic Coordination. Emergency service providers shall be notified of the timing, location, and duration of construction activities that will impact traffic. Traffic control devices and signage will be used as required by encroachment permits and as needed.

APM TCR-1: Management of Unanticipated Tribal Cultural Resources. In the event that subsurface construction activities inadvertently discover tribal cultural resources, all activity in the vicinity of the find shall stop and a qualified archaeologist and an authorized tribal representative designated by a consulting tribe shall be contacted to assess the significance of the find according to CEQA Guidelines Section 15064.5 and Section 21074. If any find is determined to be significant, the archaeologist shall determine, in consultation with the implementing agency and any local Native American groups expressing interest, appropriate avoidance measures or other appropriate mitigation. Per CEQA Guidelines Section 15126.4(b)(3), preservation in place shall be the preferred means to avoid impacts to tribal cultural resources. Methods of avoidance may include, but shall not be limited to, Project reroute or redesign, Project cancellation, 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 Native American representatives expressing interest in the tribal cultural resource.

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3.0 ENVIRONMENTAL CHECKLIST AND ENVIRONMENTAL EVALUATION

The environmental factors checked below would be potentially affected by the Proposed Project, involving at least one impact that requires mitigation to reduce the impact from "Potentially Significant" to "Less Than Significant" as indicated by the checklist on the following pages.

- | | | |
|--|--|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Tribal Cultural Resources | <input type="checkbox"/> Utilities/Service Systems |
| <input checked="" type="checkbox"/> Mandatory Findings of Significance | | |

Evaluation of Environmental Impacts

Chapter 3.0, Environmental Checklist and Environmental Evaluation, presents the environmental checklist form found in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the Proposed Project. A discussion follows each environmental issue identified in the checklist. Included in each discussion are specific mitigation measures recommended as appropriate as part of the Proposed Project. For this checklist, the following designations are used:

- **No Impact:** The Proposed Project would not have any impact to the environmental factor considered.
- **Less Than Significant Impact:** The impact would not exceed the criteria presented in Appendix G, relative to existing standards.
- **Less Than Significant with Mitigation Incorporated:** This designation applies where applicable and feasible mitigation measures are identified in this ISMND that will demonstrably reduce an effect from a "Potentially Significant Impact" to a "Less Than Significant Impact," and those measures are incorporated into this ISMND pursuant to Section 21155.2 of the Public Resources Code (PRC).
- **Potentially Significant Impact:** An impact that exceeds the criteria presented in Appendix G. In this ISMND, a potentially significant impact may be identified initially, but would be reduced to "less than significant" through the application of feasible mitigation. If any potentially significant impacts are identified and mitigation does not reduce the impact below a threshold identified in Appendix G, an EIR must be prepared. An ISMND cannot be used in the case of a project for which this conclusion is reached in any impact category.

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3.1 AESTHETICS

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.1 Introduction

Summary

This section describes the regulations applicable to the Proposed Project, the existing physical environment related to visual resources, and concludes that impacts to aesthetic resources would be less than significant.

Methodology

Visual or aesthetic resources are the natural and cultural features of the environment that can be seen and that contribute to the public's enjoyment of the environment. Visual resource or aesthetic impacts are generally defined in terms of a project's physical characteristics and potential visibility, and the extent that project presence would change the visual character and quality of the environment in which it would be located.

Potential visual impacts of the Proposed Project were determined by assessing the nature of the Proposed Project's contribution to change the existing visual setting, and determining the viewer response to that change. The assessment of the Proposed Project's potential impact to aesthetic resources is based on the following Federal Highway Administration (FHWA) steps:

Establish the existing visual environment for the Proposed Project.

Assess the visual resources of the Project area (areas from which project-related activities can be seen) by describing the visual character of the surrounding landscape and assessing the visual

quality. Visual character includes an area's form, line, color, and texture. Visual quality considers the vividness, intactness, and unity of views. The terms vividness, intactness, and unity are described as follows:

Vividness is described as the visual power or memorability of landscape components as they combine in distinctive visual patterns.

Intactness is the visual integrity of the natural and human-built landscape as its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as natural settings.

Unity is the visual coherence and compositional harmony of the landscape considered as a whole. Unity frequently attests to the careful design of individual components in the landscape (FHWA 1988).

Potentially affected viewer groups would be identified in terms of viewer exposure to the components of the Proposed Project and the levels of viewer sensitivity. Viewer exposure considers the distance of the viewer to the Proposed Project, the position of the viewer in terms of relative elevation to the Proposed Project, approximate number of viewers, and the duration and frequency of views. Viewer sensitivity is affected by viewer activity, awareness, and expectations in combination with the number of viewers and the duration of the view.

Potential visual impacts for the Proposed Project were based on information provided in Chapter 2.0, Project Description, of this ISMND, a desktop review of the Project area's existing conditions as available through Google Earth, and a site visit conducted on November 23, 2016.

3.1.2 Regulatory Setting

State

California Scenic Highway Program

California's Scenic Highway Program was created by the Legislature in 1963 and is managed by the Landscape Architecture Division of the California Department of Transportation (Caltrans). Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view (Caltrans 2017). According to the Caltrans State Highway Network Data Library, the entire segment of I-580 in Alameda County is designated an eligible scenic highway. The highway is adjacent to the southwest section of the R649 Project (Caltrans 2011).

Local

The County's East County Area General Plan and the City of Livermore General Plan are the local planning documents that address visual resources in the project area. Because the CPUC has jurisdiction over the design, construction, and operation of gas pipelines and associated facilities,

the Proposed Project is not subject to local discretionary regulations. This section includes a description of the local regulations addressing visual resources issues generally, and is provided for informational purposes to assist CEQA review.

Alameda County General Plan

Land Use Element

Goal: To preserve unique visual resources and protect sensitive viewsheds.

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.

City of Livermore General Plan

Community Character Element

Goal CC-1: Preserve and enhance Livermore's natural setting.

3.1.3 Environmental Setting

Regional Setting

The Proposed Project is primarily located in the East County area of northern Alameda County; however, the southwest section of the R649 Project is located within the administrative boundary of the City of Livermore. Northern Alameda County is characterized by a rural environment consisting of private farmlands used for pastures and low-intensity agriculture surrounded by rolling hills. Residential development is oriented around arterial roadways such as North Livermore Avenue, Portola Avenue, Hartman Road, North Vasco Road, and I-580, the entirety of which is designated an eligible state scenic highway. Other primary land uses in northern Alameda County are commercial, public facility, institutional, and recreational. The existing PG&E gas pipeline extends northeast from Portola Avenue and terminates near North Vasco Road. Most of the existing gas pipeline is buried underground, except for an above-ground span that crosses Cayetano Creek (W-4), the ETS/CT Stations, pipeline markers, and rectifiers for the CP system.

Project Site Setting

The Proposed Project begins just north of I-580 and would parallel the existing buried gas pipeline starting near Portola Avenue and extending northeast toward North Vasco Road. The Project length is approximately five miles and extends across private flat, dry farmed lands, some of which are used for grazing livestock. Other portions of the Project site include residences and/or livestock enclosures associated with the agricultural fields. The Project site would be accessed via Vasco Road, Dagnino Road, May School Road, North Livermore Avenue, Hartman Road, and Portola Avenue. The elevation of the Project site ranges from approximately 515 feet in the southwest to a high of approximately 1160 feet above mean sea level to the northeast.

The Project site is set within a rural agricultural area with dispersed residences. Temporary construction activities for new development and existing operation and maintenance activities

associated with the surrounding agricultural land uses are common throughout the Project area. These activities include the presence of construction personnel and the use of heavy duty construction and farm equipment consisting of, but not limited to, tractors, trucks, loaders, graders, and bulldozers. The occurrence of these activities and equipment are ongoing and are typically temporarily visible to residences, motorists, and recreationists in the Project area.

The overall population of the Project area is generally low and increases toward the boundaries of the City of Livermore. Brushy Peak and the Brushy Peak Regional Preserve are approximately two miles east of the northeast end of the R707 Project. The Las Positas Community College and Cayetano Community Park are directly west of the southwest end of the R700 Project, off Portola Avenue.

The southern portion of the R649 Project, from MP 31.90 to 32.29, is south of an existing residential subdivision. This portion of the R649 Project would not be altered as part of the Proposed Project. The Proposed Project would remove the existing above-ground span that crosses Cayetano Creek as part of the R700 Project. The Proposed Project would replace the existing ETS/CT Stations, pipeline markers, and rectifiers in similar or new locations that are generally consistent with the location of existing features.

Visual Sensitivity

The sensitivity of the viewer or viewer concern is based on the visibility of resources in the landscape, proximity of the viewers to the visual resource, elevation of the viewer relative to the visual resource, frequency and duration of views, number of viewers, and types and expectations of individuals and viewer groups.

The viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Visibility and visual dominance of landscape elements depend on their placement within a viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook), or sequence of locations (e.g., a roadway or trail) (FHWA 1988). A viewshed can be broken into distance zones of foreground (within 0.25 to 0.50 mile), middleground (within 3 to 5 miles), and background (5 miles to the limit of human sight).

Visual sensitivity is affected by viewer activity, awareness, and expectations in combination with the number of viewers and the duration of the view. Visual sensitivity generally is higher for views that are observed by people who are driving for pleasure or engaging in recreation activities such as hiking and biking, or by local residents of an area. Sensitivity is lower for people engaged in work activities or commuting to work.

Viewer Groups

Viewer awareness and concern for changes in the landscape can vary depending on the primary activity in which the viewer is engaged. Potentially affected viewer groups were identified based on primary viewing activities within the Project area. Generally, increased visual contrast within foreground distances would be more noticeable to viewers than increased visual contrast within background distance zones. Potentially affected viewer groups with high viewer sensitivity include

residents in the City of Livermore and unincorporated Alameda County, motorists driving on I-580, and recreational users.

Residents

The nearest residences are within approximately 250 to 300 feet of the Project site. The portion of the existing pipeline that extends around a residential subdivision would not be altered as part of the Proposed Project.

Residences' existing views of the Project site consist of flat agricultural fields, existing access roads, and nearby residences. Additionally, existing construction activities associated with new residential development (e.g., Shea Homes residential development adjacent to the R649 Project), and agricultural operation and maintenance activities commonly occur throughout the Project area. These construction and agricultural activities occasionally use heavy duty equipment and are temporarily visible to residences in the Project area.

Motorists

The entire length of I-580 is designated an eligible state scenic highway in Alameda County; therefore, motorists driving eastbound and westbound are considered to have high viewer sensitivity due to the greater level of viewer concern associated with scenic highways. The existing R649 pipe is adjacent to I-580. Most of the existing pipeline is buried underground, including the segment replaced for the R649 Project, and is not visible to motorists. The above-ground features consisting of the above-ground span (part of the R700 Project), ETS/CT Stations, pipeline markers, and rectifiers for the CP System are not distinguishable features visible to motorists as they are less than 1-meter-high plastic tubes. Furthermore, distant views of the Project area, consisting of the agricultural fields and existing access roads, are obscured and not visible to motorists driving on I-580 due to the rolling hillside topography. Existing temporary construction activities and heavy duty equipment associated with new residential development, such as the Shea Homes residential development adjacent to the R649 Project and the highway, are typical for the area and are temporarily visible to motorists driving on I-580.

Recreationists

Recreationists include people using the existing access roads in the Project area for walking, jogging, running, or cycling, and people visiting Brushy Peak and the Brushy Peak Regional Preserve, or Cayetano Park. Most of the existing pipeline is buried underground and is not visible to recreationists, except for the above-ground span that is part of the R700 Project, the ETS/CT Stations, pipeline markers, and rectifiers for the CP system. Recreationists' existing views of the Project area consist of agricultural fields, scattered residential developments, and existing access roads. Additionally, there are existing construction activities associated with new residential development (e.g., Shea Homes), and agricultural operation and maintenance activities that commonly occur throughout the Project area. These activities occasionally use heavy duty equipment, which is temporarily visible to recreationists.

Scenic Vistas and Corridors

Scenic vistas identified by the City of Livermore and Alameda County General Plans include the surrounding hillsides and ridgelines to the northeast, northwest, west, and south of Livermore (Alameda County 1994, City of Livermore 2004). The nearest scenic vista to the Project site is Brushy Peak, approximately 2 miles east of the northeast end of the R707 Project. Brushy Peak is in the Brushy Peak Regional Preserve and is surrounded by steep hillside terrain. The elevation of Brushy Peak is approximately 1,702 feet above mean sea level.

The Project site is located just north of I-580, designated an eligible state scenic highway (Caltrans 2011)². I-580 is a heavily traveled roadway and provides views of Livermore's surrounding hillsides and ridgelines. The City of Livermore General Plan (2004) defines the I-580 scenic corridor as the area within 3,500 feet of the freeway centerline and visible from the roadway. The Proposed Project is within 3,500 feet of the I-580 scenic corridor from Staging Area R700A to the southwest section of the R649 Project.

Light and Glare Conditions

The Proposed Project is located in a rural agricultural area, except for the southwest section of the R649 Project. Nighttime lighting in the Project vicinity is minimal and does not produce substantial glare or skyglow. Nighttime lighting increases toward the I-580 corridor due to traffic, and near the boundaries of the City of Livermore. It is generated from the surrounding urban development.

3.1.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APMs would be implemented as part of the Proposed Project to minimize potential impacts to aesthetic resources. APMs are described in detail in Section 2.10.

- APM AES-1: Construction Area Cleanup.

Impact AES-A Have a substantial adverse effect on a scenic vista?

Less than Significant Impact

The City of Livermore and Alameda County General Plans identify the surrounding hillsides and ridgelines to the northeast, northwest, west, and south of Livermore as scenic vistas. The nearest scenic vista to the Project site is Brushy Peak, approximately 2 miles east of the northeast end of

² California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. The State Scenic Highway System lists highways eligible to become, or designated as, official scenic highways. The status of a proposed state scenic highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway.

the R707 Project. The Proposed Project would be constructed parallel to the existing buried pipeline and extend northeast from Portola Avenue to North Vasco Road.

Brushy Peak is surrounded by steep hillside terrain associated with the Brushy Peak Regional Preserve. Temporary construction and agricultural activities, equipment, and personnel are commonly present in the Project area and are temporarily visible to sensitive viewer groups such as recreationists. The temporary construction activities and agricultural activities occasionally use heavy duty equipment, which is temporarily visible to sensitive receptors. The Proposed Project would temporarily involve the use of heavy duty equipment for the construction of the Project. However, due to the steep hillside terrain and vegetation, distant views of the heavy duty equipment and temporary construction activities occurring intermittently along the proposed pipeline alignment would be obscured and not visible from Brushy Peak. Furthermore, construction and staging activities would be temporary, (approximately 7 months) and would be intermittently established along the pipeline alignment as construction activities move along the 5-mile alignment. During construction activities, the Proposed Project would implement APM AES-1 to ensure construction and staging areas are maintained in a clean condition with regular cleanup after construction activities to minimize clutter. Therefore, temporary construction activities associated with the Proposed Project would not introduce a substantial source of visual contrast that would be visible from a scenic vista, and construction of the Proposed Project would have a less than significant impact on scenic vistas.

Once construction activities are completed, the new pipeline would be buried permanently and would not be visible from a scenic vista. The Proposed Project would remove the existing above-ground span as part of the R700 Project, and the existing above-ground ETS/CT Stations, pipeline markers, and rectifiers for the CP system would be removed and replaced in similar or new locations that are generally consistent with the locations of similar existing features. The new above-ground features would be small and thin, consistent with existing features, and would not introduce a new source of visual contrast. Therefore, the visual quality and character of the surrounding hillsides, as seen from identified scenic vistas, would not be adversely impacted by the Proposed Project. All temporary work areas would be restored to approximate pre-construction conditions, including through the recontouring and revegetation of natural, non-agricultural lands. All agricultural lands would continue to be used for agricultural activities once construction of the Proposed Project is complete. Therefore, operation of the Proposed Project would have a less than significant impact on scenic vistas.

Impact AES-B Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?
Less than Significant Impact

The southwest portion of the R649 Project in the City of Livermore boundaries is adjacent to I-580 where it is designated an eligible state scenic highway. Temporary construction activities, equipment, and staging areas associated with the R649 Project would be visible to motorists driving on I-580. Temporary construction activities and the presence of construction equipment near the I-580 corridor are typically visible to motorists driving on I-580. Construction activities associated with the Proposed Project would be temporary and occur for approximately seven months. Temporary construction activities would include the removal of existing grassland and

agricultural vegetation and would not remove scenic resources such as trees, outcroppings, or historic buildings visible from the I-580 corridor. Implementation of APM AES-1 would ensure construction activities and staging areas are maintained in a clean condition and that debris would be disposed of immediately or contained in bins. The Proposed Project would not substantially damage a scenic resource visible from a state scenic highway and construction related impacts would be less than significant.

Once construction activities are completed, the new pipeline would be permanently buried and would not be visible to motorists on I-580. The above-ground span, part of the R700 Project, would be removed as part of the Proposed Project. The existing ETS/CT Stations, pipeline markers, and rectifiers for the CP system are small and not distinguishable features visible to motorists I-580. The Proposed Project would remove and install these above-ground features in similar or new locations that are generally consistent with the location of existing features. The Project site would be restored to approximate pre-Project conditions, and would include the recontouring and revegetation of natural, non-agricultural lands. Agricultural lands would be returned to landowners for continued agricultural use. As such, the Proposed Project would not substantially damage a scenic resource visible from a state scenic highway, and impacts associated with the operation of the Proposed Project would therefore be less than significant.

Impact AES-C Substantially degrade the existing visual character or quality of the site and its surroundings?

Less than Significant Impact

The majority of the Proposed Project is located in unincorporated Alameda County, except for the southwest portion of the R649 Project, which is located within the City of Livermore municipal boundary. The Proposed Project would be parallel to the existing retired and buried gas pipeline and extend across grazing and dry farmed lands. Portions of the Project site include residences and/or livestock enclosures associated with agricultural fields. The Proposed Project would be accessed from existing roadways, including Vasco Road, Dagnino Road, May School Road, North Livermore Avenue, Hartman Road, and Portola Avenue. The Proposed Project would not require the establishment of new permanent access roads.

Temporary construction activities and agricultural operation and maintenance activities commonly occur in the Project area and are visible to sensitive viewer groups. The construction and agricultural activities involve the use of construction personnel and heavy duty equipment including, but not limited to, farm equipment, heavy duty trucks, graders, and bulldozers. Construction activities for the Proposed Project would include trenching and boring; pipe stringing, bending, and welding; pipe coating; backfilling; and testing and inspection. Staging areas would be temporarily and intermittently established as construction activities move along the alignment, and as crews come back to locations for pipeline retirement or replacement of the CP system once replacement of the pipe is complete. Temporary project construction activities and equipment would be consistent with the existing equipment and activities that commonly occur and are visible in the Project area and would not significantly degrade the existing visual character or quality of the Project area. Additionally, during temporary construction activities the Proposed Project would implement APM AES-1 to ensure staging areas are maintained in a clean condition and that debris would be disposed of immediately or contained in bins.

The new pipeline would be permanently buried and would not be visible to sensitive viewer groups. The Proposed Project would not result in a net increase in permanent above-ground infrastructure. New above-ground infrastructure would include the replacement of the ETS/CT stations, pipeline markers, and rectifiers for the CP system. These features are small and thin and would be placed in similar or new locations that are generally consistent with the location of existing features and would not contrast with the existing visual character or quality of the Project site.

The Project site would be restored to approximate pre-Project conditions by recontouring and revegetating all portions of the Project site. Agricultural lands would be returned to landowners for continued agricultural use. Maintenance of deep-rooted vegetation would be performed as needed within a 20-foot-wide corridor of the proposed permanent easement centered over the new pipeline alignment. Most of the alignment is located within grassland and agricultural fields, so minimal areas, if any, are expected to require ongoing vegetation maintenance. In agricultural areas, the new pipeline alignment would not prevent replanting of existing field grasses and irrigated crops. Additional sources of visual contrast would not be permanently added to the viewsheds of sensitive viewer groups, and temporary construction activities and operation of the Proposed Project would not substantially degrade the existing visual character or quality of the Project site. Therefore, the Proposed Project would not substantially degrade visual quality, and impacts related to the existing visual quality and character of the Project site would be less than significant.

Impact AES-D 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 development of the Proposed Project would not include permanent physical structures requiring permanent lighting fixtures. Furthermore, the new pipeline would be permanently buried and not include the use of materials that would result in substantial sources of light or glare. Existing pipeline markers would be removed and replaced as part of the Proposed Project. The pipeline markers provide a small reflective surface activated by light, which is a safety measure to identify the pipeline location for landowners and the public. The replacement of the pipeline markers would be consistent with existing conditions, and any potential glare effects from the reflective surfaces would occur intermittently and not result in a significant impact to nighttime views in the area.

Typical temporary construction activities would occur from 7:00 a.m. to 5:00 p.m. Scheduled maintenance would occur as needed; however, no later than 10:00 p.m. and no earlier than 4:00 a.m. Emergency maintenance and service may occur at any time, and as needed depending on the situation; however, maintenance and emergency service during daylight hours would be encouraged. In the event nighttime maintenance is required, temporary lighting fixtures installed would only be turned on when necessary to safely complete construction activities. All temporary lighting fixtures would cast light in a downward direction and be focused on the work area to minimize light spillover into off-site areas. Therefore, potential light and glare impacts would be less than significant.

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3.2 AGRICULTURE AND FORESTRY RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forestland or conversion of forestland to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.2.1 Introduction

Summary

This section describes agricultural and forestry resources within the Project area and analyzes potential impacts to these resources from construction and operation of Project facilities. Based on the evaluation below, the Proposed Project impacts on agricultural resources would be less than significant.

Methodology

The following analysis is based on a review of documents pertaining to the Project site, including the County/City general plans, California Department of Conservation (CDC) Farmland Monitoring and Mapping Program (FMMP) database, historical aerial imagery of the Project site as available through Google Earth 2016, Solano County 2013-2014 Williamson Act Map, and Chapter 2.0, Project Description, of this ISMND. The following impact discussions consider the effects of the Proposed Project related to agriculture and forestry resources in the County.

3.2.2 Regulatory Setting

Federal

Farmland Protection Policy Act

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to non-agricultural uses. The FPPA also stipulates that federal programs be compatible with State, local, and private efforts to protect farmland. The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) is charged with oversight of the FPPA.

State

Williamson Act

The California Land Conservation Act, better known as the Williamson Act (California Government Code Section 51200 et seq.), is designed to preserve agricultural and open space land. It establishes a program of private landowner contracts that voluntarily restrict land to agricultural and open space uses. In return, Williamson Act parcels receive a lower property tax rate consistent with their actual use instead of their market rate value. Lands under contract may also support uses that are "compatible with the agricultural, recreational, or open-space use of [the] land" subject to the contract (California Government Code Section 51201[e]). Under Government Code Section 51238, electric facilities are determined to be a compatible use.

Farmland Mapping and Monitoring Program

The CDC, under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP) to monitor the conversion of the State's farmland to and from agricultural use. The FMMP maps agriculturally viable lands and designates specific categories, including Prime, Unique, non-Prime, or Farmland of Statewide Importance.

Forest Taxation and Reform Act

Commercial timberlands are afforded protection through the State's Forest Taxation Reform Act of 1976, which mandates the creation of timberland preserve zones (TPZ) to restrict and protect commercial timber resources.

California Public Resources Code

The California Public Resources Code (Cal PRC) contains the following definitions:

- **Forest Land:** Section 12220(g) defines “forest land” as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.
- **Timberland:** Section 4526 defines timberland as land—other than land owned by the Federal Government and land designated by the State Board of Forestry and Fire Protection as experimental forest land—that is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

Local

Because the CPUC has jurisdiction over the design, construction, and operation of gas pipelines and associated facilities, the Proposed Project is not subject to local discretionary regulations. This section includes a description of the local regulations addressing agricultural and forest resources issues generally, and is provided for informational purposes to assist CEQA review.

Alameda County General Plan

Land Use Element

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.

Open Space Element

All areas indicated as agriculture on the County General Plan are considered as Agricultural Open Space in the Open Space Plan and are designated for preservation. Certain areas, indicated on the General Plan for future urban uses, will be designated or used as interim agricultural open space as a means of preservation prior to the need for urban development. Wherever feasible, power and pipe utility lines [within local jurisdiction] 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.

City of Livermore General Plan

The southern portion of the R649 Project is located within the administrative boundary of the City of Livermore; however, surrounding land is developed. Therefore, the City of Livermore's General Plan is not relevant to the agricultural resources discussion of this ISMND.

3.2.3 Environmental Setting

The CDC, Division of Land Resource Protection, designates agriculturally viable lands as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance through the FMMP. Alameda

County also designates lands that are considered economically viable as Agricultural and designates the site as agriculture. The CDC designates the entire Project area as grazing land (CDC 2014).

Large portions of the Project site between Harman Road and Dagnino Road, including areas along May School Road and North Livermore Avenue, are used for dry farmland to grow field grasses and irrigated row crops, primarily for feed production. Most of the Project site north of Portola Avenue also is used for grazing.

3.2.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APM would be implemented as part of the Proposed Project to avoid/minimize potential impacts to agricultural and forestry resources. APMs are described in detail in Section 2.10.

- APM NOI-1: Notify Residents and Ranchers of Construction Activities.

Impact AG-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?
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No Impact

The Proposed Project would not convert any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use. The Project area is identified as urban and built-up land in the City of Livermore and grazing land in Alameda County. The temporary work areas along the pipeline and the construction staging areas would restore agricultural lands to approximate pre-Project conditions after construction. Therefore, no impacts to agricultural resources would result from construction of the Proposed Project.

Impact AG-B	Conflict with existing zoning for agricultural use or a Williamson Act contract?
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No Impact

The Proposed Project is an underground pipeline and primarily crosses privately owned parcels used for dry farmland and grazing land containing open space with low hills to the north and east and is located on land identified as Non-Enrolled Land (CDC 2015). Non-Enrolled Land consists of land not enrolled in a Williamson Act contract and not mapped by the FMMP as Urban and Build-Up Land or Water (CDC 2015). The area surrounding the Project site is identified as Non-Enrolled Land and lands identified as Williamson Act-Non-Prime Agricultural Land. Lands identified as Williamson Act-Non-Prime Agricultural Land are enrolled under the Williamson Act contract; however, the lands do not meet any of the criteria for classification as Prime Agricultural Land (CDC 2015). Grazing activities on lands surrounding the Project site would continue uninterrupted during Project construction activities. The construction areas would be temporarily used and restored to approximate pre-project conditions. Agricultural and grazing lands would be returned to landowners for continued agricultural and grazing use. The replacement pipeline would be

located within or adjacent to existing rights-of way (ROWs); therefore, Project activities would not require any changes to agricultural zoning or the cancellation of any Williamson Act contracts. Therefore, no impacts would occur.

Impact AG-C Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact

The Project site or surrounding lands are not designated as forest land, timberland, or timberland production, and no timberland uses currently exist on-site. Therefore, no impacts would result from the Proposed Project.

Impact AG-D Result in the loss of forestland or conversion of forestland to non-forest use?

No Impact

The Project site or surrounding lands are not designated as forest land, timberland, or timberland production, and no timberland uses currently exist on-site. Therefore, no impacts to forestry resources would occur.

Impact AG-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 forestland to non-forest use?

Less than Significant Impact

The Proposed Project would replace an existing subsurface gas transmission pipeline. Agricultural land in the Proposed Project work areas and the immediate vicinity would be temporarily affected during construction. Temporary impacts could include disturbance to livestock or other short-term interruption of farming or ranching operations in the work area, and presence or use of construction equipment and project vehicles on farm roads and overland access on ranchland. The disturbed areas would be restored to approximate pre-Project conditions. Existing vegetation, grazing, and agricultural uses would continue and resume after the Project is completed, and grazing activities on adjacent lands would continue during construction of the Proposed Project. According to the Alameda County General Plan, parcels within the Project site are currently zoned for agricultural use. The Proposed Project includes the modification of the existing pipeline; therefore, modifications would not result in changes to agricultural or forestry uses. APM NOI-1 would be implemented to notify agricultural owners and nearby residents of construction activities to reduce potential disruption to farming and ranching activities. With the implementation of APM NOI-1, impacts would be less than significant.

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3.3 AIR QUALITY

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose Sensitive Receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.3.1 Introduction

Summary

This section describes existing conditions and potential Project-related impacts related to air quality issues in the Project area. Included are descriptions of the environmental setting in terms of existing air quality that could be affected by the Proposed Project. Federal, state, and local air quality regulations are discussed, followed by discussions of APMs and evaluation of impacts. The analysis concludes that the Proposed Project would result in less-than-significant air quality impacts after the incorporation of mitigation measures.

Methodology

Emissions of criteria air pollutants were quantified by using the following methods:

- Construction equipment horsepower, load factors, and emission factors from the California Emissions Estimator Model (CalEEMod) User's Guide Appendix D (South Coast Air Quality Management District [SCAQMD 2016]).
- Vehicle emission factors from EMFAC2014 software.

- Fugitive dust emission factors for paved and unpaved road travel from AP-42 (U.S. Environmental Protection Agency [USEPA] 2006 and 2011).
- Fugitive dust emission factors for disturbed soil from the Software User's Guide: URBEMIS2007 for Windows (Jones & Stokes Associates 2007) and the SCAQMD CEQA Handbook (SCAQMD 1993).
- Fugitive dust control efficiencies from Final – Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds (SCAQMD 2006) and the SCAQMD's Mitigation Measures and Control Efficiencies tables for fugitive dust (SCAQMD 2007).

Appendix A contains the detailed air pollutant emissions calculations for the Proposed Project.

3.3.2 Regulatory Setting

Federal

The federal Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the USEPA has established various regulations to achieve and maintain acceptable air quality, including the adoption of National Ambient Air Quality Standards (NAAQS), a mandatory State Implementation Plan (SIP), or maintenance plan requirements to achieve and maintain NAAQS and emission standards for both stationary and mobile sources of air pollution. National ambient air quality standards were established in 1970 for six pollutants: carbon monoxide (CO), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead (Pb). These pollutants are commonly referred to as criteria air pollutants because they are the air pollutants that most-directly affect public health. The USEPA designates a region that is meeting the air quality standard for a given pollutant as being in "attainment" for that pollutant. "Unclassified" is used in areas that cannot be classified on the basis of information as meeting or not meeting the standards or has no designation for all other criteria air pollutants. Consistent with federal requirements, an unclassifiable designation is treated the same as an attainment designation. Regions not meeting the federal standard are designated as being in "nonattainment" for that pollutant. If a region is designated as nonattainment for a NAAQS, the CAA requires the state to develop a SIP to demonstrate how the standard would be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The CAA Amendments of 1990 directed the USEPA to set standards for hazardous air pollutants and required facilities to sharply reduce emissions. Table 3.3-1 summarizes state and federal ambient air quality standards.

Table 3.3-1: California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Ozone	1 Hour	0.09 ppm (180 µg/m³)	—	Same as Primary Standard
	8 Hour	0.070 ppm (137 µg/m³)	0.070ppm (137 µg/m³)	
Respirable PM	24 Hour	50 µg/m³	150 µg/m3	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m³	—	
Fine PM	24 Hour	—	35 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m³	12 µg/m³	
CO	1 Hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	—
	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	—
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)	—	—
NO ₂	1 Hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	—
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary Standard
SO ₂	1 Hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	—
	3 Hour	—	—	0.5 ppm (1300 µg/m³)
	24 Hour	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)	—
	Annual Arithmetic Mean	—	0.030 ppm (for certain areas)	—
Lead	30-Day Average	1.5 µg/m³	—	—
	Calendar Quarter	—	1.5 µg/m³	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m³	
Visibility-Reducing Particles	8 Hour	See Footnote 1	No National Standards	
Sulfates	24 Hour	25 µg/m³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m³)		

Notes:

¹ 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.

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

Source: California Air Resources Board (CARB) 2016a.

State

The California Air Resources Board (CARB) is the state agency responsible for air quality management in California, including establishment of California Ambient Air Quality Standards (CAAQS), mobile source emission standards, and GHG regulations, as well as oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution. The CAAQS are generally more stringent, except for the 1-hour NO₂ and SO₂ standards, and include more pollutants than the NAAQS (see Table 3.3-1). California established standards for four additional air pollutants: visibility reducing particles (VRP), sulfates, hydrogen sulfide (H₂S), and vinyl chloride. Similar to USEPA, CARB designates counties in California as being in attainment or nonattainment for the CAAQS.

The Air Toxic "Hot Spots" Information and Assessment Act identifies toxic air contaminant hot spots where emissions from specific sources may expose individuals to an elevated risk of adverse health effects, particularly cancer or reproductive harm. The Act requires that a business or other establishment identified as a significant source of toxic emissions provide the affected population with information about health risks posed by the emissions.

Regional

Bay Area Air Quality Management District

The Proposed Project is located in the San Francisco Bay Area Air Basin (SFBAAB), which is within the jurisdiction of Bay Area Air Quality Management District. BAAQMD is the agency charged with preparing, adopting, and implementing emission control measures and standards for mobile, stationary, and area sources of air pollution in the SFBAAB.

BAAQMD works in cooperation with the Association of Bay Area Governments and the Metropolitan Transportation Commission (MTC) to develop air quality plans. The BAAQMD prepares ozone attainment demonstrations for the federal ozone standard and clean air plans for the California ozone standard. The *2001 Ozone Attainment Plan* is BAAQMD's contribution to the SIP for demonstrating attainment of the federal 1-hour ozone standard (BAAQMD 2001). The *2017 Clean Air Plan* is the currently approved ozone clean air plan, which shows how BAAQMD would make progress toward meeting the State 1-hour ozone standard. The *2017 Clean Air Plan* provides an integrated, multi-pollutant control strategy to reduce emissions and decrease ambient concentrations of harmful pollutants, safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, and reduce greenhouse gas (GHG) emissions to protect the climate (BAAQMD 2017).

The BAAQMD currently is designated as a federal nonattainment area for the 24-hour PM_{2.5} standard. Because BAAQMD is currently designated as unclassified for the federal 24-hour PM₁₀ standard, BAAQMD is not required to develop a federal attainment plan for this standard at this time. Unclassified is used in areas that cannot be classified on the basis of information as meeting or not meeting the standards and is treated the same as an attainment designation. Therefore, the BAAQMD currently attains the federal 24-hour PM₁₀ standard. However, BAAQMD is designated nonattainment for State PM₁₀ standards. Because the region does not meet the State PM₁₀ standard, and to ensure progress in reducing PM_{2.5}, the BAAQMD has implemented a Particulate

Matter Control Program. The Particulate Matter Control Program includes emission limits of primary PM and PM precursors from stationary sources, wood smoke regulations, and other PM control measures.

BAAQMD Thresholds

In May 2017, the BAAQMD released the most-recent version of its CEQA air quality guidelines to provide guidance to CEQA lead agencies. The guidelines establish thresholds of significance for emissions of reactive organic gases (ROG), NO_x, construction-related PM, operational CO, and greenhouse gas emissions in terms of carbon dioxide equivalent (CO₂e).

3.3.3 Environmental Setting

The Proposed Project is located in the SFBAAB, in Alameda County and within the Livermore Valley. The Livermore Valley is a sheltered inland valley within the Diablo Range. The western side of the valley is bounded by 1,000- to 1,500-foot hills with two gaps connecting it to the San Francisco Bay area—the Hayward Pass at the north and Niles Canyon at the south. The eastern side of the valley also has 1,000- to 1,500-foot hills, the Altamont Hills, with one major passage to the San Joaquin Valley (called the Altamont Pass) and several secondary passages. For the winter season, with the exception of storms moving through the area, air flow is often dictated by a weak pressure pattern, allowing local conditions to dictate air flow. At night and early morning, especially on clear, calm, and cold nights, gravity drives cold air downward to drain off the hills and snake through gaps and passes. During the day, if some surface heating over land takes place, a thermally developed pressure field can initiate weak flow from high to low elevations, drawing air through these same paths of least resistance that may be in the opposite direction of late night and early morning flow. By the summer, the strong Pacific High usually has moved into a position to dominate Bay Area weather. Sunshine is plentiful with clear skies at times.

The air pollution potential in the Livermore Valley is high, especially for photochemical pollutants. Depending upon summer or fall meteorological conditions, the frequency of elevated ozone levels at the air district's Livermore station can be substantial, approaching, reaching, or exceeding Santa Clara Valley levels. The valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from San Francisco, Alameda, Contra Costa, and Santa Clara counties.

The USEPA establishes the "attainment" or "nonattainment" designations for each NAAQS. A region that is meeting or failing to meet the air quality standard for a given pollutant is designated as being in "attainment" or "nonattainment" for that pollutant, respectively. If a region is designated as nonattainment for a NAAQS, the CAA requires the state to develop a SIP to demonstrate how the standard would be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The federal and state attainment status for Alameda County is listed in Table 3.3-2.

Table 3.3-2: State and Federal Attainment Status for Alameda County

Pollutants	State Designation	National Designation
Ozone	Nonattainment	Nonattainment
PM ₁₀	Nonattainment	Unclassified *
PM _{2.5}	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Attainment
Sulfates	Attainment	—
Lead	Attainment	Unclassified/Attainment
Hydrogen Sulfide	Unclassified	—
Visibility Reducing Particles	Unclassified	—

Notes:

*Unclassified is used in areas that cannot be classified on the basis of information as meeting, or not meeting the standards and is treated the same as an attainment designation.

Source: CARB 2013.

The primary pollutants of concern in the Project area are ozone, PM₁₀, and PM_{2.5}, because the region is designated nonattainment for these pollutants by the USEPA and/or CARB. Six ambient air monitoring stations operate in the county. One of the six monitoring stations measures PM₁₀ concentrations, five of the six monitoring stations measure PM_{2.5} concentrations, and all of the monitoring stations measure ozone concentrations.

3.3.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The impact analysis addresses construction-related impacts only because impacts from operating and maintaining the replaced pipeline segments would not change. The following APMs would be implemented as part of the Proposed Project to avoid/minimize potential impacts to air quality. APMs are described in detail in Section 2.10.

- APM AIR-1: BAAQMD Basic Control Measures.
- APM AIR-2: Minimize Exhaust Emissions.

Impact AIR-A Conflict with or obstruct implementation of the applicable air quality plan? *Less than Significant Impact*

As discussed above, the BAAQMD is in nonattainment for state and federal ozone and PM_{2.5} and state PM₁₀. To attain state and federal air quality standards, the BAAQMD has developed the 2017 Clean Air Plan to reduce pollutant emissions within the basin.

To assess the Proposed Project's potential to violate any air quality standard, localized criteria air pollutant emissions were analyzed since these are the pollutants with established ambient air quality standards. Potential localized impacts would include exceedances of state or federal

standards for ozone and PM₁₀ and PM_{2.5}. Particulate matter emissions, primarily PM₁₀, are of concern during construction because of potential fugitive dust emissions during earth-disturbing activities. Ozone emissions are generated from increased hauling and the use of off-road heavy duty diesel equipment used for site grading and paving during construction.

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of equipment operation, and prevailing weather conditions. Construction emissions result from on-site and off-site activities. On-site emissions principally consist of exhaust emissions, which vary based on the activity levels of heavy duty construction equipment, motor vehicle operation, and the amount of fugitive dust (mainly PM₁₀) generated. Additionally, paving operations and application of architectural coatings would release ROG emissions. Off-site emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM₁₀ and PM_{2.5}).

During construction of the Proposed Project, exhaust emissions of criteria air pollutants would be generated from various types of diesel- and gasoline-powered equipment and vehicles temporarily operating within the Project site. Exhaust emissions would result from construction equipment, construction workers' commutes, and construction material hauling for the entire construction period. Ground disturbing activities associated with Project construction would also generate fugitive dust, including PM₁₀ and PM_{2.5} emissions. Implementation of APMs AIR-1 and AIR-2 would reduce emissions of criteria air pollutants during construction of the Proposed Project. APM AIR-1 requires use of basic measures controlling equipment usage and minimizing exhaust emissions, such as maintaining equipment and limiting vehicle speeds, and site activities emitting fugitive dust, such as watering exposed areas and covering haul trucks. APM-AIR-2 requires use of off-road equipment engines that meet or exceed CARB's Tier 3 and Tier 4 engine emissions standards.

Air quality modeling was performed to determine whether the Proposed Project would result in criteria air pollutant emissions in excess of the applicable thresholds of significance. The air emission estimates for construction equipment are based on the horsepower and load factors of the equipment and duration of use onsite and operating hours each day. In general, the horsepower is the power of an engine—the greater the horsepower, the greater the power. The load factor is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operates at its maximum operating capacity. Default load factors in CalEEMod were utilized to estimate Project air emissions. Criteria air pollutant emissions estimated for the Proposed Project are shown in Table 3.3-3 and detailed modelling results are provided in Appendix A.

Table 3.3-3: 2018* Construction Air Pollutant Emissions

Construction	Air Pollutant Emissions							
	ROG	CO	NO _x	SO _x	PM ₁₀ (Exhaust)	PM _{2.5} (Exhaust)	PM ₁₀ (Fugitive Dust)	PM _{2.5} (Fugitive Dust)
Average Daily Emissions (lbs/day)	5.05	58.51	44.94	0.16	1.93	1.80	72.66	7.63
2017 BAAQMD Construction Thresholds of Significance (lbs/day)	54	N/A	54	N/A	82	54	N/A	N/A
Exceeds Threshold (Y/N)?	N	N	N	N	N	N	N	N

* Construction emissions assume all work is completed in 2018 but construction may continue into 2019. This would not change the average daily emissions.

The Proposed Project includes the option of trenching or boring beneath three roadways – North Livermore Avenue, Hartman Road, and Dagnino Road. Air emissions were greater for the scenario of boring beneath the roadways, which is the scenario shown in Table 3.3-3.

The results of the construction emissions estimations were compared to the thresholds of significance recommended by the BAAQMD for construction activities to determine the significance of the impact. Construction emissions would not exceed the recommended significance thresholds, and the project would comply with the dust control measures recommended by BAAQMD. As such, the project would not conflict with or obstruct implementation of the applicable air quality plan, and construction emissions would not be likely to violate any air quality standards or contribute substantially to an existing air quality violation (i.e., the region's nonattainment status for ozone, PM₁₀ or PM_{2.5}). Therefore, the impact under this criterion would be less than significant.

Impact AIR-B Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
Less than Significant Impact

As shown in Table 3.3-2, the BAAQMD is in nonattainment for the standards of state and federal ozone and PM_{2.5} and state PM₁₀. The BAAQMD has established thresholds of significance for criteria air pollutants including ROG and NO_x (ozone precursors) and exhaust-related PM₁₀ or PM_{2.5}. Projects that cause an exceedance of these thresholds would have the potential to contribute substantially to an existing air quality violation. As discussed above in Impact AIR-A, Proposed Project construction emissions would be less than the recommended thresholds of significance for construction activities, as shown in Table 3.3-3. Therefore, the Proposed Project's construction-related emissions would not substantially contribute to any existing air quality violation, and this impact would be less than significant.

Impact AIR-C Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact

This impact is related to regional air quality impacts. Nonattainment pollutants of concern for this impact are ozone, PM₁₀, and PM_{2.5}. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified regional significance thresholds, as shown in Table 3.3-3, its emissions are considered cumulatively considerable, thereby resulting in a significant adverse air quality impact to the region's existing air quality conditions. See Appendix A for Modeling Parameters and Assumptions.

Construction activities associated with the Proposed Project are summarized in Chapter 2.0, Project Description (see Appendix A for a detailed construction schedule used to estimate air emissions). Generally, the most substantial air pollutant emissions would be dust generated from site preparation and earth moving activities and NO_x generated from the operation of construction equipment.

BAAQMD guidelines do not include a numerical significance threshold for fugitive, dust-related particulate matter emissions. Instead, BAAQMD bases the determination of significance for fugitive dust on a consideration of the control measures to be implemented. If all appropriate emissions control measures recommended by BAAQMD are implemented for a given project, then fugitive dust emissions during construction are not considered significant. Therefore, implementation of APM AIR-1, which includes control measures to reduce fugitive dust emissions, would help ensure that impacts from fugitive dust emissions would be less than significant.

Off-road construction equipment and other mobile sources are an important source of NO_x and diesel PM in the Bay Area. NO_x is an ozone precursor pollutant that contributes to regional ozone formation. Diesel PM contributes to elevated PM₁₀ and PM_{2.5} concentrations and is a toxic air contaminant (TAC). APM AIR-2 would be implemented to minimize exhaust emissions during construction with the use of equipment satisfying Tier 3 and Tier 4 emissions standards for large (greater than 120HP) equipment. As shown in Table 3.3-3, emissions of criteria air pollutants from construction of the Proposed Project would not exceed the significance thresholds for construction activities. Operational emissions would be limited to the vehicle and equipment used for periodic maintenance, repair, and inspection of project components – the same as the current operations of Line 131. Therefore, the Proposed Project would not result in a cumulatively considerable net increase of any criteria air pollutant, and this impact would be less than significant.

Impact AIR-D Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact

Construction of the Proposed Project would involve operating heavy equipment and other activities that would temporarily produce additional dust and air emissions. The project would not create any permanent or stationary sources of air pollution. Sensitive receptors are areas where the occupants are more susceptible to the adverse effects of exposure to pollutants. The nearest

sensitive receptor in the vicinity of the Project area that could be affected by construction-generated air emissions is a new residential development immediately adjacent to the R649 Project site. Rural residences are also adjacent to the R700 and R707 Project sites. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics. The Los Positas College is more than 1 mile away. The potential for the Proposed Project to expose sensitive receptors to pollutants during construction activities is discussed in the sections below.

Fugitive Dust

Fugitive dust typically is generated during earth moving activities such as grading and excavation. Fugitive dust can cause health concerns when airborne due to potential inhalation. To minimize potential impacts from fugitive dust, APM AIR-1 would be incorporated into the Project design, which includes watering exposed soils and covering soils being transported off-site, as well as watering and speed limits on dirt roads. These measures would reduce emissions of fugitive dust from project construction activities.

Toxic Air Contaminants

CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks from TACs are a function of both the concentration of emissions and the duration of exposure. Use of off-road, heavy duty diesel equipment for site preparation, paving, excavation, and other construction activities would result in the generation of DPM. However, construction activities are temporary and would occur over a relatively short duration in comparison to the operational lifetime of the Proposed Project. In addition, only portions of the site would be disturbed at a time and construction would occur intermittently throughout the course of a day. Given the limited construction emissions and temporary duration of construction, sensitive receptors would not be subject to substantial pollutant concentrations.

Naturally Occurring Asbestos

The Proposed Project is not located in an area mapped as having, or otherwise known to have, ultramafic rock, serpentine, or naturally occurring asbestos so impacts associated with naturally occurring asbestos are not expected (DOC, 2000).

Conclusion

The Proposed Project would be of a limited duration, and as discussed above, the Proposed Project would implement APMs to minimize emissions of equipment exhaust and dust to reduce project-related air pollutant concentrations, including TACs, naturally occurring asbestos, or fugitive dust. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations, and this impact would be less than significant.

Impact AIR-E Create objectionable odors affecting a substantial number of people?
Less than Significant Impact

Odors are generally regarded as an annoyance rather than a health hazard and the ability to detect odors varies considerably among the populations and overall is subjective (BAAQMD 2017).

Sources of objectionable odors include diesel exhaust and ROG, which would be emitted during the use of construction equipment, and odorized natural gas, which would be purged from an approximately 5.5 mile segment of the existing pipeline. Construction exhaust would only be generated within portions of the site at any given time and construction would occur intermittently throughout the course of a day. Odorized natural gas would be safely purged once from L131 from existing PG&E stations adjacent to either end of the Project site on L131, at the Vasco Station and/or the East Airway Blvd Station. Emissions of diesel exhaust, ROG, and unburned, odorized natural gas during construction activities would be temporary and disperse rapidly and, therefore, would not create objectionable odors affecting a substantial number of people. As a result, the impact under this criterion would be less than significant.

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3.4 BIOLOGICAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.4.1 Introduction

Summary

This section describes biological resources within the Project site and vicinity, and identifies potential impacts to sensitive habitats and species that could result from construction and operation of the Proposed Project. Based on the impact analysis, the Proposed Project would result in less than significant impacts to biological resources with the implementation of applicant proposed measures and mitigation measures.

Methodology

This section summarizes the methods used to identify resources and analyze potential impacts to biological resources including waters and wetlands, sensitive habitats, and special status plants and wildlife species.

Habitats are considered "sensitive" if they are identified on the CDFW List of Vegetation Alliances and Associations as being highly imperiled or classified by CDFW in the California Natural Diversity Database (CNDDDB) as natural communities of special concern – ranks S1 to S3 (CNDDDB 2016).

"Special status plants" include species that meet one or more of the following criteria:

- Listed, proposed for listing, or candidate for listing, as threatened, or endangered under the ESA (ESA; 50 CFR 17.11 for wildlife; 50 CFR 17.12 for plants; 67 *Federal Register* 40658 for candidates) and various notices in the *Federal Register* for proposed species);
- Listed under the California Endangered Species Act (CESA) as threatened, or endangered, or proposed or candidates for listing;
- Designated as rare under the Native Plant Protection Act; or
- Plants that otherwise meet the definition of rare, threatened, or endangered species under CEQA. For the purposes of this Proposed Project, that includes species listed by the California Native Plant Society (CNPS) in the online version of its *Inventory of Rare, Threatened and Endangered Plants of California* (CNPS 2016) as California Rare Plant Rank (CRPR) List 1A, 1B, 2, 3, or 4 species.

"Special status wildlife" include species that meet one or more of the following criteria:

- Listed, proposed for listing, or candidate for listing as threatened, or endangered under the ESA;
- Listed or candidates for listing as rare, threatened, or endangered under the CESA; or
- Designated as Fully Protected or as Species of Special Concern (fish and wildlife species that do not have state or federal threatened or endangered status but may still be threatened with extinction) by CDFW; or
- Species that otherwise meet the definition of rare, threatened, or endangered species under CEQA Guidelines, Section 15380.

Data and Literature Review

The analysis of potential impacts to sensitive natural communities and special status species is based on information contained in the following biological reports prepared for the Proposed Project:

- Preliminary Delineation of Waters of the United States, Including Wetlands, for the R649, R700, and R707 Natural Gas Transmission Pipeline projects (AWE 2016);
- Wildlife Constraints Report for the R649, R700, and R707 Natural Gas Transmission Pipeline projects (Swaim 2016), provided as Appendix B; and
- Botanical Resource Survey Report for the R700 Gas Line 131 Replacement project (Nomad 2016), provided as Appendix C.

Prior to conducting field surveys, a query of federally listed wildlife species for the USGS 7.5-minute quadrangles encompassing the Project site (Altamont, Byron Hot Springs, Clifton Court Forebay, Livermore, Midway, and Tassajara) was obtained from the U.S. Fish and Wildlife Service's (USFWS's) Sacramento Endangered Species Office website. The official list, generated November 11, 2016, is provided in Appendix B.

Additional information about the distribution of special status species in the area was compiled from the CDFW CNDDDB for a 5-mile radius around the Project site (CNDDDB 2016), aerial photographs of the Project site and vicinity, and USGS 7.5-minute quadrangle maps of the Proposed Project region.

Survey Methods

Wetlands and Other Waters of the United States

A wetland delineation of the Project site was conducted October 20 and 21, 2016 (AWE 2016). Wetlands were delineated consistent with the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008). Water bodies that did not meet the wetland criteria were further characterized to identify if an Ordinary High Water Mark (OHWM) was present using forms provided in the *Updated Datasheet for Identification of the OHWM in the Arid West Region of the Western United States* (USACE 2010). Subsequently, the location of jurisdictional streams and swales subject to California Fish and Game Code (FGC) Section 1602 were identified in the field by PG&E and CDFW personnel on March 2, 2017.

Special Status Plants

Protocol-level rare plant surveys were conducted for the entire Project site. Surveys were conducted for the R700 Project on March 25, April 26, May 25, July 5, and September 6, 2016. Surveys covered 250 feet on either side of the existing pipeline for the R700 Project and also covered the portion of the R649 Project north of Portola Ave. Protocol-level rare plant surveys were also conducted on March 16, April 14, May 19, and August 24, 2017. These surveys covered approximately 57 acres of the Project site in areas of not covered by the 2016 protocol-level surveys. Areas covered by the survey consisted of the R707 Project, the southern portion and access road to the

northern portion of the R649 Project, and access roads and staging areas outside of the 500-foot 2016 survey corridor for the R700 Project.

Surveys were conducted in accordance with the CNPS's Botanical Survey Guidelines (CNPS 2001), California Department of Fish and Game's (CDFG's) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009), and the U.S. Fish and Wildlife Service's Guidelines for Conducting and Reporting Botanical Inventories for federally Listed, Proposed and Candidate Plants (USFWS 2000).

Special Status Wildlife

Reconnaissance level surveys were conducted as part of the Wildlife Constraints Report on February 19 and October 19, 2016 (Swaim 2016). Vegetation communities were classified using vegetation classification systems developed by Holland (1986) or Holland and Keil (1995) and Sawyer et al. (2009). Wildlife habitats corresponding to the vegetation communities and wetland features observed in the Project site were categorized based primarily on the CDFW California Wildlife Habitats Relationship habitat classification scheme described by Mayer and Laudenslayer (1988). During the field survey, biologists walked the length of the Proposed Project alignment in meandering transects and recorded habitat characteristics that could promote occupancy by special status wildlife species. In addition to the Project site, biologists surveyed a portion of Cayetano Creek north of Hartman Road and west of North Livermore Avenue, and a portion of Arroyo Las Positas located south of Portola Avenue.

3.4.2 Regulatory Setting

Federal

Federal Endangered Species Act

The ESA protects plants and wildlife that are listed as endangered or threatened by USFWS and the National Marine Fisheries Service. Section 9 of the ESA prohibits the taking of endangered wildlife, where taking is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants on public lands, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of State law (16 United States Code [U.S.C.] 1538). Under Section 7 of the ESA, federal agencies are required to consult with USFWS if their actions, including permit approvals or funding, may adversely affect a federally listed species or its designated critical habitat. Through consultation and the issuance of a biological opinion, USFWS may issue an incidental take statement allowing take of the species that is incidental to otherwise authorized activity provided the action would not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits to private parties in association with development of a Habitat Conservation Plan. PG&E will implement the project consistent with a HCP and Incidental Take Permit (Permit Number TE56826C-0), and will implement all applicable avoidance and minimization measures throughout the duration of the project. All effects to covered species or modeled habitat will be mitigated consistent with the HCP and all cumulative effects of the covered activities have been evaluated in the HCP's Biological Opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, USFWS may issue permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depre-dating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR Part 21 Migratory Bird Permits. California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code (CFGC).

Federal Clean Water Act

The CWA's purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the USACE. The definition of waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3(b)). The USEPA also has authority over wetlands and may override a USACE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the pre-Project Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the applicable Regional Water Quality Control Board (RWQCB).

State

The following State regulations pertaining to biological resources apply to the Proposed Project.

California Endangered Species Act (CESA)

The CESA generally parallels the main provisions of the ESA, but unlike its federal counterpart, the CESA applies the take prohibitions to species proposed for listing (called "candidates" by the State). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. 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" The CESA allows for take incidental to otherwise lawful activities. Project proponents wishing to obtain incidental take permits are able to do so through a permitting process outlined in California Code of Regulations section 783. CDFW administers CESA and authorizes take through incidental take permits (ITPs) issued under Fish and Game Code Section 2081, or through a consistency determination issued under Section 2080.1. PG&E has applied for an ITP for take of the state listed (threatened) California tiger salamander, application number 2081-2014-0017-03. PG&E activities are exempt from the ITP requirement when take of state listed plants

occurs if project activity is providing service to the public (Fish and Game Code 1913(b)), but such impacts must nevertheless be disclosed and mitigated for CEQA compliance.

Fully Protected Species

The State of California first began to designate species as "Fully Protected" prior to the creation of the CESA and the ESA. Lists of fully protected species initially were developed to provide protection to those animals that were rare or faced possible extinction, and included fish, mammals, amphibians, reptiles, and birds. Many fully protected species have since been listed as threatened or endangered under the CESA and/or the ESA. The Fully Protected Species Statute (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]) provides that fully protected species may not be taken or possessed at any time. CDFW may authorize take of fully protected species only in very limited circumstances, such as for necessary scientific research, or if the take is covered under a Natural Community Conservation Plan (Section 2835). The white-tailed kite, a fully protected bird species, forages in the project area and has potential to nest in the project area.

California Fish and Game Code Sections 3503 and 3513

These sections state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto. Section 3513 makes it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of birds protected under the MBTA. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey), or to take, possess, or destroy the nest or eggs of such birds.

California Streambed Alteration Notification and Agreement

Section 1602 of the California Fish and Game Code requires that a Streambed Alteration Notification be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, 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." CDFW reviews the notification and, if necessary, submits to the applicant a draft agreement with measures to protect affected fish and wildlife resources. The proposal that is finally and mutually agreed upon by CDFW and the applicant is the final Streambed Alteration Agreement (SAA). PG&E has applied for a SAA due to an overland crossings or other impacts to Cayetano Creek and other ephemeral drainages and onsite swales (notification number 1600-2017-0041-R3). This ISMND is being prepared for the Streambed Alteration Agreement notification.

Native Plant Protection Act of 1977

Fish and Game Code Sections 1900–1913 includes provisions that prohibit the take of endangered and rare plants from the wild and a salvage requirement for landowners. CDFW administers the Native Plant Protection Act. CDFW, jointly with the CNPS, assigns a California Rare Plant Rank (CRPR) to plants considered rare, threatened, or endangered in California. Plants constituting CRPRs 1A, 1B, 2A, and 2B generally meet the criteria of a CESA listed species and should be considered as an endangered, rare or threatened species for the purposes of CEQA analysis; i.e. impacts to species from these classifications should be analyzed and, if necessary, mitigated

to the same extent that CESA listed species would be. In the case of this project, a CRPR 1.B.1 plant is present (see Section 3.5.4 Impact Analysis), and impact to several hundred individuals, or the plant's seed bank, is anticipated. CRPR 1.B.1 indicates it is rare throughout its range, seriously threatened in California (because over 80% of occurrences are threatened and the immediacy of threat) and eligible for state listing. CNPS Impacts to 1B.1 species or their habitat should therefore typically be analyzed during CEQA review, as they potentially meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380. §15380 (b)(2) definition of "Rare" includes: (A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens. The applicant has proposed mitigation measures (Applicant Proposed Measures, APMs) to bring impacts to this plant to a less than significant level.

California Department of Fish and Wildlife

The CDFW maintains a list of special status wildlife species that it uses as a watch-list for at-risk species that may at some point need to be advanced for candidacy subject to state listing. These species also may qualify for impact analysis per CEQA §15380 (see Biological Resources Introduction Section 3.4.1). In the case of this project, several special status herptile, avian and mammal species may be present, and consequently are included in the analysis. The applicant has proposed APMs to bring impacts to all of these species to a less than significant level.

Local

This section includes a summary of local or regional plans, policies, or regulations that identify sensitive or special-status species in the project area, as well as local policies or ordinances that protect biological resources. PG&E has indicated to CDFW that the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, and therefore PG&E's project is not subject to local discretionary regulations related to biological resources. CDFW is not opining on the accuracy of PG&E's position. The following summary is provided for informational purposes and to assist with CEQA review.

East Alameda County Conservation Strategy

The Project site is located within Conservation Zone 4 of the East Alameda County Conservation Strategy (EACCS). The EACCS was developed by federal, state, and local entities to provide a framework for the long-term conservation and management of 19 focal species, including nine state and/or federal species and the habitats that support them. The EACCS is also intended to streamline and improve the environmental permitting process for impacts resulting from local land use, transportation, or other infrastructure proposed projects (EACCS 2010). The EACCS is not a regulatory document, nor does it create any new regulations in Alameda County. Rather, information on the EACCS is included here insofar as it provides baseline information about resources present in the Proposed Project vicinity and provides an agency-accepted standard for "a coordinated and biologically sound approach to mitigation that would both support conservation and/or recovery of listed species and streamline state and federal permitting by providing guidance on avoidance, minimization, and mitigation for proposed projects."

The Conservation Strategy has two purposes. First, it is designed to convey the proposed project-level permitting and environmental compliance requirements of the ESA, CESA, CEQA, and the

National Environmental Policy Act, as well as other applicable laws, for all proposed projects within the project site with impacts on biological resources. Second, it is intended to create a vision for how biological resources in the project site should be conserved through the proposed project permitting process and through non-regulatory conservation actions.

To support the proposed project permitting process, the EACCS identifies a set of mitigation standards, which include avoidance and minimization measures and a compensation program to offset impacts expected from proposed projects in the project site. It also includes a set of specific management prescriptions to benefit natural communities and focal species. The EACCS is designed to contribute to species recovery to help to delist the listed focal species and prevent the listing of non-listed focal species through the protection, restoration, and enhancement of natural communities and species habitat. By focusing on conservation at the natural community level as well as at the focal species level, the EACCS also would ensure that common habitats and common species continue to be common in the strategy area.

Alameda East County Area Plan

According to Article XII, Section 8 of the California Constitution, the California Public Utilities Commission (CPUC) has exclusive jurisdiction to regulate the design, siting, installation, operation, maintenance, and repair of natural gas pipeline facilities. As a result, local zoning ordinances do not apply to PG&E's pipeline facilities. However, PG&E tries to comply with local policies whenever possible.

Relevant policies from the Land Use Goals, Policies, and Programs Biological Resources of the East County Area Plan (2011) are listed below, numbered as they are in the Area Plan:

- Policy 125: The County shall encourage preservation of areas known to support special status species
- Policy 126: The County shall encourage no net loss of riparian and seasonal wetlands.
- Policy 127: The County shall encourage the preservation of East County's oak woodland plant communities.

3.4.3 Environmental Setting

The Project site (see Figure 1) is located within the central portion of the Fremont-Livermore's Hills and Valleys ecological subsection within the Central California Coast Ecological Section (USDA 1997). This subsection includes a late Quaternary alluvial plain running east to west across the middle of the Livermore/San Ramon Valley with moderately steep to steep hills with flat summits south of the alluvial plain and moderately steep to steep hills along the Calaveras fault and between the fault and the Santa Clara Valley. Elevation ranges from 300 feet to 1,200 feet in Livermore Valley to 2,594 feet on Monument Peak, which lies west of the Alameda Watershed boundary. Mass wasting and fluvial erosion are the main geomorphic processes. This subsection contains mainly Miocene marine sediments along the Calaveras fault south of the Livermore/San Ramon Valley and Plio-Pleistocene non-marine sediments in the south end of the Livermore Valley (USDA 1997). The older soils are leached free of carbonates, but calcium carbonates accumulate

in the subsoils of many others. The soils are well-drained, except for small areas of somewhat poorly drained soils on alluvial plains.

For this region, the mean annual precipitation ranges from 15 to 20 inches and most of the precipitation is rainfall. The mean annual temperature is generally between 55° and 60°F and the mean freeze-free period is from 250 to 275 days. Hydrologically, runoff to the alluvial plain is rapid and all but the larger streams are dry through most of the summer (USDA 1997).

The Project site is dominated by herbaceous vegetation communities, with only widely scattered trees and shrubs. *Phytophthora* infestations, including *P. ramorum* and *P. tentaculate* are known from Alameda County (Alameda County 2017). *P. ramorum* is a leaf pathogen that causes sudden oak death (SOD). This pathogen may be found in hardwoods, conifers, shrubs, herbaceous plants, and ferns. *P. tentaculate* has been found on native woody plant species such as toyon (*Heteromeles arbutifolia*) and coffeeberry (*Frangula californica*) as well as perennials such as sticky monkey flower (*Diplacus aurantiacus* subsp. *aurantiacus*) and sage (*Salvia* spp.). The spread and survival of *Phytophthora* is favored in moist conditions and is usually more severe in shaded drainages and in stands on north- and east-facing slopes (Swiecki and Bernhardt 2007, 2008). The Project site is located in grassland habitat with only single, sparse trees and shrubs and poses a very low risk for the presence of this pathogen.

Vegetation Communities/Land Cover/Aquatic Features

The vegetation communities, land cover, and aquatic features within the Project site are described below and shown in Figures 3-1 through 3-9. The acreage of each community and land cover class is provided in Table 3.4-1.

Table 3.4-1: Vegetation Communities/Land Cover/Aquatic Features within the Project Site

Vegetation Community/Land Cover/Aquatic Features	Approximate Project Site Acreage
Dryland Farmed Fields	67.60
Non-Native Grassland	49.79
Disturbed/Ruderal	3.67
Developed	0.70
Aquatic Features	
Seasonal Swale	0.20
Ephemeral Drainage	0.05
Sensitive Natural Communities	
Wildflower Field	10.10
Native Grassland	0.55
Alkali Grassland	6.66
Total	139.40

Dryland Farmed Fields

The Project site supports approximately 67.60 acres of dryland farmed fields. Portions of the Project site between Dagnino Road and May School Road, as well as between North Livermore Avenue and Hartman Road, are used for a combination of grazing and feed production. These areas typically are disked annually and, therefore, undergo a larger amount of disturbance when compared to other parcels used solely for grazing. In most of the dryland farmed fields within the assessment area, rodent burrows were either completely absent or if present, occurred in very low numbers (Swaim 2016).

In dryland farming, periodic fall tillage and seeding is employed to plant and grow various crops, including oats, barley, wheat, and mixed forbs for hay production. In such areas, tillage may not occur every year; therefore, areas mapped as dryland farmed fields are not considered static. Areas mapped as non-native grassland also may be dryland farmed fields in some years. Dryland farming typically consists of oat, wheat, and hay production. As mapped, these areas can fluctuate from year to year.

Non-Native Grassland

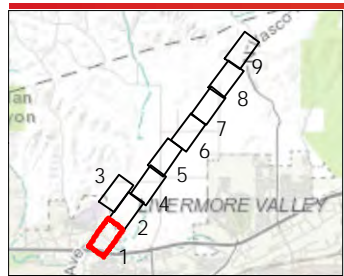
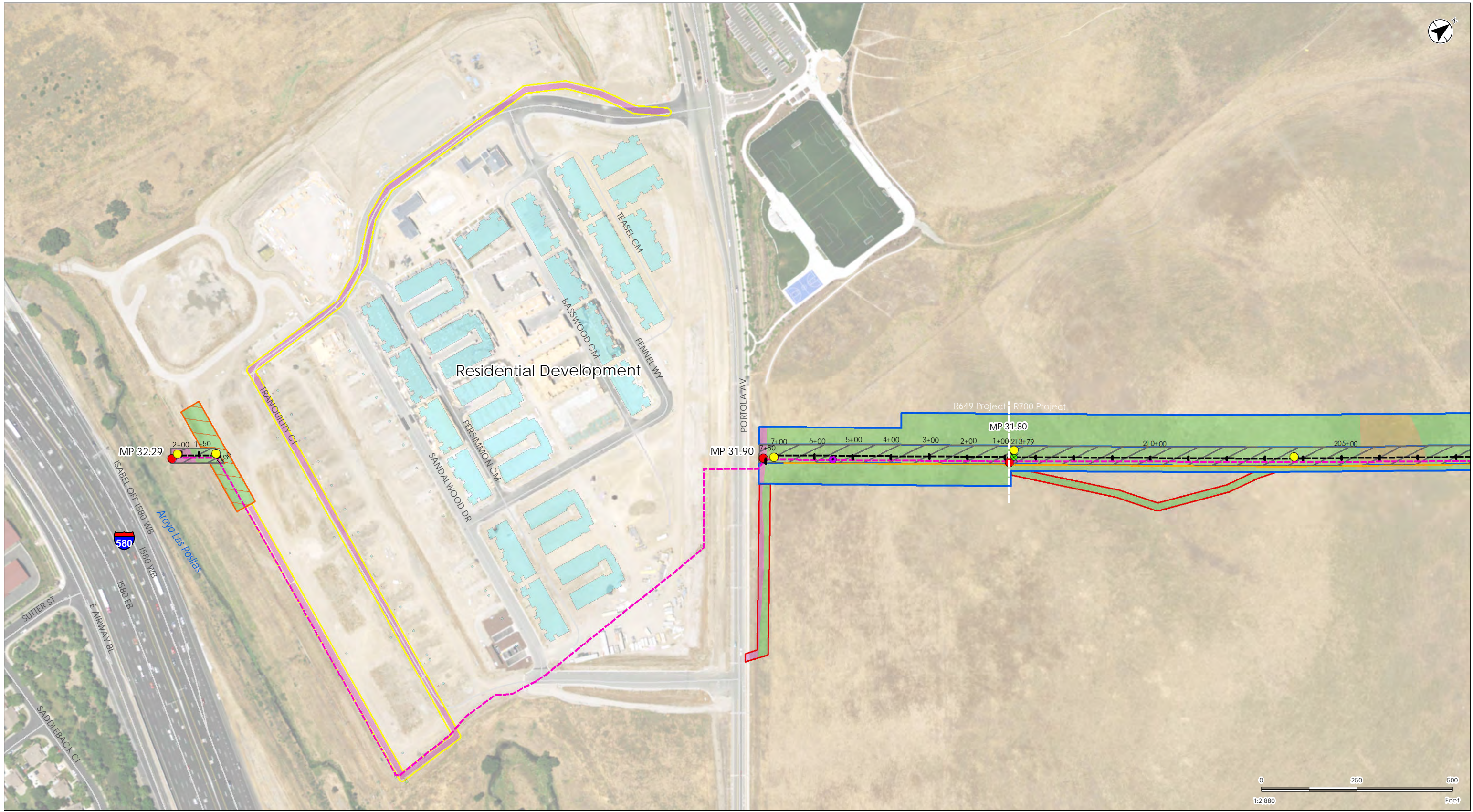
The Project site supports approximately 49.79 acres of non-native annual grassland. This vegetation type in the Project site is characterized by a high density and abundance of non-native annual grasses and cattle grazing. In one parcel south of Hartman Road, tilling/furrowing had occurred but it appeared that this field had never been planted with oats, barley, or other row crops; therefore, it retained composition of plant species consistent with non-native grassland.

Non-native grasslands are characterized by species including, but not limited to, wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perenni*), common groundsel (*Senecio vulgaris*), storks bill (*Erodium cicutarium*), common gumplant (*Grindelia camporum*), large mouse ears (*Cerastium glomeratum*), dwarf pepperweed (*Lepidium nitidum*), red-maids (*Calandrinia menziesii*), bur clover (*Medicago polymorpha*), sheppard's purse (*Capsella bursa-pastori*), succulent lupine (*Lupinus succulentus*), common fiddleneck (*Amsinckia intermedia*), charlock mustard (*Sinapis arvensis*), birdeye speedwell (*Veronica persica*), purple owl's clover (*Castilleja exserta* subsp. *exserta*), blow wives (*Achyrachaena mollis*), California poppy (*Eschscholzia californica*), rose clover (*Trifolium hirtum*), bellardia (*Bellardia trixago*), and crane's bill geranium (*Geranium molle*). The Project area supports singular occurrences of blue oaks (*Quercus douglasii*).

Disturbed/Ruderal

The Project site includes approximately 3.67 acre of disturbed/ruderal land. Within the Project site, ruderal vegetation is located in areas that have been disturbed through grading or previously subjected to disturbance and left fallow, such as cattle grazing pastures or open fields. These areas can support little or abundant vegetation depending on the frequency of disturbance. Non-native plant species typical of ruderal vegetation within the Project site include charlock mustard, black mustard (*Brassica nigra*), long beaked filaree (*Erodium botrys*), hoary mustard (*Hirschfeldia incana*), redstem filaree, whitestem filaree (*Erodium moschatum*), wild oats (*Avena fatua*), burclover, smooth cat's ear (*Hypochaeris glabra*), common groundsel (*Senecio vulgaris*), crane's bill geranium, and bristly ox-tongue (*Helminthotheca echioides*).

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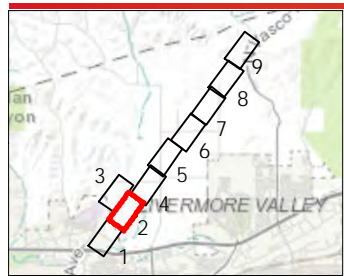
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- | | | | |
|--|-------------------------------------|--|------------------------|
| --- Proposed L131 Alignment | ● Proposed Cathodic Testing Station | ▨ Staging Areas (Temporary Construction Easement) | ■ Non-Native Grassland |
| --- Existing L131 Alignment | ● Pipeline Marker | ▨ Existing Access Road | ■ Wildflower Fields |
| --- Existing Cathodic Protection Cable | --- Station Lines | ▨ Overland Access Road | ■ Alkali Grassland |
| ● Pipeline Milepoint | --- Proposed Easements | ■ Vegetation Communities/Land Cover/Aquatic Features | ■ Native Grassland |
| ● Sniff Hole | ▨ Permanent Easement | ■ Dry Land Farmed | ■ Developed |
| ● Existing Electronic Testing Station | ▨ Temporary Construction Easement | | ■ Disturbed/Ruderal |

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Pipeline 131 Replacement Projects

Figure 3-1
Biological Habitat

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- Legend**
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|---|--|--|---|
| <ul style="list-style-type: none"> Proposed L131 Alignment Existing L131 Alignment Existing Cathodic Protection Cable Pipeline Milepoint Sniff Hole Existing Electronic Testing Station | <ul style="list-style-type: none"> Proposed Cathodic Testing Station Pipeline Marker Station Lines Proposed Easements Permanent Easement Temporary Construction Easement | <ul style="list-style-type: none"> Staging Areas (Temporary Construction Easement) Existing Access Road Overland Access Road Vegetation Communities/Land Cover/Aquatic Features Dry Land Farmed | <ul style="list-style-type: none"> Non-Native Grassland Wildflower Fields Alkali Grassland Native Grassland Developed Disturbed/Ruderal |
|---|--|--|---|

Special Status Plant (point)

Hogwallow starfish

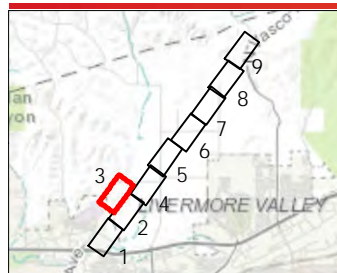
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Figure 3-2
Biological Habitat

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- Proposed L131 Alignment
- Existing L131 Alignment
- Existing Cathodic Protection Cable
- Pipeline Milepoint
- Sniff Hole
- Existing Electronic Testing Station

-  Proposed Cathodic Testing Station
 Pipeline Marker
 Station Lines
Proposed Easements
 Permanent Easement
 Temporary Construction Easement

-  Staging Areas (Temporary Construction Easement)
 Existing Access Road
 Overland Access Road
 Vegetation Communities/Land Cover/Aquatic Features
 Dry Land Farmed

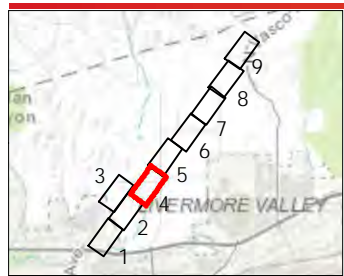
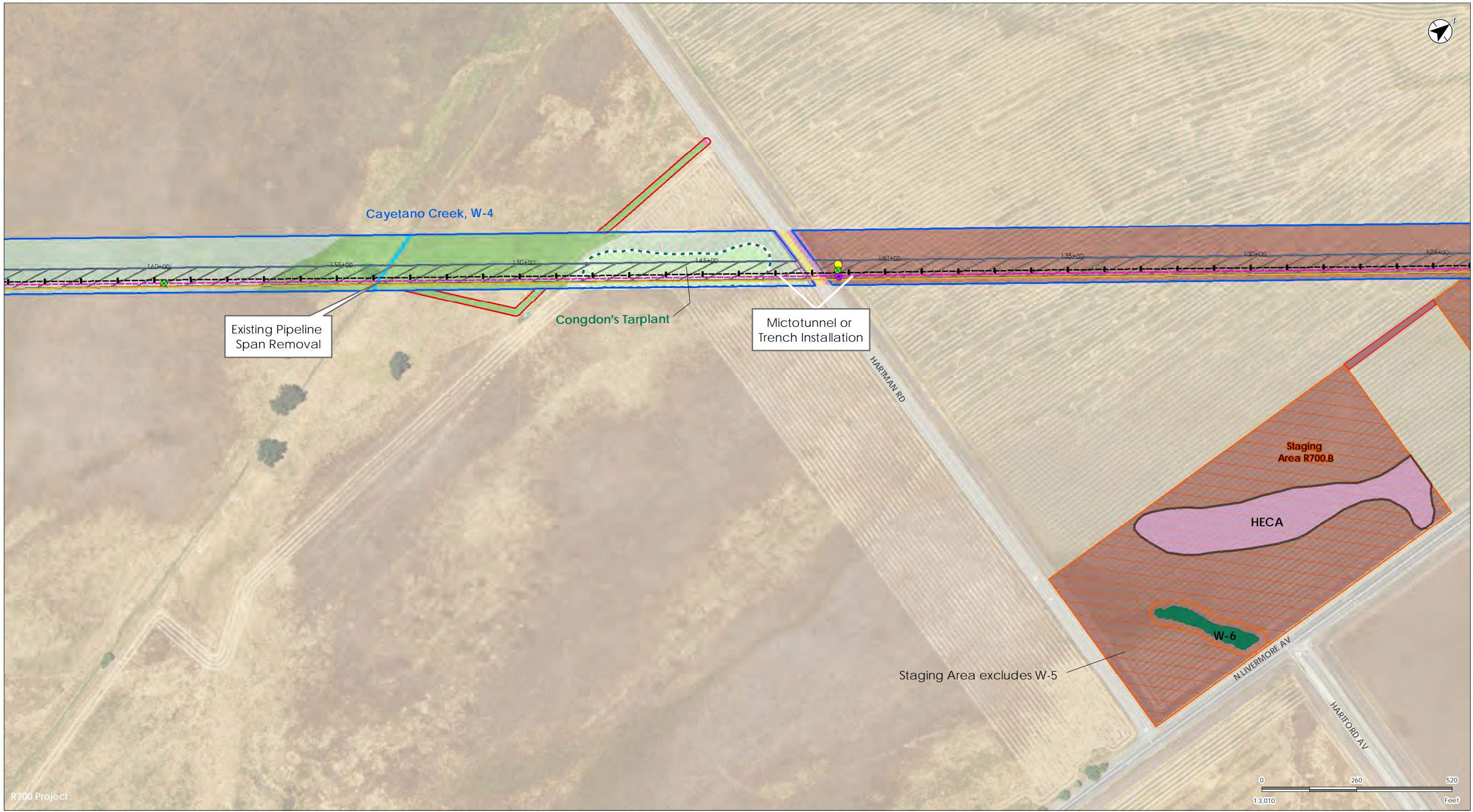
- Non-Native Grassland
 Swale
- Wildflower Fields
- Alkali Grassland
- Native Grassland
- Developed
- Disturbed/Ruderal

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Figure 3-3
Biological Habitat

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Legend

- Proposed L131 Alignment
- Existing L131 Alignment
- Existing Cathodic Protection Cable
- Pipeline Milepoint
- Sniff Hole
- Existing Electronic Testing Station
- Proposed Cathodic Testing Station
- Pipeline Marker
- Station Lines
- Proposed Easements**
- Permanent Easement
- Temporary Construction Easement
- Staging Areas (Temporary Construction Easement)
- Existing Access Road
- Overland Access Road
- Vegetation Communities/Land Cover/Aquatic Features**
- Dry Land Farmed
- Non-Native Grassland
- Wildflower Fields
- Alkali Grassland
- Native Grassland
- Developed
- Disturbed/Ruderal
- Special Status Plant (polygon)**
- Congdon's tarplant
- Special Status Plant (polygon)**
- Hogwallow starfish
- Ephemeral Drainage
- Swale

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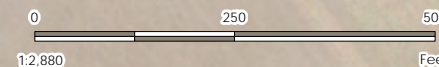
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**Figure 3-4
Biological Habitat**

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- Special Status Plant (point)
 Congdon's tarplant
 Special Status Plant (polygon)
 Hogwallow starfish

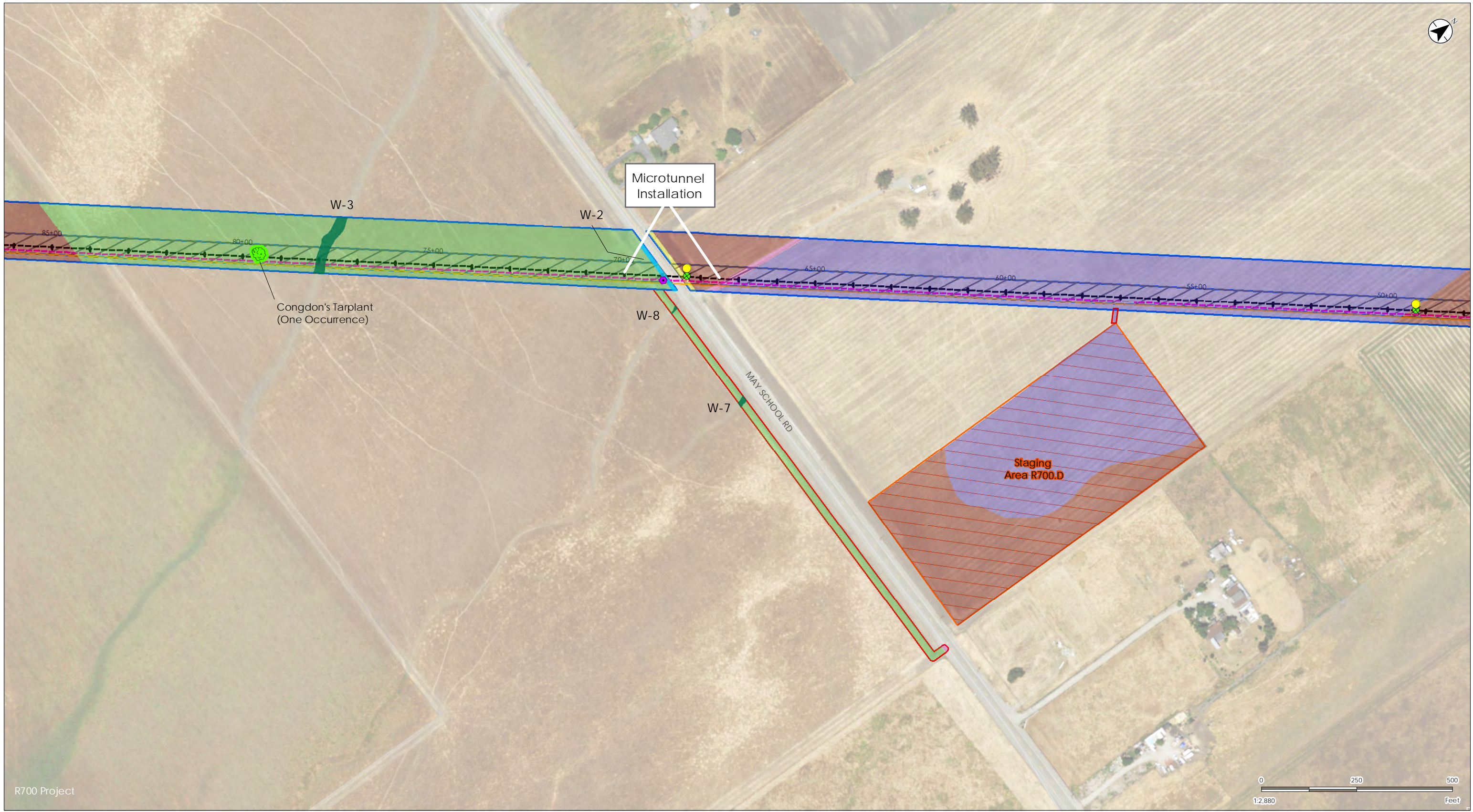
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Prepared: L. McCandless, Stantec 8/18/2017. Revision: n/a

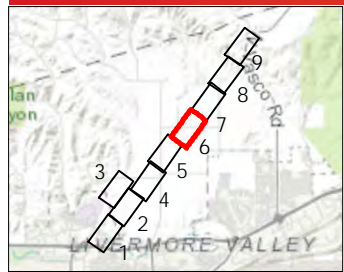
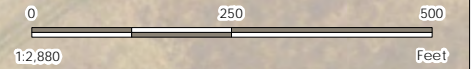
Figure 3-5
Biological Habitat

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R700 Project



Legend

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|--|---|---|---|--|

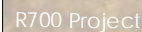
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Prepared: L. McCandless, Stantec 12/18/2017, Revision: n/a


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Pipeline 131 Replacement Projects

Figure 3-6
Biological Habitat

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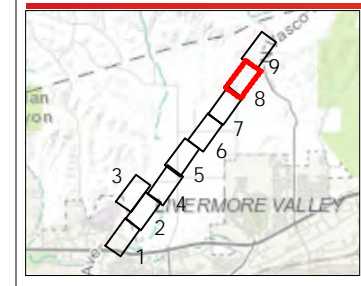
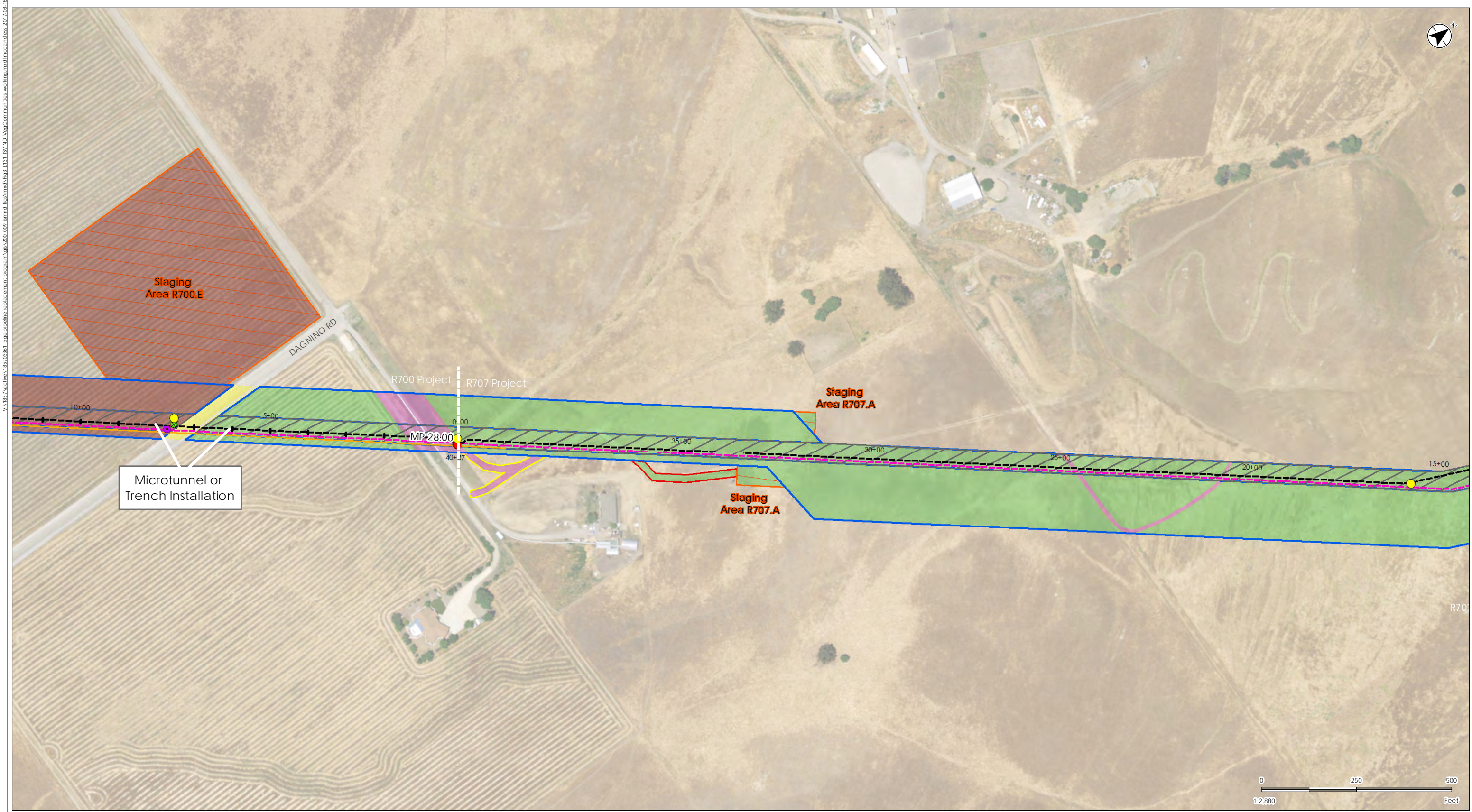
- Ephemeral Drainage

Disclaimer: Stantec Consulting Services, Inc. assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Prepared: L. McCandless, Stantec 8/18/2017, Revision: n/a

Figure 3-7
Biological Habitat

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Legend

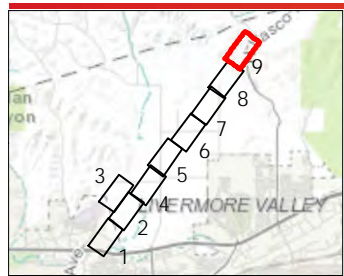
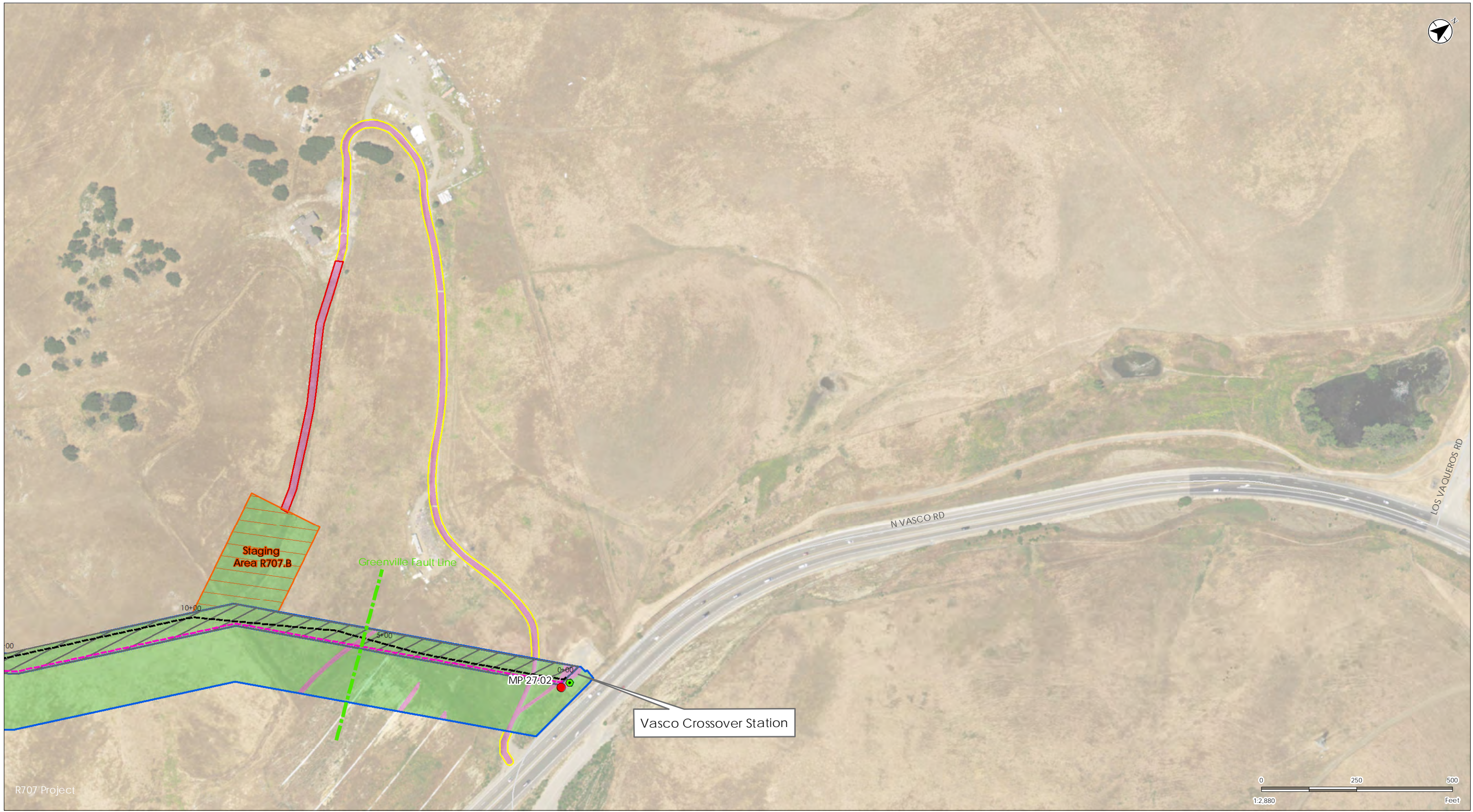
<ul style="list-style-type: none"> Proposed L131 Alignment Existing L131 Alignment Existing Cathodic Protection Cable Pipeline Milepoint Sniff Hole Existing Electronic Testing Station 	<ul style="list-style-type: none"> Proposed Cathodic Testing Station Pipeline Marker Station Lines Proposed Easements Permanent Easement Temporary Construction Easement 	<ul style="list-style-type: none"> Staging Areas (Temporary Construction Easement) Existing Access Road Overland Access Road Vegetation Communities/Land Cover/Aquatic Features Dry Land Farmed 	<ul style="list-style-type: none"> Non-Native Grassland Wildflower Fields Alkali Grassland Native Grassland Developed Disturbed/Ruderal
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- Legend**
- | | | | |
|---------------------------------------|-------------------------------------|--|------------------------|
| --- Proposed L131 Alignment | ● Proposed Cathodic Testing Station | ▨ Staging Areas (Temporary Construction Easement) | ■ Non-Native Grassland |
| — Existing L131 Alignment | ● Pipeline Marker | ▨ Existing Access Road | ■ Wildflower Fields |
| — Existing Cathodic Protection Cable | — Station Lines | ▨ Overland Access Road | ■ Alkali Grassland |
| ● Pipeline Milepoint | Proposed Easements | ■ Vegetation Communities/Land Cover/Aquatic Features | ■ Native Grassland |
| ● Sniff Hole | ▨ Permanent Easement | ■ Dry Land Farmed | ■ Developed |
| ● Existing Electronic Testing Station | ▨ Temporary Construction Easement | | ■ Disturbed/Ruderal |

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Figure 3-9
Biological Habitat

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Developed

The Project site includes approximately 0.78 acre of developed land. Developed areas include paved or other hardscaped areas, graveled roads, structures, and landscaped areas. In the Project site, developed areas include paved roads and residences and associated outbuildings located along Dagnino Road and North Livermore Avenue.

Aquatic Features

Seasonal Swale

The Project site supports approximately 0.20 acre of seasonal swales. Four seasonal swales (W-3, W-5, W-7, and W-8) are located within the Project site, as shown in Table 3.4-2. Seasonal swale W-6 is located within Staging Area R700.B and would be avoided by the Proposed Project. Seasonal swales consist of low-gradient features that contain water briefly following rain events. These areas may remain saturated for a longer period than the surrounding uplands. Vegetation is characterized by species of annual and perennial native and non-native grasses and forbs that begin their growth as aquatic or semiaquatic plants, typically resembling a wetland community. These sites then make a transition to a dry-land environment as the pool features dry. Upland grasses and forbs can become established while wetland species desiccate (AWE 2016). Seasonal swales within the Project site are considered to be streams by CDFW, and wetlands under the jurisdiction of the USACE.

Table 3.4-2: Aquatic Features within the Project Site

Aquatic Features	Approximate Project Site Acreage
Ephemeral Drainages	
W-1	0.02
W-2	0.01
W-4 (Cayetano Creek)	0.01
<i>Total Ephemeral Drainages</i>	<i>0.05</i>
Seasonal Swales	
W-3	0.10
W-5	0.08
W-7	0.01
W-8	0.00*
<i>Total Seasonal Swales</i>	<i>0.20</i>
Total Aquatic Features	0.25

Notes: *Swale with acreage less than 0.00

Ephemeral Drainage

The Project site supports approximately 0.05 acre of ephemeral drainages. Three ephemeral drainages (W-1, W-2, and W-4) are located within the Project site, as shown in Table 3.4-2. Ephemeral drainages typically flow for brief periods of time following precipitation events and do not flow for a duration sufficient to support hydrophytic vegetation. The ephemeral drainages located in the Project site have a defined bed and bank with an OHWM and are considered to be other waters

of the U.S. under jurisdiction of the USACE³. Cayetano Creek (W-4) is an ephemeral drainage that flows south from its origin in Contra Costa County and crosses the Project site south of Hartman Road. The portion of the creek that crosses the Proposed Project alignment is channelized and lacks dense riparian vegetation, although a few scattered blue oaks (*Quercus douglasii*) are present within the Project site south of Hartman Road. Downstream of the channelized portion the creek begins to meander naturally as it passes through an area containing vernal pools upstream of its confluence with Arroyo Las Positas (AWE 2016). Ephemeral drainages within the Project site are under the jurisdiction of CDFW and considered other waters of the US under the jurisdiction of the USACE.

Sensitive Natural Communities

Sensitive natural communities are characterized as plant assemblages that are unique in constituent components, restricted in distribution, supported by distinctive edaphic conditions, considered locally rare, potentially support special-status plant or wildlife species and/or receive regulatory protection from municipal, county, state and/or federal entities.

Wildflower Field

The Project site supports approximately 6.9 acres of wildflower field, which is categorized as a sensitive natural community (CDFG 2010). According to Holland (1986), wildflower field is an amorphous assemblage of herb-dominated associations noted for conspicuous annual wildflower displays. Species dominance varies from site to site and from year to year at a particular site. Within the Project site, one area was mapped as wildflower fields, located between May School Road and Dagnino Road. Dominant species in this area included several wildflowers that are generally uncommon in Livermore Valley, but are locally abundant at this location. This includes Great Valley phacelia (*Phacelia ciliata*), cupped monolopia (*Monolopia major*), and blue dicks (*Dichelostemma capitatum* subsp. *capitatum*).

Native Grassland

The Project site supports approximately 0.55 acres of native grassland, which is categorized as a sensitive natural community (CDFG 2010), observed north of Portola Road and west of Dagnino Road. Generally, native grasslands are dominated by perennial tussock-forming grasses. Both native and introduced annuals occur between the perennials, sometimes exceeding the native grasses in cover. Within the Project site, native grasslands are dominated by the native creeping rye grass (*Elymus triticoides*) (greater than 50% relative cover).

Alkali Grassland

The Project site supports approximately 6.66 acres of alkali grassland, which is categorized as a sensitive natural community (CDFG 2010). These grasslands resemble non-native grassland except that cover of non-native annual grasses and forbs is low while native grass and forb cover is high. These grasslands typically are supported by fine-textured, seasonally or perennially moist alkaline

³ The term waters of the U.S. includes all "other waters" such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce [...] (40 CFR 230.3(s)).

soils. Alkali scalds exhibit saline or alkaline crusts on the soil surface, supporting little or no vegetation, due to an elevated soil pH, which can be toxic to most plant species.

Within the Project site, alkali grassland was mapped in the valley bottom south of Hartman Road. The dominant plant species include stalked popcornflower (*Plagiobothrys stipitatus* var. *stipitatus*), Douglas' silverpuffs (*Microseris douglasii* subsp. *douglasii*), few flowered evax (*Hesperervax sparsiflora* var. *sparsiflora*), butter n' eggs (*Triphysaria eriatha* subsp. *eriantha*), roughfruit popcorn flower (*Plagiobothrys trachycarpus*), chick lupine (*Lupinus bicolor*), red-stemmed filaree (*Erodium cicutarium*), and the rare plant hogwallow starfish (*Hesperervax caulescens*).

Additional Sensitive Natural Communities

One additional sensitive natural community, purple needlegrass (*Stipa pulchra*) grassland, was identified during botanical surveys conducted in spring of 2017 on the south-facing slopes between the northern terminus of Dagnino Road and Vasco Road. This population falls entirely outside the Project site and would not be impacted by the Proposed Project.

Special Status Plants

Sixty-six plant species (as defined in Section 3.4.1) were identified during background research as having potential to occur in the Project area (Table 3.4-3). Four special-status plant species (Congdon's tarplant [*Centromadia parryi*], San Joaquin spearscale [*Extriplex joaquinana*], stinkbells [*Fritillaria agrestis*], and hog-wallow starfish) were observed during protocol-level botanical surveys conducted during the appropriate blooming periods in 2016 and 2017. Of these, only Congdon's tarplant and hog-wallow starfish are found within the Project site. These species are discussed further below. The populations of San Joaquin spearscale observed in 2016 and stinkbells observed in 2017 surveys fall entirely outside the Project site and are not discussed further.

Congdon's tarplant (*Centromadia parryi*)

Congdon's tarplant has a CRPR of 1B.1, indicating it is rare throughout its range, seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat) and eligible for state listing. CNPS Impacts to 1B.1 species or their habitat are typically analyzed during CEQA review, as they potentially meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380. It is an erect annual herb growing from four to 27.5 inches (1 to 7 centimeters) in height (Baldwin et al. 2012). The distal leaves and peduncle bracts are spine-tipped, the leaves are glabrous to more-or-less coarsely hairy, and the plant is seldom glandular but can have minute, stalked more or less yellow glands interspersed among non-glandular hairs (Baldwin et al. 2012). Both the ray and disk flowers are yellow. Disk flowers have yellow to brown anthers and are subtended by 3-5 linear or awl-like scales (Baldwin et al. 2012). This taxon flowers from May to November (CNPS 2016).

Congdon's tarplant usually occupies alkaline valley and foothill grasslands (CNPS 2016) and terraces, swales, floodplains, grassland, and disturbed sites (Baldwin et al. 2012). It is a California endemic that occurs in the central western California geographic region from 0 to 984 feet (300 meters) (CNPS 2016).

Table 3.4-3: Potential for Occurrence of Special Status Plants in the Project Site

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Acanthomintha lanceolata</i> Santa Clara thorn-mint	CRPR 4.2	Occurs in rocky soils and sometimes serpentine sites in chaparral, cismontane woodland, and coastal scrub between 80 and 1200 meters. Known from ALA, FRE, MER, MNT, SBT, SCL, SJQ, and STA counties.	March-June annual herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Amsinckia grandiflora</i> large-flowered fiddleneck	FE CRPR 1B.1	Occurs in cismontane woodland and valley and foothill grassland between 275 and 550 meters. Known from fewer than 5 natural occurrences around ALA and SJQ counties. Presumed extirpated from CCA.	April-May annual herb	Although suitable vegetation associations are present the only known natural populations known (either extant or extirpated) are from vicinities of Corral Hollow and Black Diamond Mines. This species has also never been recorded from valley bottomlands. The nearest CNDDDB occurrence (EONDX 5817, from 1992) is 4.2 miles north of the Project site, at Los Vaqueros Reservoir. This occurrence is in a failed reintroduction site. Not observed during botanical surveys.
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	CRPR 1B.2	Occurs in coastal bluff scrub, cismontane woodland and valley and foothill grassland between 3-500 meters. Many collections are old. Known from ALA, CCA, COL, LAK, MRN, NAP, SCL, SCZ, SMT and SON counties. May be present in SIS and SHA counties.	March-June annual herb	Although suitable vegetation associations are present this taxon prefers the ecotone where scrub, woodland and grassland meet, which does not occur within the study area. The nearest CNDDDB occurrence (EONDX 62466, from 2008) is about 17 miles northwest of the Project site, near Rocky Ridge. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Androsace elongata</i> subsp. <i>acuta</i> California androsace	CRPR 4.2	Occurs in chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grassland between 150 and 1200 meters. Known from throughout California, Baja, and Oregon.	March-June	Although suitable vegetation associations are present this species prefers exposed slopes and cut banks in the vicinity of the study area. The closest herbarium record is an Ertter collection (Accession# UC1606382) from Mines Road (Livermore) Not observed during botanical surveys.
<i>Arctostaphylos auriculata</i> Mt. Diablo manzanita	CRPR 1B.3	Occurs on sandstone in chaparral and cismontane woodland between 135 and 650 meters. Known only from CCA county.	January-March perennial evergreen shrub	No suitable vegetation associations or substrates are present. This species is endemic to Contra Costa County. Not observed in Project site (detectable year-round).
<i>Arctostaphylos manzanita</i> subsp. <i>laevigata</i> Contra Costa manzanita	CRPR 1B.2	Occurs on rocky soils in chaparral between 430 and 1100 meters. Known only from CCA county.	January-April perennial evergreen shrub	No suitable vegetation associations or substrates are present. This species is endemic to Contra Costa County. Not observed in Project site (detectable year-round).
<i>Arctostaphylos pallida</i> pallid manzanita	FT SE CRPR 1B.1	Occurs on siliceous shale, sandy, or gravelly sites in broadleaf upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub between 185-465 meters. Known only from ALA and CCA counties.	December-March evergreen shrub	No suitable vegetation associations or substrates are present. Not observed in Project site (detectable year-round).

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	CRPR 1B.2	Occurs on alkaline substrates in playas, valley and foothill grassland on adobe clay, and vernal pools between 1 and 60 meters. Known from ALA, MER, NAP, SOL and YOL counties. Presumed extirpated from CCA, MNT, SBT, SCL, SFO, SJQ, SON, and STA counties.	March-June annual herb	Suitable vegetation associations and substrates are present. The nearest CNDDDB occurrence (EONDX 6925, from 1958) is a nonspecific location mapped about 2.8 miles east of the Project site, at the East end of the Livermore Valley. Not observed during botanical surveys.
<i>Atriplex coronata</i> var. <i>coronata</i> crownscale	CRPR 4.2	Occurs in alkaline, often clay soils in chenopod scrub, valley and foothill grassland, and vernal pools between 1 and 590 meters in elevation. Known from ALA, CCA, FRE, GLE, KNG, KRN, MER, MNT, SLO, SOL and STA counties.	March-October annual herb	Suitable vegetation and substrates present. The closest herbarium record is a Ertter collection (Accession# UC2031481) from Springtown Wetlands. Not observed during botanical surveys.
<i>Atriplex depressa</i> brittlescale	CRPR 1B.2	Occurs on alkaline and clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools between 1 and 320 meters in elevation. Known from ALA, CCA, COL, FRE, GLE, KRN, MER, SOL, STA, TUL and YOL counties.	April-October annual herb	Suitable vegetation and substrates present. There is a cluster of several CNDDDB occurrences just east of the Project site, with the nearest one (EONDX 51025, from 2000) being within 0.5 mile. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Atriplex minuscula</i> lesser saltscale	CRPR 1B.1	Occurs on alkaline and sandy soils in chenopod scrub, playas, and valley and foothill grassland. Known from ALA, BUT, FRE, KRN, MAD, MER, and TUL counties between 15 and 200 meters. Presumed extirpated from STA county.	May-October annual herb	Suitable vegetation and substrates present. There is a CNDDDB occurrence (EONDX 83626, from 2010) within one mile of the Project site, just south of the Hartford Avenue and Lorraine St intersection. Not observed during botanical surveys.
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	CRPR 1B.2	Occurs often on serpentine sites in chaparral, cismontane woodland, and valley and foothill grassland. Known from ALA, AMA, BUT, COL, ELD, LAK, MPA, NAP, PLA, SCL, SHA, SOL, SON, TEH, and TUO counties between 90-1555 meters.	March-June perennial herb	Suitable vegetation associations are present. In the Livermore Valley this species occurs in non-serpentine habitat. The nearest CNDDDB occurrence (EONDX 32783), from 1993) is 7.1 miles southeast of the Project site, near Poppy Ridge. Not observed during botanical surveys.
<i>Blepharizonia plumosa</i> big tarplant	CRPR 1B.1	Occurs in valley and foothill grassland. Known from ALA and CCA, KRN, MNT, SBT, SJQ, SLO, and STA counties between 30-505 meters. Presumed extirpated in SOL county.	July-October annual herb	Although suitable vegetation associations are present, this taxon prefers Altamont series soils found on the east side of the Diablo Range crest, east of the Greenville fault. The nearest CNDDDB occurrence (EONDX 90694, from 2007) is from 5 miles northeast of the Project site, near Vasco Caves Regional Preserve. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Calochortus pulchellus</i> Mt. Diablo fairy-lantern	CRPR 1B.2	Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland between 30-840 meters. Known from ALA and CCA counties.	April-June perennial herb (bulbiferous)	Although suitable vegetation associations are present this taxon has never been recorded from the Livermore Valley. It prefers the ecotones where scrub, woodland and grassland meet, which do not occur within the study area.. The nearest CNDDDB occurrence (EONDX 84606, from 2003) is 3.5 miles north, at the Los Vaqueros Reservoir. Not observed during botanical surveys.
<i>Calochortus umbellatus</i> Oakland star-tulip	CRPR 4.2	Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland between 30 and 840 meters. Known from ALA, CCA, and SOL counties.	April-June perennial bulbiferous herb	Although suitable vegetation associations are present this taxon has never been recorded from the Livermore Valley. It prefers the ecotones where chaparral, woodland and grassland meet, which does not occur within the study area. Not observed during botanical surveys.
<i>Centromadia parryi</i> subsp. <i>congdonoccurii</i> Congdon's tarplant	CRPR 1B.1	Occurs on alkaline soils in valley and foothill grassland. Known from ALA, CCA, MNT, SCL, SLO, and SMT counties between 1-230 meters. Presumed extirpated from SCZ and SOL counties.	June-November annual herb	Suitable vegetation associations and substrates are present. Seedlings of a <i>Centromadia</i> species were observed in multiple places within the Project site that may be identified as this taxon during the proper blooming period. Observed in botanical survey of the Project site between May School Road and Livermore Avenue as well as south of Hartman Road

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Chloropyron molle</i> subsp. <i>hispidum</i> hispid bird's-beak	CRPR 1B.1	Occurs on alkaline soils in meadows and seeps, playas, and valley and foothill grassland between 1 and 155 meters. Known from ALA, FRE, KRN, MER, PLA, and SOL counties.	June-September annual herb (hemiparasitic)	Although suitable vegetation associations are present the necessary host suspected for this species in the Livermore Valley is saltgrass (<i>Distichlis spicata</i>) (Coats et al. 1988; Chuang and Heckard 1973) which is absent from the Project site. There is a CNDDDB occurrence (EONDX 4686, from 2003) from 1.3 miles east of the Project site, from Springtown Wetlands Reserve. Not observed during botanical surveys.
<i>Chloropyron palmatum</i> palmate-bracted birds beak	FE SE CRPR 1B.1	Occurs on alkaline soils in chenopod scrub and valley and foothill grassland, between 5-155 meters. Known from ALA, COL, FRE, GLE, MAD and YOL counties. Presumed extirpated from SJQ.	May-October annual herb (hemiparasitic)	Although suitable vegetation associations are present the necessary host suspected for this species in the Livermore Valley is saltgrass (<i>Distichlis spicata</i>) (Coats et al. 1988; Chuang and Heckard 1973) which is absent from the Project site. The nearest CNDDDB occurrence (EONDX 3037, from 2012) is about 1 mile east of the Project site, at Springtown Wetlands Reserve. Not observed during botanical surveys.
<i>Chorizanthe robusta</i> var. <i>robusta</i> robust spineflower	FE CRPR 1B.1	Occurs on sandy or gravelly soils in maritime chaparral, cismontane woodland, coastal dunes and coastal scrub between 3 and 300 meters. Known from MNT, SCR, SFO counties; presumed extirpated from ALA, SCL, and SMT counties.	April-September annual herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Clarkia concinna</i> subsp. <i>automixa</i> Santa Clara red ribbons	CRPR 4.3	Occurs in chaparral and cismontane woodland between 90 and 1500 meters. Known from ALA, SCL, and SCR counties.	April-July annual herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Clarkia franciscana</i> Presidio clarkia	FE SCE CRPR 1B.1	Occurs on serpentine sites in coastal scrub, valley and foothill grassland between 25 and 335 meters. Known from ALA and SFO counties.	May-July annual herb	Although suitable vegetation associations are present the necessary serpentine substrate is absent. The nearest CNDDDB occurrence (EONDX 13632, from 2004) is about 21 miles west of the Project site, at Redwood Regional Park. Not observed during botanical surveys.
<i>Convolvulus simulans</i> small-flowered morning glory	CRPR 4.2	Occurs on clay soils and serpentine seeps in chaparral, coastal scrub, and valley and foothill grassland between 30 and 700 meters in elevation. Known from CCA, FRE, KRN, LAX, ORA, RIV, SBA, SBT, SCM, SCT, SCI, SDG, SJQ, SLO, and STA.	March-July annual herb	Suitable vegetation associations and substrates present. The closest herbarium record is a Taylor collection (Accession# JEPS100237) from Byron Hot Springs. Not observed during botanical surveys.
<i>Deinandra bacigalupii</i> Livermore tarplant	SE CRPR 1B.2	Occurs in alkaline meadows and seeps between 150 and 185 meters. Known only from ALA county.	June-October annual herb	Suitable vegetation associations and substrates are present. The nearest CNDDDB occurrence (EONDX 44494, from 2010) is about 1.2 miles east of the Project site, near the intersection of Ames street and Raymond Road. Not observed during botanical surveys.
<i>Delphinium californicum</i> subsp. <i>interius</i> Hospital Canyon larkspur	CRPR 1B.2	Occurs in openings of chaparral, mesic cismontane woodland, and coastal scrub between 195 and 1095 meters elevation. Known from ALA, CCA, MER, MNT, SBT, SCL, SJQ, and STA counties.	April-June perennial herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Delphinium recurvatum</i> recurved larkspur	CRPR 1B.2	Occurs on alkaline soils in chenopod scrub, cismontane woodland, and valley and foothill grassland between 3 and 790 meters elevation. Known from ALA, CCA, FRE, GLE, KNG, KRN, MAD, MER, MNT, SJQ, SLO, SOL, SUT, and TUL counties. Presumed extirpated from BUT and COL counties.	March-June perennial herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 2452, from 1991) is 8.5 miles northeast, on the county line. Not observed during botanical surveys.
<i>Dirca occidentalis</i> western leatherwood	CRPR 1B.2	Occurs on mesic sites in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland between 50-395 meters. Known from ALA, CCA, MRN, SCL, SMT, and SON counties.	January-April deciduous shrub	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Eriogonum truncatum</i> Mt. Diablo buckwheat	CRPR 1B.1	Occurs in sandy soils in chaparral, coastal scrub, and valley and foothill grassland between 3 and 350 meters elevation. Known from CCA counties. Presumed extirpated from SOL county.	April-December annual herb	Although suitable vegetation associations are present this taxon has never been recorded from the Livermore Valley and it prefers the ecotone where chaparral/scrub and grassland meet or highly erosive soils in grassland habitats, neither of which occur within the Project. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Eriophyllum jepsonii</i> Jepson's woolly sunflower	CRPR 4.3	Occurs occasionally on serpentine sites in chaparral, cismontane woodland, and coastal scrub between 200 and 1025 meters elevation. Known from ALA, CCA, KRN, MNT, SBT, SCL, STA, and VEN counties.	April-June subshrub	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Eryngium spinosepalum</i> spiny-sepaled button-celery	CRPR 1B.2	Occurs in valley and foothill grassland and vernal pools between 80 and 975 meters elevation. Known from CCA, FRE, KRN, MAD, MER, SLO, STA, TUL, and TUO counties.	April-June annual/perennial herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 92244, from 2007) is from 8.3 miles northeast of the Project site, near Byron Airport. Not observed during botanical surveys.
<i>Eschscholzia rhombipetala</i> diamond-petaled California poppy	CRPR 1B.1	Occurs on alkaline and clay soils in valley and foothill grassland up to 975 meters elevation. Known from ALA, SJQ, SLO counties. Presumed extirpated from CCA, COL and STA counties.	March-April annual herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 96884, from 2015) is from 8 miles northeast of the Project site, near Bethany Reservoir. Not observed during botanical surveys.
<i>Extriplex joaquinana</i> San Joaquin spearscale	CRPR 1B.2	Occurs in alkaline soils in chenopod scrub, meadows and seeps, playas and valley and foothill grasslands between 1 and 835 meters elevation. Known from ALA, CCA, COL, FRE, GLE, MER, MNT, NAP, SBT, SOL and YOL counties. Presumed extirpated from SCL, SJQ and TUL counties.	April-October annual herb	Suitable vegetation associations and substrates present. There are several CNDDDB occurrences near the Project site, with the nearest (EONDX 6737, from 1991) being about a mile east, near the Springvale housing development. Observed outside of the Project site during field surveys in 2016, between May School Road and Livermore Avenue as well as south of Hartman Road.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Fritillaria agrestis</i> stinkbells	CRPR 4.2	Occurs on clay, sometimes serpentine soils, in chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland between 10 and 1555 meters elevation. Known from ALA, CCA, FRE, KRN, MEN, MER, MNT, MPA, PLA, SAC, SBA, SBT, SCL, SLO, STA, TUO, VEN and YUB counties. Presumed extirpated from SCR and SMT counties.	March-June perennial bulbiferous herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 6156, from 1992) is 0.4 miles east of the study area, about ¼ mile west of Vasco road. Observed outside of the Project site during field surveys in 2017, north of the northern terminus of Dagnino Road.
<i>Fritillaria liliacea</i> Fragrant fritillary	CRPR 1B.2	Occurs on clay or serpentine sites in cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland near the coast between 3-410 meters. Known from ALA, CCA, MNT, MRN, SBT, SCL, SFO, SMT, SOL and SON counties.	February-April perennial herb (bulbiferous)	Although suitable vegetation associations are present this taxon does not occur east of Mount Diablo as it is associated with the coastal fog incursion zone. The Project sites is east of this zone. The nearest CNDDDB occurrence (EONDX 94652) is a historical, nonspecific point 14 miles northwest of the Project site, near Danville. Not observed during botanical surveys.
<i>Helianthella castanea</i> Diablo helianthella	CRPR 1B.2	Occurs in broadleaved upland forest, chaparral cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland between 60-1,300 meters. Known from ALA, CCA, and SMT counties. Presumed extirpated from MRN and SFO counties.	March-June perennial herb	Although suitable vegetation associations are present this taxon has never been recorded from the Livermore Valley. It prefers the ecotones between forest, chaparral, woodland and/or grassland, which do not occur within the study area. The nearest CNDDDB occurrence (EONDX 851, from 1988) is 2.5 miles northeast of the Project site, near Los Vaqueros Reservoir. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Hesperolinon breweri</i> Brewer's western flax	CRPR 1B.2	Occurs often in serpentine soils in chaparral, cismontane woodland and valley and foothill grassland. Known from CCA, NAP and SOL counties between 30 and 945 meters elevation.	May-July annual herb	Although suitable vegetation associations are present this taxon has never been recorded from the Livermore Valley. It prefers the ecotones between forest, chaparral, woodland and/or grassland, which do not occur within the study area. The nearest CNDDDB occurrence (EONDX 9470, from 1988) is 2.7 miles north of the Project site, near Morgan Territory Rd. Not observed during botanical surveys.
<i>Hesperevax caulescens</i> hogwallow starfish	CRPR 4.2	Occurs sometimes on alkaline soils in mesic valley and foothill grassland and shallow vernal pools between 0 and 505 meters elevation. Known from ALA, AMA, BUT, CCA, COL, FRE, GLE, KRN, MER, MNT, SAC, SJQ, SLO, SOL, STA, SUT, THE, and YOL counties. Presumed extirpated from NAP and SDG counties.	March-June annual herb	Suitable vegetation associations and substrates present. Seedlings of a <i>Hesperevax</i> species were observed in multiple places within the study area that may be identified as this taxon during the proper blooming period. The closest herbarium record is a Ertter collection (Accession# UC2031481) from Springtown wetlands. Observed in the Project site during 2016 surveys south of Hartman Road and west of North Livermore Avenue, and during 2017 surveys in the staging area at Hartman Road and N. Livermore Avenue.
<i>Holocarpha macradenia</i> Santa Cruz tarplant	FT SE CRPR 1B.1	Occurs in coastal prairie, coastal scrub and valley and foothill grassland often on clayey and sandy substrates. Last known remaining natural population in the San Francisco Bay area extirpated by development in 1993.	June-October annual herb	Although suitable vegetation associations are present this species only occurs in with a coastal or bay side influence. The nearest CNDDDB occurrence (EONDX 48966, from 1915) is about 17 miles west of the Project site, near Hayward. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Lasthenia conjugens</i> Contra Costa goldfields	FE CRPR 1B.1	Occurs in cismontane woodland, alkaline playas, valley and foothill grassland, and vernal pools. Occurs on mesic sites up to 470 meters. Known from ALA, CCA, MNT, NAP, and SOL. Presumed extirpated from MEN, SBA, and SCL counties.	March-June annual herb	Suitable vegetation communities and vernal hydrology are present. The nearest CNDDDB occurrence (EONDX 30917, from 2010) is about 17 miles southwest of the Project site, in Fremont. Not observed during botanical surveys.
<i>Legenere limosa</i> legenere	CRPR 1B.1	Occurs in vernal pools between 1 and 880 meters. Known from ALA, LAK, MNT, NAP, PLA, SAC, SCL, SHA, SJQ, SMT, SOL, SON, TEH and YUB counties; presumed extirpated from STA county.	April-June annual herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys
<i>Leptosyne hamiltonii</i> Mt. Hamilton coreopsis	CRPR 1B.2	Occurs in rocky soils in cismontane woodland between 550 and 1300 meters. Known from ALA, SCL, and STA counties.	March-May annual herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Leptosiphon ambiguus</i> serpentine leptosiphon	CRPR 4.2	Occurs often in serpentine soils in cismontane woodland, coastal scrub, and valley and foothill grassland between 120 and 1,130 meters. Known from ALA, CCA, MER, SBT, SCL, SCR, SJQ, SMT, and STA counties.	March-June annual herb	Although suitable vegetation associations are present in the study area this species prefers serpentine habitat and has never been recorded from the Livermore Valley. The closest herbarium record is a Ertter collection (Accession# RSA721361) from Rancho Los Mochos Boy Scout Camp. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Malacothamnus hallii</i> Hall's bush-mallow	CRPR 1B.2	Occurs in chaparral and coastal scrub between 10 and 760 meters elevation. Known from CCA, MER, SCL, SMT, and STA counties.	May-October perennial evergreen shrub	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Monardella antonina</i> subsp. <i>antonina</i> San Antonio Hills monardella	CRPR 3	Occurs in chaparral and cismontane woodland from 320-1000 meters. Known from MNT and FRE, possibly ALA, CCA, SCL and SBT counties. This taxon is no longer recognized in TJM2, it has been synonymized with <i>Monardella villosa</i> subsp. <i>villosa</i>	June-August perennial rhizomatous herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Monolopia gracilis</i> woodland woollythreads	CRPR 1B.2	Occurs on serpentine soil in broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland between 100 and 1200 meters elevation. Known from ALA, CCA, MNT, SBT, SCL, SCR, SLO, and SMT counties.	February-July annual herb	Although suitable vegetation associations are present this species is a fire follower and the Project sites have not burned within the last five years. The nearest CNDDDB occurrence (EONDX 80189, from 1935) is 12.8 miles northwest of the Project site, from Mt. Diablo State Park. Not observed during botanical surveys.
<i>Myosurus minimus</i> subsp. <i>apus</i> little mouseltail	CRPR 3.1	Occurs in valley and foothill grassland and alkaline vernal pools between 20 and 640 meters. Known from ALA, CCA, COL, LAK, MER, RIV, SBD, SDG, SOL, TUL, and YOL counties.	March-June annual herb	Suitable vegetation associations and substrates present. The closest herbarium record is a Greenhouse collection (Accession# JEPS107030) from Springtown Wetland Preserve. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Navarretia nigelliformis</i> subsp. <i>nigelliformis</i> adobe navarretia	CRPR 4.2	Occurs in clay, sometimes serpentine soils in valley and foothill grassland and vernal pools between 100 and 1000 meters. Known from ALA, BUT, CCA, COL, FRE, KRN, MER, MNT, PLA, SUT, and TUL counties.	April-June annual herb	Suitable vegetation associations and substrates present. The closest herbarium record is a Gowen collection (Accession# JEPS116990) from the west end of Horse Valley. Not observed during botanical surveys.
<i>Navarretia nigelliformis</i> subsp. <i>radians</i> shining navarretia	CRPR 1B.2	Occurs in clay soils in cismontane woodland, valley and foothill grassland and vernal pools between 76 and 1000 meters. Known from ALA, CCA, COL, FRE, MAD, MER, MNT, SBT, SJQ and SLO counties.	April-July annual herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 84678, from 1986) is 12 miles southeast of the Project site, from Corral Hollow. Not observed during botanical surveys.
<i>Navarretia prostrata</i> <i>prostrate vernal pool navarretia</i>	CRPR 1B.1	Occurs in mesic soils in coastal scrub, meadows and seeps, alkaline valley and foothill grassland, and vernal pools between 3 and 1210 meters. Known from ALA, FRE, LAX, MER, MNT, ORA, SBT, SCL, SDG, and SLO counties.	April-July annual herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 84401, from 2010) is 3 miles west of the Project site, near Dublin. Not observed during botanical surveys.
<i>Phacelia phacelioides</i> Mt. Diablo phacelia	CRPR 1B.2	Occurs on rocky substrates in chaparral and cismontane woodland counties between 500-1,370 meters. Known from CCA, SBT, SCL, and STA. This taxon is a fire-follower.	April-May annual herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Plagiobothrys glaber</i> Hairless popcorn flower	CRPR 1A	Occurs in alkaline meadows and seeps and coastal salt marshes and swamps between 15 and 180 meters. Presumed extirpated from ALA, MRN, SBT, and SCL counties- last confirmed sighting in 1954.	March-May annual herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 22577, from 1942) is 2.5 miles southeast of the Project site, near downtown Livermore. Not observed during botanical surveys.
<i>Polemonium carneum</i> Oregon polemonium	CRPR 2B.2	Occurs in coastal prairie, coastal scrub, and lower montane coniferous forest up to 1830 meters. Known from ALA, DNT, HUM, MRN, SFO, SMT, SIS, and SON counties.	April-September perennial herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Puccinellia simplex</i> California alkali grass	CRPR 1B.2	Occurs in alkaline and vernal mesic soils, sinks, flats and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland and vernal pools between 2 and 930 meters elevation. Known from ALA, BUT, CCA, COL, FRE, GLE, KRN, LAK, LAX, MAD, MER, NAP, SBD, SCL, SCR, SLO, SOL, STA, TUL, and YOL counties. Presumed extirpated from KNG county.	March-May annual herb	Suitable vegetation associations and substrates present. The closest herbarium record is a Jensen collection (Accession# UCD92246) near the town of Altamont. Not observed during botanical surveys.
<i>Sanicula saxatilis</i> rock sanicle	SR CRPR 1B.2	Occurs on rocky soils in broadleaved upland forest, chaparral, and valley and foothill grassland between 620-1,175 meters. Known from CCA and SCL counties.	April-May perennial herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Senecio aphanactis</i> rayless ragwort	CRPR 2.2	Occurs on alkaline soils in coastal scrub, chaparral, and cismontane woodland between 15-800 meters. Known from ALA, CCA, FRE, LAX, MER, MNT, ORA, RIV, SBA, SCL, SCT, SCZ, SDG, SLO, SOL, SRO, and VEN.	January-April annual herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Streptanthus albidus</i> subsp. <i>peramoenus</i> most beautiful jewelflower	CRPR 1B.2	Occurs on serpentine soils in chaparral, cismontane woodland, and valley and foothill grassland from 95 to 1,000 meters elevation. Known from ALA, CCA, MNT, SCL and SLO counties. This species is no longer recognized in TJM2, as it has been synonymized with <i>Streptanthus glandulosus</i> subsp. <i>glandulosus</i>	March-October annual herb	Although suitable vegetation associations are present the preferred substrate is absent. This species has also never been recorded as occurring in Livermore Valley. The nearest CNDDDB occurrence (EONDX 18964, from 1993) is 14 miles northwest of the Project site, at Mt. Diablo State Park. Not observed during botanical surveys.
<i>Streptanthus hispidus</i> Mt. Diablo jewelflower	CRPR 1B.3	Occurs in rocky soils in chaparral and valley and foothill grassland between 365 and 1200 meters elevation. Known from CCA county.	March-June annual herb	Although suitable vegetation associations are present the preferred substrate is absent. This species has also never been recorded as occurring in Livermore Valley. It is also a strict endemic to Mount Diablo. The nearest CNDDDB occurrence (EONDX 4878, from 2010) is 13 miles northwest of the Project site, at Mt. Diablo. Not observed during botanical surveys.

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Stuckenia filiformis</i> subsp. <i>alpina</i> slender-leaved pondweed	CRPR 2B.2	Occurs in assorted shallow freshwater marshes and swamps from 300-2,150 meters elevation. Known from ALA, BUT, CCA, ELD, LAS, MER, MNO, MOD, MPA, NEV, PLA, SCL, SHA, SIE, SMT, SOL, and SON counties.	May-July perennial rhizomatous herb	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.
<i>Suaeda californica</i> California seablite	FE CRPR 1B.1	Occurs in marshes and swamps, margins of coastal salt marshes from 0-15 meters. Known from SLO county, presumed extirpated from ALA, CCA, SCL, and SFO counties.	July-October perennial evergreen shrub	No suitable vegetation associations or tidally influenced habitat are present. Not observed during botanical surveys.
<i>Trifolium hydrophilum</i> saline clover	CRPR 1B.2	Occurs in marshes and swamps, alkaline and mesic valley and foothill grassland, and vernal pools up to 300 meters. Known from ALA, CCA, LAK, MNT, NAP, SAC, SBT, SCL, SCR, SJQ, SLO, SMT, SOL, SON, and YOL counties.	April-June annual herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 49391, from 2006) is about 1.7 miles southeast of the Project site, from Springtown Reserve. Not observed during botanical surveys.
<i>Triquetrella californica</i> coastal triquetrella	CRPR 1B.2	Occurs on soil in coastal bluff scrub and coastal scrub between 10-100 meters. Known from CA, DNT, MEN, MRN, SDG, SFO, SMT, and SON counties.	Moss wet season	No suitable vegetation associations or substrates are present. Not observed during botanical surveys

Species Name Common Name	Federal, State, CNPS Legal Status or Rank	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Potential for Occurrence, or Presence in the Project Area
<i>Tropidocarpum capparideum</i> caper-fruited tropidocarpum	CRPR 1B.1	Occurs on alkaline sites in valley and foothill grassland between 1-455 meters elevation. Known from FRE, MNT, and SLO counties. Presumed extirpated from ALA, CCA, GLE, SCL, SJQ counties.	March-April annual herb	Suitable vegetation associations and substrates present. The nearest CNDDDB occurrence (EONDX 31866) is a historical, nonspecific point mapped as 3.2 miles southeast of the Project site. Not observed during botanical surveys.
<i>Viburnum ellipticum</i> oval-leaved viburnum	CRPR 2B.3	Occurs on chaparral, cismontane woodland, and lower montane coniferous forest between 215-1,400 meters. Known from CCA, FRE, ELD, GLE, HUM, MEN, NAP, SHA, and SON counties.	May-June shrub (deciduous)	No suitable vegetation associations or substrates are present. Not observed during botanical surveys.

Notes:

Federal Designations: (FE) = Federally Endangered, (FT) = Federally Threatened, (FD) = Federally Delisted

State Designations: (SE) = State Endangered, (ST) = State Threatened, (C) = Candidate, (SCT) = State Candidate Threatened, (SD) = State Delisted, (SSC) = Species of Special Concern, (SFP) State Fully Protected Species

CNPS California Rare Plant Rank (CRPR): (1A) = Presumed extinct in California; (1B) = Rare, threatened, or endangered in California and elsewhere; (2B) = Rare, threatened, or endangered in California, but more common elsewhere; (3) = More information is needed; (4) = Limited distribution, watch list

Threat Rank: 0.1 = Seriously threatened in California (more than 80 percent of occurrences threatened / high degree and immediacy of threat), 0.2 = Fairly threatened in California (20 to 80 percent occurrences threatened / moderate degree and immediacy of threat), 0.3 = Not very threatened in California (less than 20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known).

Counties and Islands: (ALA) = Alameda, (AMA) = Amador, (BUT) = Butte, (CCA) = Contra Costa, (COL) = Colusa, (DNT) = Del Norte, (ELD) = El Dorado, (FRE) = Fresno, (GLE) = Glenn, (HUM) = Humboldt, (KNG) = Kings, (KRN) = Kern, (LAK) = Lake, (LAS) = Lassen, (LAX) = Los Angeles, (MAD) = Madera, (MEN) = Mendocino, (MER) = Merced, (MOD) = Modoc, (MPA) = Mariposa, (MNO) = Mono, (MNT) = Monterey, (MRN) = Marin, (NAP) = Napa, (NEV) = Nevada, (ORA) = Orange, (PLA) = Placer, (RIV) = Riverside, (SAC) = Sacramento, (SBA) = Santa Barbara, (SBD) = San Bernardino, (SBT) = San Benito, (SCL) = Santa Clara, (SCZ) = Santa Cruz, (SDG) = San Diego, (SFO) = San Francisco, (SHA) = Shasta, (SIE) = Sierra, (SIS) = Siskiyou, (SJQ) = San Joaquin, (SLO) = San Luis Obispo, (SMT) = San Mateo, (SOL) = Solano, (SON) = Sonoma, (STA) = Stanislaus, (SUT) = Sutter, (TEH) = Tehama, (TUL) = Tulare, (TUO) = Tuolumne, (VEN) = Ventura, (YOL) = Yolo, (YUB) = Yuba, (SCM) = San Clemente Island (SCM), (SCT) = Santa Catalina Island (SCT), (SCI) = Santa Cruz Island, (SRO) = Santa Rosa Island

There were no previously known records of Congdon's tarplant known within the Project site. The nearest recorded CNDDDB occurrence was from 0.5 mile southeast of the Project site, near Hartford Avenue. However, during the surveys on July 5, 2016, several populations of Congdon's tarplant were observed, including the following two that are located inside the boundaries of the Project site.

- One population was observed in 2016, located south of Hartman Road and west of North Livermore Avenue (Figure 3-4). This population, which occupies an approximately 1.1-acre area and contains an estimated 500 to 700 individuals, is located within a valley bottom in alkaline grassland co-occurring with species typical of those habitats described above.
- A second population was observed with approximately 19 individuals (at two locations) in 2016, located south of May School Road and east of North Livermore Avenue (Figures 3-5 and 3-6). This population is located along L131 pipeline in dryland farmed fields and non-native grassland with bristly ox-tongue (*Helminthoetheca echinoides*) and yellow star thistle. Occurrences were at two locations within the work area, at Station 79, 150 feet west of drainage W-3, and at Station 92.

Hogwallow starfish (*Hesperervax caulescens*) has a California Rare Plant Rank of 4.2, indicating it is a "Watch List" plant with limited distribution and moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat; CNPS 2016). This species is an annual herb of the sunflower family (Asteraceae). The type locality for this species is from an 1812 K. T. Hartweg collection in the Sacramento Valley, Sacramento County, California (Abrams 1955). Hogwallow starfish is differentiated from other members of the genus by having 10-40 distal heads per group, a strongly thickened petiole base, and heads subtended by, not mixed with, leaves (Baldwin et al. 2012). This taxon flowers from March to June (CNPS 2016).

Hogwallow starfish sometimes occupies alkaline soils in shallow vernal pools and valley and foothill grassland habitats (CNPS 2016). It has been recorded as occurring in Alameda, Amador, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Monterey, Napa, Sacramento, San Diego, San Joaquin, San Luis Obispo, Solano, Stanislaus, Sutter, Tehama, and Yolo counties between 0 to 1,657 feet (0 to 505 meters) in elevation (CNPS 2016).

There are no previously known records of hogwallow starfish within the Project site. However, several populations were observed during botanical surveys conducted for the Proposed Project in 2016 and 2017. This includes two populations that fall within the boundaries of the Project site:

- A single individual was identified near the southern end of the Project site during the 2016 surveys (Figure 3-2).
- A 2.10-acre population was observed during 2017 surveys in a field proposed for use as a staging area on the northwest corner of North Livermore Avenue and Hartman Road (Figure 3-4). This population consists of approximately 1,000 individuals growing in scattered clusters in clayey alkaline soils from Hartman Road to approximately 0.2 miles north adjacent to Livermore Avenue. During an agency site visit in February 22, 2018, the field had been tilled and planted for dryland farming. The population identified in 2017 is considered a colony of a larger population (200,000 individuals) identified in 2016 to the south of Hartman Road. This larger population lies entirely outside the Project site.

Special status Wildlife

Thirty-five special status (as defined in Section 3.4.1) wildlife species were identified during background research as having potential to occur within the Project Area (Table 3.4-4). Twenty-three of these species were determined to have low or no potential to occur because of a lack of suitable habitat or because the Project site is outside the range of the species. Twelve of the remaining special status wildlife species listed in Table 3.4-4 were determined to have a moderate-to-high potential to occur within the Project site. A description of these species, their habitat associations, suitability of habitat within the Project site, and location of closest known occurrences is provided below.

Special Status Amphibians

California Tiger Salamander (Ambystoma californiense)

The central population of the California tiger salamander (CTS) is listed as threatened under both federal and California State endangered species legislation. Critical habitat was designated in 2005 (USFWS 2005). The Proposed Project is located outside of designated critical habitat for the species. The nearest critical habitat to the Project site is Unit CV-18, located approximately 0.75 mile west of the southern portion of the Project site. Provided below is a description of habitat associations for this species; location of closest known occurrences; and an assessment of the suitability of habitats on the Project site.

The California tiger salamander is most strongly associated with grassland and aquatic habitats, but the species also occurs in other habitat types including oak savanna, on the edges of mixed woodlands, and in foothill coniferous forests (Stebbins 2003). Adults spend most of the year in underground retreats, particularly in burrows of California ground squirrels (*Spermophilus beecheyi*) and pocket gopher (*Thomomys bottae*), and occasionally are found in man-made structures. CTS make seasonal migrations to breeding ponds starting with the onset of fall rains. Seasonal pools are most commonly used but California tiger salamander may also occasionally use permanent ponds if predatory fish and other predators are absent. After breeding, California tiger salamander adults return to their upland retreats after a few days or weeks. Juveniles require approximately 10 to 12 weeks to achieve metamorphosis; they then disperse to upland areas after spending a few hours or days near the edges of aquatic habitats.

The CNDDDB contains 12 records of California tiger salamander occurrences within 1.3 miles of the Project site (CNDDDB 2016). The nearest record consists of multiple observations of adults using uplands within an area containing grassland and seasonal wetlands mapped broadly by the CNDDDB between North Livermore Avenue and Lorraine Avenue and overlapping a portion of the Project site. This area is bounded on the south by I-580 and by May School Road on the north. Another nearby record of California tiger salamander consists of breeding ponds located within a mitigation preserve on the east side of Dagnino Road, 0.15 mile southeast of the Project site where larvae have been observed over multiple years. Juvenile California tiger salamander also were reported from a seasonal pool located near the southern portion of the alignment, 0.12 mile west of the Project site. Other nearby records include individuals sighted near Vasco Road 0.5 mile east of the northern terminus of the Project site, breeding ponds located on Los Vaqueros Reservoir property one mile to the north of the alignment, and breeding pools within the Springtown Preserve,

Table 3.4-4: Potential for Occurrence of Special Status Wildlife Species in the Project Site

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
Invertebrates			
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE	Inhabits vernal pools, seasonal swales, and depressions, usually in grassland habitats.	Not likely to occur. No records in the Project site or vicinity. Populations are highly restricted and known from a few disjunct localities within the northern two-thirds of the Central Valley.
<i>Branchinecta longiantenna</i> Longhorn fairy shrimp	FE	Inhabits vernal pools and depressions. In the project region, this species occurs in pools within sandstone outcrops with low alkalinity.	Not likely to occur. No suitable habitat is present within the Project site.
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	Inhabits a variety of seasonal pools and vernal pools including stone, mud, and grassy-bottomed habitats.	Not likely to occur. No suitable habitat observed within the Project site.
<i>Callophrys mossii bayensis</i> San Bruno elfin butterfly	FE	Occurs in coastal grassy mountainous areas near San Francisco Bay, typically on steep north-facing slopes above 500 feet in elevation that contain populations of the host plant, <i>Sedum spathulifolium</i> .	Not likely to occur. No suitable habitat is present within the Project site.
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT	USFWS defines habitat for this species as elderberry shrubs (<i>Sambucus</i> sp) with stems measuring greater than 1 inch in diameter within riparian and upland habitats in the Central Valley, up to 3,000 feet in elevation.	Not likely to occur. No elderberry shrubs observed within the Project site.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE	Inhabits vernal pools and swales in valley grassland.	Not likely to occur. No elderberry shrubs observed within the Project site.

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
<i>Speyeria callippea callippea</i> Callippea silverspot butterfly	FE SE	The historic range of this butterfly included the inner coast range on the eastern shore of San Francisco Bay from northwestern Contra Costa County south to the Castro Valley area in Alameda County. Hilltops and ridges provide habitat for the species as does the larval food plant, Johnny jump-up (<i>Viola pedunculata</i>).	<p>Low potential to occur</p> <p>The nearest CNDDDB records of Callippea silverspot are from San Bruno Mountain, a distance of over 30 miles from the Project site. The CNDDDB indicates that the population is presumed to be extant and that individuals were observed as recently as 2004 (CNDDDB 2016). Unconfirmed populations reported from Calaveras Reservoir and the Pleasanton area in Alameda County are located less than 10 miles from the Project site but are not included in the CNDDDB. A model of suitable habitat for the Callippea silverspot within the San Francisco Bay area prepared for PG&E's Draft Bay Area Operations and Maintenance Habitat Conservation Plan (ICF International 2016) using vegetation data and known occurrence records from the CNDDDB and Dr. Richard Arnold, indicates that the Project site lies outside of the distribution of suitable habitat for the Callippea silverspot.</p> <p>Within the Project site, grasslands containing populations of Johnny jump-up plants are present on hills near the northern end of the project alignment and occur in three patches totaling less than one acre in size. Despite the presence of the butterfly's larval host plant in these areas, the Project site lies outside of the present and historic range of the subspecies and no known records are present nearby; therefore, the potential for Callippea silverspot to occur on the site is low.</p>

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
Amphibians			
<i>Ambystoma californiense</i> California tiger salamander	FT ST	Inhabits grasslands and foothills, breeding in seasonal pools and ponds. Requires rodent burrows in grasslands for terrestrial underground retreats after breeding.	High potential to occur. Breeding ponds are present within dispersal distance of the Project site. Suitable upland grassland habitat is present within portions of the Project site.
<i>Rana boylei</i> Foothill yellow-legged frog	SCT, C	Inhabits rocky streams and rivers with rocky substrate and open; sunny banks; in forests; chaparral; and woodlands.	Not likely to occur. No suitable aquatic habitat observed within the Project site.
<i>Rana draytonii</i> California red-legged frog	SSC	Breeding habitat consists of still or slow-moving water with emergent or riparian vegetation (breeding). Non-breeding (dispersal and estivation) habitat includes cool, moist areas with adequate cover. Requires barrier-free areas to allow movement between breeding and upland habitats.	High potential to occur. Suitable breeding habitat and recorded observations are present within normal movement distance. Suitable dispersal habitat is present throughout the Project site. A portion of the project falls within critical habitat as designated by USFWS for the species, unit CCS-2B.
<i>Spea hammondi</i> Western spadefoot toad	SSC	Inhabits primarily lowland areas where temporary pools occur, including washes, river floodplains, alluvial fans, and alkali flats. Associated with areas of having low vegetation and where the soil is sandy or gravelly.	Low potential to occur. There are no records of western spadefoot within 3 miles of the Project site; the nearest recorded observations are from the Lawrence Livermore National Laboratory, approximately 5 miles southeast. Vernal pools located outside the Project site may provide breeding habitat for western spadefoot toads. However, the Project site does not provide breeding habitat for this species. The clay soils found throughout the majority of the Project site are marginal habitat for western spadefoot toad.

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
Reptiles			
<i>Actinemys marmorata</i> Western pond turtle	SSC	Inhabits ponds, lakes, rivers, streams and marshes. Requires sites for basking and upland habitat for egg-laying such as sandy or grassy open fields.	Low potential to occur. The nearest recorded observations of western pond turtle are from Las Positas Creek, approximately 1.3 miles southeast of the Project site. Within the Project site, Cayetano Creek may contain sufficient water to provide habitat during periods of high flow on a temporary basis. No other suitable aquatic habitat observed within the Project site. Due to the distance of the Project site from permanent water, there is a low potential for the western pond turtle to occur.
<i>Aniella pulchra pulchra</i> Silvery legless lizard	SSC	Inhabits sandy or loose loamy soils within stabilized dunes; beaches; chaparral; and pine-oak woodland. Also occurs near sycamores; cottonwoods; or oaks that grow on stream terraces. Often found in soil or leaf litter under vegetation.	Not likely to occur. No suitable habitat observed within the Project site.
<i>Coluber flagellum ruddocki</i> San Joaquin coachwhip	SSC	Inhabits open, dry environments with little or no tree cover. Found in valley grassland and salt brush scrub in the San Joaquin Valley. Mammal burrows are used for refuge and oviposition sites.	Not likely to occur. No suitable habitat observed within the Project site.

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
<i>Masticophis lateralis euryxanthus</i> Alameda whipsnake (striped racer)	FT ST	Habitat for this species consists of northern sage scrub or chaparral. Rock outcrops, rock crevices, and small mammal burrows offer cover and retreats. May travel up to 500 feet into adjacent grassland habitat.	Low potential to occur. The nearest record to the Project site is an isolated individual found on the Los Vaqueros Reservoir watershed property, approximately 1.4 miles to the north. Other nearby records include multiple individuals observed along Morgan Territory Road, about 2.25 miles to the northwest. Although these records are within the maximum dispersal ability of the species from the extreme north of the Project site, the open grassland habitat present on site is separated from the nearest scrub habitat by about 2 miles, and suitable habitat is absent throughout the vicinity of the Project site in all other directions. Project area is outside of designated critical habitat.
<i>Phrynosoma blainvillii</i> Coast horned lizard	SSC	Inhabits open areas of sandy soil and low vegetation in valleys; foothills and semiarid mountains; grasslands; coniferous forests; woodlands; and chaparral.	Not likely to occur. No suitable habitat observed within the Project site.
<i>Thamnophis gigas</i> Giant garter snake	FT ST	This species is associated with aquatic habitats and upland grassland habitats. It utilizes small mammal burrows and cracks in the soil for refuge and aestivation. Often occurs in or near agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, rice fields, freshwater marshes.	Not likely to occur. No suitable habitat observed within the Project site.
Birds			
<i>Agelaius tricolor</i> Tricolored blackbird	C	Inhabits emergent wetlands; grasslands; and agricultural fields. Breeds near fresh water in emergent wetlands in cattails or tules. May also breed in thickets of willow, wild rose, blackberry, or other tall herbaceous species.	Low potential to occur (foraging only). Marginal foraging habitat is present within the Project site and there are CNDDDB occurrences within 5 miles; however suitable nesting habitat is absent in the Project site.

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
<i>Ammodramus savannarum</i> Grasshopper sparrow	SSC	Inhabits moderately open grasslands with scattered shrubs.	High potential to occur (nesting and foraging). Suitable nesting and foraging habitat is present in grasslands within the Project site and there is one CNDDDB record for a presumed breeding pair within 10 miles of the Project site.
<i>Aquila chrysaetos</i> Golden eagle	SFP	Inhabits grasslands, oak savannas, woodlands, and agricultural areas. Nesting habitat includes cliffs and large trees in open or semi-open areas.	Moderate potential to occur (foraging only). Golden eagle foraging habitat is present throughout the Project site, particularly where small mammals are abundant. Nesting potential is limited because of proximity of large trees to public roads and associated disturbances. Furthermore, no large nest structures were observed during surveys.
<i>Asio flammeus</i> Short-eared owl	SSC	Inhabits meadows, wetlands, and agricultural fields. Nests in shallow depressions within tall stands of grasses near foraging habitat.	Low potential to occur (foraging only). Foraging habitat for the short-eared owl found within the Project site is suitable and small mammal prey items are present. The potential for nesting to occur is low due to a limited amount of suitable nesting habitat. The CNDDDB does not contain any records of short-eared owl within 10 miles of the Project site. The nearest record is just over 11 miles to the east, at the Lawrence Livermore National Laboratory Site 300.
<i>Athene cunicularia</i> Burrowing owl	SSC	Inhabits open arid and semiarid habitats with short or sparse vegetation, including grasslands, deserts, agricultural fields, ruderal areas and open, landscaped areas. Reliant on mammals such as the California ground squirrel that dig underground burrows.	High potential to occur (nesting and foraging). Suitable habitat in grasslands within the Project site that have burrows suitable for use by burrowing owls.
<i>Buteo swainsonii</i> Swainson's hawk	ST	Nests in scattered trees or along riparian systems adjacent to agricultural fields or pastures; which are their primary foraging areas. Preferred nest trees are valley oak; cottonwood; willow; sycamore; and walnut.	Low potential to occur. The nearest known records are greater than 8 miles to the east. Very few trees are in the Project area.

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
<i>Circus cyaneus</i> Northern harrier	SSC	Foraging habitat includes open habitats including grasslands and agricultural areas. Nests in wetlands either on the ground or atop a mound of sticks, usually surrounded by dense vegetation.	Moderate potential to occur (foraging only). Suitable foraging habitat for the northern harrier is present throughout the Project site. The potential for nesting to occur is low due to a limited amount of suitable nesting habitat (i.e., wetland vegetation).
<i>Elanus leucurus</i> White-tailed kite	SFP	Inhabits grasslands, marshes, agricultural areas, oak woodland, and oak savanna habitats, typically nesting in dense-canopied trees.	High potential to occur (foraging only). Suitable foraging habitat for white tailed kite is present throughout the Project site. Observed foraging during agency site visit February 22, 2018. Nesting habitat is present but limited to the stands of non-native eucalyptus trees west of Dagnino Road and north of May School Road.
<i>Haliaeetus leucocephalus</i> Bald eagle	FD SE SFP	Aquatic foraging habitat consists of large bodies of water with sufficient prey (fish populations). Nest trees are typically located within 1 mile of foraging areas in large conifers.	Low potential to occur (foraging only). Nesting habitat is absent from the Project site. Nearest CNDDDB occurrence is for a nest located nine miles away near Del Valle Reservoir.
<i>Lanius ludovicianus</i> Loggerhead shrike	SSC	Inhabits open, grassy areas interspersed with trees, shrubs and bare ground. Trees, shrubs, and fence posts are used as hunting perches and territory announcement sites. Nesting occurs in a variety of trees and shrubs but low shrubs with dense layers of protective branches or thorns are common.	Moderate potential to occur (foraging). Foraging habitat is abundant within the Project site but dense trees or shrub vegetation for nesting are relatively scarce.
<i>Melospiza melodia mailliardi</i> Song sparrow (Modesto population)	SSC	Inhabits emergent freshwater marshes dominated by tules and cattails as well as riparian willow thickets. May also nest in riparian forests with a sufficient understory of blackberry, along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites.	Not likely to occur. No suitable habitat is present within the Project site.

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
Mammals			
<i>Antrozous pallidus</i> Pallid bat	SSC	Frequently associated with desert areas but also occur in coniferous forests, non-coniferous woodlands, brushy terrain, rocky canyons, open farm land, and coast redwoods. Roosts in rock crevices, old buildings, bridges, caves, mines, hollow trees, and bridges.	Moderate potential to occur. An apparently abandoned home located approximately 60 feet from an access route to the northern-most section of the Project site and an old barn approximately 185 feet from an access route to the southern-most section of the Project site may provide suitable day-roosting habitat. In general, abandoned wooden homes may have suitable thermal conditions for multiple bat species' different life stages at various locations within the structure.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	SSC	Inhabits a wide variety of habitats, including forested regions and buildings, and in areas with a mosaic of woodland, grassland, and/or shrubland. Roosts in caves, buildings, and tree cavities and will hibernate in buildings in California. Extremely sensitive to human disturbance.	Moderate potential to occur. An apparently abandoned home located approximately 60 feet from an access route to the northernmost section of the Project site and an old barn approximately 185 feet from an access route to the southern-most section of the Project site may provide suitable day-roosting habitat. In general, abandoned wooden homes may have suitable thermal conditions for multiple bat species' different life stages at various locations within the structure.
<i>Lasiurus blossevillei</i> Western red bat	SSC	Roosts in dense tree foliage & orchards; feed along forest edges; in small clearings; or around street lights. Closely associated with cottonwoods in riparian areas at elevations below 6,500 feet.	Not likely to occur. No suitable habitat is present within the Project site.
<i>Neotoma fuscipes</i> San Francisco dusky-footed woodrat	SSC	Inhabits oak and conifer woodlands; scrub communities; riparian habitats.	Not likely to occur. No suitable habitat observed within the Project site.

Species Name Common Name	Federal ESA, State ESA, Other Listing	Associated Habitats	Potential for Occurrence in the Project Area
<i>Taxidea taxus</i> American badger	SSC	Inhabits scrub, forest, grasslands, and desert habitats. Requires friable soils for burrowing and an adequate prey base.	Moderate potential to occur. Suitable habitat is present in areas where colonies of ground squirrel are present, such as north of Dagnino Road and south of Hartman Road. Two dens large enough to be used by badgers were observed to the north of Portola Avenue during surveys, and during an agency site visit in 2018.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE ST	Associated with arid lands with sparse or absent shrub cover, sparse ground cover and short vegetation. Constructs underground burrows in areas with sandy soils that are relatively stone-free to a depth of 3 or 4.5 feet and lack an impenetrable hardpan.	Low potential to occur. Although the grasslands in the Project site offer suitable breeding, foraging, and dispersal habitat for San Joaquin kit fox, there was no sign of the species within the Project site during reconnaissance surveys. One burrow large enough to be used by San Joaquin kit fox was observed in the Project site during the field survey. However, no sign (scat or tracks) were observed in or around the burrow. The Project site is located in the northern extent of the species' range, within an area where the species is very rare.

Notes:

Federal Designations: (FE) = Federally Endangered, (FT) = Federally Threatened, (FD) = Federally Delisted

State Designations: (SE) = State Endangered, (ST) = State Threatened, (C) = Candidate, (SCT) = State Candidate Threatened, (SD) = State Delisted, (SSC) = Species of Special Concern, (SFP) State Fully Protected Species

located about 0.7 miles east of the Project site. The entirety of the Project site is located within 1.3 mile of what is known or assumed to be a suitable California tiger salamander breeding site with no significant barriers to dispersal.

Suitable California tiger salamander breeding habitat is absent from the Project site, which is comprised predominantly of grasslands and dryland farmed fields. Drainage swales and ditches in the Project site convey runoff, and appear to hold water only on a very temporary basis. No vernal pool hydrology is present within the Project site and areas that could pond water for a sufficient length of time to allow metamorphosis are absent.

Suitable California tiger salamander upland habitat is present in portions of the Project site that contain grasslands (specifically, non-native annual grassland, alkali grassland and native grassland) with small mammal burrows. This habitat type comprises approximately 57 acres of the Project site.

Dryland farmed fields comprise approximately 70.8 acres of the Project site. Within these fields rodent burrows were absent, or where present, they occurred in very low numbers. The lack of burrows is consistent with impacts commonly associated with annual or repeated disking or deep-ripping of rangeland for agriculture, which can destroy small mammal burrows and California tiger salamander upland estivation habitat. For these reasons, the dryland farmed fields within the Project site are not considered suitable upland estivation habitat.

Portions of the Project site containing other land cover types such as seasonal creeks and swales through grassland and dryland farmed fields may be suitable dispersal habitat for California tiger salamander since they do not pose any barriers to movement but lack small mammal burrows or other suitable underground retreats. The suitability of this habitat is limited by the presence of deep soil furrows and tall grasses and forbs.

Based on the presence of suitable upland estivation and dispersal habitat within the Project site, and the proximity of the Project site to known breeding habitats, California tiger salamander have a high likelihood to be present at the Project site.

California Red-Legged Frog (Rana draytonii)

The California red-legged frog (California red-legged frog) is listed as federally threatened (USFWS 1996) and is designated as a species of special concern by CDFW. Critical habitat was designated in 2010 (USFWS 2010). The northern portion of the Project site is located within designated critical habitat for the California red-legged frog. Approximately 18.5 acres of the Project site, excluding paved and graveled roads, is within Unit CCS-2B, Mount Diablo, which consists of over 44,000 acres of public and private land (USFWS 2010). California red-legged frog.

The California red-legged frog breeds in wetlands, lakes, ponds, and other still or slow-moving sources of water that remain inundated long enough for larvae to complete metamorphosis, which typically occurs from 11 to 20 weeks after hatching (Storer 1925). During summer months, California red-legged frog may take refuge in cool, moist areas, including rodent burrows and soil crevices within a few hundred feet of aquatic habitats. Adult California red-legged frog tend to be most active at night during wet weather, but they may move through upland areas at any time during the year (USFWS 2002). California red-legged frog may disperse more than 2 miles from

breeding ponds but movement distances of up to 1 mile probably occur much more commonly. USFWS considers California red-legged frog upland habitat within approximately 1 mile of adjacent breeding and non-breeding aquatic and riparian habitat, depending on surrounding landscape and dispersal barriers (USFWS 2010). Upland habitat includes various vegetation types, such as grassland, woodland, forest, wetland, or riparian areas and includes structures that provide shade, moisture and cooler temperatures (USFWS 2010).

The CNDDDB contains 13 records of California red-legged frog within 1 mile of the Project site. The nearest records are from 1996–1997 and are associated with the complex of grassland and seasonal wetlands between I-580, North Livermore Avenue, May School Road, and Lorraine Avenue, which overlaps a portion of the Project site. Other nearby observations include a breeding record from 1999 along the portion of Cayetano Creek extending from its confluence with Las Positas Creek to a point on the west side of North Livermore Avenue about 0.2 mile east of the Project site. An additional record near the southern portion of the alignment by the entrance to Las Positas College has possibly been extirpated (CNDDDB 2016). Farther to the north, there are several records of California red-legged frog from stock ponds and also from the Lin Livermore Preserve on the east side of Dagnino Road from 2005 to 2014. The nearest of these is within approximately 0.2 mile of the Project site. Several additional records found between 1980 and 2014 along Vasco Road and the Los Vaqueros Watershed are less than 1 mile from the northern part of the Project site.

Aquatic breeding habitat for the California red-legged frog is absent from the Project site, but uplands suitable for dispersal, particularly during rain events or periods of high humidity, are present in the form of non-native grasslands, alkali grassland, and native grasslands located within 300 feet from aquatic or riparian habitat (Swaim 2016). Approximately 18.92 acres of upland California red-legged frog habitat is present within the Project Site. Within the Project site Cayetano Creek is channelized, ephemeral, and does not contain dense vegetation, undercut banks, exposed roots or other features that would provide cover for California red-legged frog. Adult or juvenile California red-legged frog may occasionally move along Cayetano Creek or upland portions of the Project site, particularly during heavy fog or during/following rain events. Other aquatic habitats including roadside ditches along May School Road and North Livermore Avenue and drainage swales through pastures near May School Road generally do not provide high quality California red-legged frog habitat due to insufficient depth and sparse vegetative cover but may provide limited cover and may function as dispersal corridors during wet weather. The potential for California red-legged frog to be encountered is lowest during the summer months when aquatic habitat is absent from the Project site and overland movements occur less commonly.

Areas that provide connectivity between California red-legged frog breeding and upland or non-breeding aquatic habitats are considered dispersal habitat. During periods of heavy rain the entire landscape within the action area may become suitable for California red-legged frog dispersal, but during most other times California red-legged frog are likely to use areas containing moisture, vegetation and cover for dispersal habitat. Within the action area California red-legged frog probably are most likely to use habitat along Cayetano Creek, the drainage swales that cross the project alignment, and in the upland areas at the southern end of the project near Arroyo Las Positas for dispersal. California red-legged frog also may occasionally use the dryland farm fields

near the Lin Livermore Preserve to disperse from breeding ponds to surrounding drainages including an ephemeral drainage located on the west side of the action area.

Special Status Birds

Grasshopper Sparrow (Ammodramus savannarum)

The grasshopper sparrow is designated as species of special concern by CDFW. It inhabits grassland habitats including cultivated fields with short to medium height vegetation consisting of grasses and scattered shrubs or weeds. The grasshopper sparrow builds a cup nest of dried grass located in slight depressions with overhanging grasses and forbs. Its diet consists primarily of invertebrates but also includes seeds from grasses and forbs.

The CNDDDB contains one record of the grasshopper sparrow from the Lin Livermore Preserve located on Dagnino Road, 0.3 mile east of the Project site. This record consists of an observation of a singing male and presumed pair of grasshopper sparrows foraging within the preserve in 2016. No other records are present within 10 miles of the Project site. Grassland and dryland farmed fields habitats within the Project site are suitable for foraging and nesting for grasshopper sparrow. The nearby CNDDDB record of a pair and courtship behavior suggests that the species is present in the project vicinity. Due to the presence of suitable foraging and nesting habitat onsite and nearby recorded observations there is a high potential for the grasshopper sparrow to occur within the Project site.

Golden Eagle (Aquila chrysaetos)

The golden eagle is listed as a fully protected species under the California Fish and Game Code. Golden eagles occur in grasslands, oak savannahs, woodlands, and agricultural areas. Nesting habitat includes cliffs and large trees in open or semi-open areas, and golden eagles frequently use the same nesting sites between years or use alternate sites within a territory. Golden eagles prey on mammals such as jackrabbits (*Lepus californicus*) or ground squirrels.

The CNDDDB contains five records of golden eagle nests within a 5-mile radius of the Project site. The nearest records are from the Los Vaqueros Reservoir watershed lands between 2 and 2.5 miles north of the Project site. Other records include golden eagle nests to the north of Brushy Peak Preserve and additional nesting observations from around Los Vaqueros Reservoir. Golden eagle foraging habitat is present throughout the Project site, particularly where small mammals are abundant. The Project site and immediately surrounding areas, however, do not provide suitable nesting for this species.

Burrowing Owl (Athene cunicularia)

The burrowing owl is designated as a species of special concern by CDFW. Burrowing owls are found in open arid and semiarid habitats with short or sparse vegetation, including grasslands, deserts, agricultural fields, ruderal areas and open, landscaped areas. They generally are dependent on mammals such as the California ground squirrel that dig underground burrows, which the owls occupy. Some burrowing owls have adapted to urban landscapes, and in some instances open lots, roadsides, and landscaped areas can provide suitable habitat. Breeding typically occurs from March to August but can begin as early as February and can last into December.

The CNDDDB contains four records of burrowing owls within a 1-mile radius of the Project site. The nearest observation is from an area east of North Livermore Avenue, north of Hartford Road, where multiple nesting pairs were observed in 1997, about 350 feet from the Project site. Other records are known from the Lin Livermore Preserve lands on the east side of Dagnino Road, less than 1 mile from the Project site. During the field survey on February 19, 2016, biologists observed a burrowing owl along a portion of Cayetano Creek and 0.3 mile outside and west of the Project site. Evidence of burrow use by burrowing owls (i.e., whitewash and prey remains) also was observed within the Project site approximately midway between Cayetano Creek and Portola Avenue, although burrowing owls were not observed in the area during field surveys. Habitat within the Project site is suitable for use by burrowing owls and there is a high potential for the species to breed or forage in the Project site, particularly in areas with high concentrations of ground squirrel burrows.

Northern Harrier (Circus cyaneus)

The northern harrier is designated as a species of special concern by CDFW. Northern harriers primarily use wetlands for nesting where they build nests either on the ground or atop a mound of sticks, usually surrounded by dense vegetation. Harriers also nest in some types of agricultural fields and pasturelands. Northern harriers forage in a variety of open habitats including grasslands and agricultural areas.

The CNDDDB contains one nesting record of northern harrier within 5 miles of the Project site. This record is located in Tassajara Valley, just under 5 miles to the west of the Project site. Additionally, a single northern harrier was observed flying approximately 500 feet to the west of the Project site during a field survey. Suitable foraging habitat for the northern harrier is present throughout the Project site. The potential for nesting to occur is low due to a limited amount of suitable nesting habitat.

White-tailed Kite (Elanus leucurus)

The white-tailed kite is listed as a fully protected species under the California Fish and Game Code. It inhabits grasslands, marshes, agricultural areas, oak woodland, and oak savanna habitats, typically nesting in dense-canopied trees. Small mammals, particularly meadow voles, make up the bulk of their diet, and foraging habitats generally are open areas supporting relatively large vole populations. Reptiles and occasionally birds also are taken as prey.

The CNDDDB contains two nesting records of white-tailed kite within 5 miles of the Project site. Both of these are from the Lawrence Livermore National Laboratory area where nesting was observed in non-native pine and eucalyptus trees. A nesting record just over 5 miles to the east of the Project site was reported from a coast live oak (*Quercus agrifolia*) tree within grazed or dry farmed land in Tassajara Valley. Within the Project site, suitable nesting habitat for the white-tailed kite is limited to the stands of non-native eucalyptus trees west of Dagnino Road and north of May School Road. However, suitable foraging habitat for white tailed kite is present throughout the Project site and one was observed foraging during an agency site visit on February 22, 2018.

Loggerhead Shrike (Lanius ludovicianus)

The loggerhead shrike is designated as a species of special concern by CDFW. Habitat includes open, grassy areas interspersed with trees, shrubs and bare ground. Compared to most birds, its

head is large in proportion to its body size, lending to its name. It eats a wide variety of vertebrates and invertebrates, and is known to impale its prey on thorns or barbed-wire for ease of consumption. Throughout most of the southern part of its range it is resident while northern populations are migratory (Yosef 1996). Where resident, this species usually lives in pairs on permanent territories. Trees, shrubs, and fence posts are used as hunting perches and territory announcement sites. Nesting occurs in a variety of trees and shrubs but low shrubs with dense layers of protective branches or thorns are common. Despite its wide distribution it is one of the few North American passerines whose populations have declined continent-wide in recent decades. Changes in human land-use practices, the spraying of biocides, and competition with species that are more tolerant of human-induced changes appear to be major factors contributing to this decline (Yosef 1996).

The nearest recorded observations of loggerhead shrike are from the Lawrence Livermore National Laboratory area, approximately 5 miles southeast of the Project site where several nesting territories were detected. No other records are present within 5 miles of the Project site. Foraging habitat is abundant within the Project site but dense trees or shrub vegetation for nesting is relatively scarce.

Special Status Mammals

Pallid Bat (Antrozous pallidus)

The pallid bat is designated as a species of special concern. It is frequently associated with desert areas but also occur in coniferous forests, non-coniferous woodlands, brushy terrain, rocky canyons, open farm land, and coast redwoods. This species commonly roosts in rock crevices, old buildings, bridges, caves, mines, hollow trees, and bridges.

There are no occurrences of pallid bat near the Project site, and the nearest records are from along the Arroyo Mocho approximately 7.5 miles southeast of the Project site. An apparently abandoned home located approximately 60 feet from an access route to the northern-most section of the Project site and an old barn approximately 185 feet from an access route to the southern-most section of the Project site may provide potentially suitable day-roosting habitat.

Townsend's Big-Eared Bat (Corynorhinus townsendii)

Townsend's big-eared bat is designated as a species of special concern. This species is found throughout California in a wide variety of habitats, including forested regions and buildings, and in areas with a mosaic of woodland, grassland, and/or shrubland. This species roosts in caves, buildings, and tree cavities and hibernates in buildings in California.

The nearest records of Townsend's big-eared bat are located more than five miles from the Project site and include a maternity roost located in a wine cave southeast of Livermore that was active in 2009, and a solitary male found in a barn in Pleasanton in 2012 (CNDDDB 2016). An apparently abandoned home located approximately 60 feet from an access route to the northern-most section of the Project site and an old barn approximately 185 feet from an access route to the southern-most section of the Project site may provide potentially suitable day-roosting habitat.

American Badger (Taxidea taxus)

The American badger is designated as a species of special concern. The American badger inhabits a variety of habitat types including scrub, forest, grasslands, and desert. It requires friable soils for burrowing and an adequate prey base. Badgers are fossorial and commonly prey on ground squirrels and gophers (*Thomomys bottae*). Badgers tend to be nocturnal but may occasionally be seen during the day, particularly in areas where human disturbance is minimal. Their long claws are highly adapted to digging and typically enlarge burrows constructed by other animals for dens.

The CNDDDB contains two records of American badger within five miles of the Project site. The nearest record is from an individual found dead along Vasco Road in 1995, less than 1 mile north of the northern end of the Project site. Another record in the vicinity is from 1992, located 4.7 miles to the west of the Project site along Tassajara Road, north of Pleasanton. Habitat within portions of the Project site for the American badger is suitable, particularly in areas where colonies of ground squirrel are present, such as north of Dagnino Road and south of Hartman Road. One burrow large enough to be used by badgers was observed within the Project site, north of Portola Avenue during surveys. Several burrows large enough to be used by badgers were observed during an agency site visit on February 22, 2018. There is a moderate potential for this species to occur in the Project site.

3.4.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APMs would be implemented as part of the Proposed Project to avoid/minimize potential impacts to biological resources. APMs are described in detail in Section 2.10.

- APM BIO-1: Worker Education and Training.
- APM BIO-2: Pipe Storage and Inspection.
- APM BIO-3: Prohibited Activities.
- APM BIO-4: Debris Abatement.
- APM BIO-5: Route and Work Area Limitations.
- APM BIO-6: Vehicle Parking.
- APM BIO-7: Off-Road Travel.
- APM BIO-8: Speed Limits.
- APM BIO-9: Vehicle Cleaning.
- APM BIO-10: Night Work Restriction.
- APM BIO-11: Maintenance and Refueling.
- APM BIO-12: Erosion Control Materials.
- APM BIO-13: Stockpiling.

- APM BIO-14: Access Across Jurisdictional Features.
- APM BIO-15: Work Area Delineation.
- APM BIO-16: Flag Sensitive Habitat or Resource Areas.
- APM BIO-17: Vehicle and Equipment Inspections.
- APM BIO-18: Seasonal Work Restriction.
- APM BIO-19: Contracts.
- APM BIO-20: Permit Copies.
- APM HWQ-1: SWPPP Development and Implementation, Erosion, and Sedimentation.

Impact BIO-A Have a substantial adverse effect, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
Less than Significant Impact with Mitigation

Mowing, clearing, or other disturbance of vegetation will occur throughout the Project site to perform construction activities, staging, and access. The Proposed Project would result in the disturbance of up to approximately 57 acres of grasslands (including non-native grassland (approximately 50 acres); alkali grassland (approximately 6.7 acres) and native grassland (approximately 0.6 acres)); approximately 10.10 acres of wildflower fields; approximately 67.60 acres of dryland farmed field; approximately 0.10 acres of seasonal swales; and approximately 0.002 acres of ephemeral drainages.

An approximately 6- to 12-inch layer of topsoil would be stripped, salvaged, and restored following construction activities within seasonal swale W-3 and where requested by landowners and required by environmental approvals for the Project. Following construction, the contours of temporarily disturbed areas would be restored to approximate pre-Project conditions. Temporarily impacted native grasslands, wildflower fields, seasonal swales, and ephemeral drainages would be revegetated to approximate pre-Project conditions in accordance with APM HWQ-1. No container stock would be utilized for revegetation to limit potential for introduction of pathogens during restoration. Dryland farmed fields would be returned to landowners for continued agricultural use.

Special Status Plant Impacts

Two CRPR-listed special-status plant species, Congdon's tarplant (CRPR 1B.1; three populations with an estimated area of approximately 1.1 acres/500 to 700 individuals; Figs.3.4, 3.5 and 3.6) and hogwallow starfish (CRPR 4.2; one individual, and a population with an estimated area of 2.10 acres/1,000 individuals, Figs. 3.2 and 3.4, respectively), were identified during protocol-level botanical surveys completed in 2016 and 2017. Based on 2016 and 2017 protocol-level surveys of the Project site, no impacts would occur to federally listed plants.

The Congdon's tarplant populations and the single hogwallow starfish individual would be impacted during site preparation and ground disturbance associated with construction of the Proposed Project. The approximately 2.10-acre hogwallow starfish population in Staging Area R700.B could be temporarily impacted if ground disturbance is necessary to prepare the staging area.

Implementation of APMs would minimize the potential for temporary impacts through informing construction crews of applicable measures to protect special status plants (APM BIO-1); restricting the area in which equipment or vehicles may operate (APM BIO-5, BIO-6, APM BIO-7, and BIO-15); and restoring vegetation cover after construction (APM HWQ-1). Even with implementation of APMs, disturbance to the two populations of Congdon's tarplant and the hogwallow starfish population and individual plant could or will occur. Therefore, a potentially significant impact related to special status plants would result from construction the Proposed Project.

To avoid/minimize the potential for impacts to special status plant species, PG&E will implement Mitigation Measure BIO-1 where plant populations are disturbed, which requires a Vegetation Restoration Plan and describes methods for onsite restoration of special-status plants disturbed during construction. These methods include seed collection and storage, where possible given the project work period; sequestration of the top 6 to 12 inches of soil in areas where ground disturbance is required; and replanting of seed after completion of construction. Restored areas will be monitored on an annual basis for up to 3 years. Impacts to special status plants would be reduced to a less than significant level with implementation of mitigation measures.

Special Status Wildlife Impacts

The Project site supports suitable habitat for 12 special status wildlife species. An assessment of potential impacts to each species is provided below.

Special Status Amphibians

Both California tiger salamander and California red-legged frog have a high potential to occur within the Project site. There are numerous records for California tiger salamander in upland and breeding habitats within 1.3 miles of the Project site with no significant barriers to dispersal. While the Project site itself does not support suitable aquatic breeding habitat, California tiger salamander have a high potential to occur in suitable upland habitats within the Project site; specifically, non-native annual grassland, alkali grassland, and native grassland. Dryland farmed fields and developed sites may provide dispersal habitat for California tiger salamander; however, in most of the dryland farmed fields and developed sites within the assessment area, rodent burrows were absent or if present, or occurred in very low numbers (Swaim 2016). Use of heavy equipment and ground disturbing activities, such as excavation, that take place in suitable upland habitat for California tiger salamander could result in direct effects to individuals. The anticipated effects to California tiger salamander habitat are listed in Table 3.4-5.

Table 3.4-5: Temporary Impacts to California tiger salamander Habitat from the Proposed Project

Habitat Type	Aquatic Breeding Habitat	Upland Habitat	Dispersal Habitat
Native, Non-Native, and Alkali Grasslands	—	57	57 (same area as upland habitat)
Dryland Farmed and Wildflower Fields	—	—	77.7
Seasonal Swales and Ephemeral Drainages	—	—	0.43
Total	0.0	57	135.13

The Project site does not contain aquatic breeding or aquatic non-breeding habitat for California red-legged frog. Within the project, California red-legged frog may potentially be present in (Cayetano Creek and the ephemeral drainages) and swales, and in grassland habitats within 300 feet of these features that provide suitable upland habitat. During rain events, the Project site may potentially be used for dispersal; however, during the summer months, when work is anticipated to occur, dispersal habitat would be limited to areas within the Project site with sufficient moisture and vegetative cover. Impacts to previously disturbed or developed areas are not considered impacts to California red-legged frog habitat. Use of heavy construction equipment and ground disturbing activities, such as excavation, that take place in suitable upland habitat for the California red-legged frog could result in direct effects to individuals. The anticipated effects to California red-legged frog habitat are provided in Table 3.4-6.

Table 3.4-6: Temporary Impacts to California red-legged frog Habitat from the Proposed Project

Habitat Type	Aquatic Breeding Habitat	Non-Breeding Aquatic Habitat	Upland/Dispersal Habitat
Native, Non-Native, and Alkali Grasslands	—	—	6.85
Dryland Farmed and Wildflower Fields	—	—	11.64
Seasonal Swales and Ephemeral Drainages (upland habitat)	—	—	0.43
Total	0.0	0.0	18.92

Implementation of APMs would minimize the extent of temporary impacts through informing construction crews of applicable measures to protect California tiger salamander, California red-legged frog, and their habitats (APM BIO-1); restricting the area in which equipment or vehicles may operate (APM BIO-5, BIO-6, BIO-7, BIO-14, and BIO-15); prohibiting the use of plastic monofilament netting or similar erosion control materials that may harm amphibians or other wildlife (AMP BIO-12); restricting grading and construction activities to the dry season (between April 15 and October 15) to the extent possible, avoiding the breeding season for California tiger salamander and California red-legged frog; and restoring areas used by California tiger salamander/California red-legged frog for dispersal/upland habitat to approximate pre-Project conditions (APM HWQ-1). Even with implementation of APMs, temporary impacts to upland California tiger salamander/California red-legged frog habitat and potentially individual California tiger salamander/California red-legged frog could occur. Therefore, a potentially significant impact to California tiger salamander and California red-legged frog would result from construction of the Proposed Project.

The mitigation measures described below would further reduce the potential for impacts. Impacts to individuals would be minimized through implementation of Mitigation Measures BIO-3 through BIO-14. Mitigation Measure BIO-3 would require a biologist to conduct preconstruction surveys, including for California tiger salamander/California red-legged frog prior to commencing work in or adjacent to suitable habitat for California tiger salamander/California red-legged frog. Mitigation Measure BIO-4 would require work occur only during dry weather when California tiger salamander/California red-legged frog are not likely to occur above ground. Mitigation Measure BIO-5, Biological Monitoring, would require a biologist to be present onsite during vegetation removal and initial ground-disturbing activities within appropriate habitat. Mitigation Measure BIO-6 describes

measures to avoid entrapment of California tiger salamander or California red-legged frog individuals during construction. Mitigation Measures BIO-7 through BIO-11 describe amphibian capture and relocation best practices, preconstruction surveys for special status amphibians and avoidance of impacts to burrows, including the installation of wildlife barriers to prevent movement of California tiger salamander or California red-legged frog onto the Project site.. Pursuant to Mitigation Measure BIO-12, PG&E would mitigate the temporary disturbance of suitable habitat for California tiger salamander and California red-legged frog through purchase of offsite mitigation credits at a CDFW/USFWS-approved mitigation bank with available credits. Mitigation Measure BIO-13 would require PG&E to provide financial security. Mitigation Measure BIO-14 would protect against invasive plants and plant pathogens. With implementation of mitigation measures, impacts to California tiger salamander and California red-legged frog would be less than significant.

Special Status Birds

There are CNDDDB occurrences of burrowing owl within 1 mile of the Project site, and biologists documented evidence of burrow use by burrowing owls (i.e., whitewash and prey remains) along a portion of Cayetano Creek 0.3 mile outside and west of the Project site. Evidence of burrow use by burrowing owls (i.e., whitewash and prey remains) also was observed within the Project site midway between Cayetano Creek and Portola Avenue, although burrowing owls were not observed in the area during field surveys. Habitat within the Project site is suitable for use by burrowing owls and there is a high potential for the species to occur, particularly in areas with high concentrations of suitable ground squirrel burrows.

The Proposed Project may directly affect burrowing owls foraging or breeding in or adjacent to the Project site. Increased noise, vibration, and other activity in proximity to occupied burrows could result in nest failure or abandonment. In addition, ground disturbance and excavation required for pipeline removal and replacement activities could result in the destruction of occupied burrows. Indirect effects are not expected, because the Proposed Project is short-term and temporary and the Project site would be restored to pre-Project conditions following completion of construction.

In addition, the Project site provides foraging habitat for other special status raptors and passerines, as well as other native birds protected under the MBTA. White-tailed kites and grasshopper sparrows have some potential to nest in landscape trees and suitable grassland habitats.

Increased noise and vibration may temporarily affect both ground-nesting and tree-nesting bird species not adapted to human-related disturbance. Potential direct impacts include nest failure or abandonment. Indirect impacts to birds are not anticipated.

PG&E would implement APMs to reduce the potential for impacts to nesting birds, including burrowing owls. Implementation of APMs would inform construction crews of applicable measures to protect nesting birds (APM BIO-1) and restrict the area in which equipment or vehicles may operate (APM BIO-5, BIO-6, BIO-7, and BIO-15). Even with implementation of APMs, construction of the Proposed Project could still result in impacts to nesting birds, including burrowing owls. Therefore, a potentially significant impact to nesting birds, including burrowing owls, would result from construction of the Proposed Project.

Implementation of mitigation measures including Mitigation Measure BIO-5 (biological monitoring); Measure BIO-15 (preconstruction surveys for nesting birds); and Measure BIO-16 (burrowing owl avoidance or exclusion/mitigation monitoring plan) would minimize the potential for adverse effects to these species. With implementation of mitigation measures, impacts to nesting birds, including burrowing owls, would be less than significant.

Special Status Bats

Townsend's big-eared bat and pallid bat have a moderate potential to occur in the Project site. An apparently abandoned home located approximately 70 feet from an access route to the northern most section of the Project site and an old barn approximately 185 feet from an access route to the southern-most section of the Project site may provide suitable day-roosting habitat for both species. In addition, both species could forage over the Project site. Increased noise and vibration, as well as human presence could potentially disturb roosting or foraging bats. Indirect effects are not expected. Construction of the Proposed Project is short-term and disturbances would be temporary and intermittent.

Construction activities would occur a minimum of 70 feet from the abandoned home and 185 feet from the old barn, which would minimize noise disturbance within the abandoned house. Any disturbance to foraging bats would be minimized by implementation of APM BIO-10 which restricts work activities to daylight hours (30 minutes after sunrise and 30 minutes prior to sunset); avoiding the hours when crepuscular species forage. Therefore, impacts to special status bats including Townsend's big-eared bat and pallid bat would be less than significant.

Special Status Mesocarnivores

San Joaquin kit fox has a low potential to occur within the Project site because the site is located in the northernmost extent of the species' range, where occurrences are rare, and because of the lack of physical evidence observed during reconnaissance surveys and the species' rarity in the area. However, several burrows large enough to be used by badgers were observed within the Project site, north of Portola Avenue, and there is a moderate potential for this species to occur within the Project site.

Increased noise, vibration, and other activity could disturb American badger within occupied burrows. In addition, ground disturbance and excavation required for pipeline removal and replacement activities could result in the destruction of occupied burrows. Indirect effects to American badger are not expected.

PG&E would implement APMs to reduce the potential for impacts to American badgers. Implementation of APMs would inform construction crews of applicable measures to protect American badger (APM BIO-1) and would restrict the area in which equipment or vehicles may operate (APM BIO-5, BIO-6, BIO-7, and BIO-15). Even with implementation of APMs, construction of the project could still result in effects to American badger. Disturbance of breeding American badgers, including potential destruction of burrows used for dens, is considered a potentially significant impact.

PG&E will implement Mitigation Measures BIO-3 (pre-construction wildlife surveys); Measure BIO-5 (biological monitoring); Measure BIO-6 (entrapment avoidance); Measure BIO-17 (American

badger avoidance) to minimize the potential for effects to this species. With implementation of APMs and mitigation measures (MMs), impacts to American badger would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Prepare and Implement Vegetation Restoration Plan: PG&E shall prepare and implement a Vegetation Restoration Plan (VRP) prepared by a qualified restoration specialist, which shall be submitted to CDFW for review and approval within 30 days of start of construction. PG&E shall restore on-site all of the native vegetation, and ground cover, that shall be disturbed during construction to as close to pre-project conditions as possible. The table below describes the proposed restoration success criteria for grassland habitat beginning in "Year 1," the first year upon completion of construction.

Restoration Success Criteria and Reporting for Grassland Habitat		
Overall Success Criteria	Year 1*	Year 2 and Year 3, if applicable
<ul style="list-style-type: none"> A minimum of 70% vegetation cover relative to baseline conditions, and less than 5% absolute cover of invasive plants listed as high or moderate in the Cal-IPC database and mapped in the work area during the baseline conditions assessment. 	<p>Take photos from designated photo stations</p> <ul style="list-style-type: none"> In Year 1, an annual restoration monitoring report shall be submitted to CDFW with a qualitative assessment of vegetation cover and a comparison to the baseline conditions assessment for the work areas. Annual monitoring report shall document restoration success and shall be submitted to the permitting agencies by September 1. The first report shall provide a species list of the seed mix used at each restoration area. If success criteria are met in Year 1, no additional monitoring or reporting is required and restoration is considered complete. 	<p>Take photos from designated photo stations</p> <ul style="list-style-type: none"> If success criteria are not met in Year 1, a Year 2 annual restoration monitoring report shall be submitted to CDFW by September 1, containing the same information as the Year 1 report. If success criteria are not met in Year 2, a final report shall be submitted to CDFW by September 1, containing the same information as the Year 1 and 2 reports.

* Year 1 is first year of post-construction operation.

The success criteria may be adjusted annually based on reference site plant counts observed outside of the area impacted by the Project to account for drought, herbivory, fire, and unanticipated landowner impacts to the property, among other factors.

The VRP shall include specifications for restoring all temporarily disturbed areas, such as seed mixes, timing, and application methods. Non-native invasive species shall not account for the absolute cover for restoration success. The California Invasive Plant Council (Cal-IPC) database (<http://www.cal-ipc.org/paf/>) shall be consulted when determining noxious and invasive plants. The Vegetation Restoration Plan shall contain the following components:

Disturbed Annual Grassland

- **Topsoil and Seed Salvage** The top 6 to 12 inches of shall be scraped prior to excavation. Scraped topsoil will be stored separately from other spoils piles and restored to its original location over backfilled material. The stockpiles shall be protected from non-native plant propagules and protected with weed-free straw mulch, jute netting, or other suitable cover such as hydroseed/hydromulch without fertilizer added.
- **Baseline Conditions Assessment.** Prior to initiating ground disturbance, PG&E shall identify baseline vegetation conditions in any project area within suitable habitat for California tiger salamander or California red-legged frog or any sensitive natural community. Documentation shall identify: (1) the vegetation species; (2) an estimate of average ground cover density; (3) an overall estimate of the density of native and non-native species compositions; and (4) weed mapping of all Cal-IPC's California Invasive Plants listed as high or moderate.
- **Seeding.** Seed shall be applied after completion of construction in the late fall and early winter when rainfall and temperatures are sufficient to trigger germination and growth. This will avoid the need for irrigation in most cases. If the timing of construction activities precludes seeding during the late fall or early winter during a given year, the site will be temporarily stabilized and the site will be seeded in the following fall.
- **Seed Mix.** A seed mix shall be identified considering species found in the baseline conditions assessment and include only native species, with an emphasis on native bunchgrasses and other grassland species.
- **Invasive Plants.** In the baseline conditions assessment, PG&E shall perform preconstruction weed mapping of all Cal-IPC's California Invasive Plants listed as high or moderate to document baseline Cal-IPC invasive plants present in the project area prior to construction. The restored project area shall consist of no more than 5 percent of the existing baseline Cal-IPC invasive plants observed in the same project area. If the presence of invasive species exceeds this threshold, PG&E is responsible for conducting appropriate control activities during monitoring, up to three years after implementation of restoration.
- **Monitoring.** To ensure that site restoration and erosion control measures are successful, PG&E shall be required to monitor site conditions for up to three years following project completion or until success criteria are satisfied prior to the end of three years. Site visits shall be conducted at least once after the first significant rain event after project completion to evaluate site stability and during the spring and summer to evaluate revegetation efforts. If PG&E or CDFW determines there is an increase in erosion or bank instability, PG&E shall consult with CDFW on corrective actions.
- **Photographs from Flagged Points.** Prior to commencement of work, PG&E shall identify representative views of the project area that will be identified in the CDFW Streambed Alteration Agreement and Incidental Take Permit for this project, would impact California tiger salamander or California red-legged frog upland habitat, or would impact special-status plant species or sensitive natural communities (i.e., alkali grassland, native grassland, and wildflower fields). PG&E shall photograph the project area from each of the flagged points, noting the direction and magnification of each photo.

Upon completion of construction, PG&E shall photograph post-project conditions from the flagged photo points using the same direction and magnification as pre-project photos. Labeled digital copies of pre- and post-project photographs shall be sent to CDFW within forty-five (45) days of completion of the project.

- Additional Revegetation. Regrowth will be evaluated on an annual basis. If success criteria (see Table) are not met during annual monitoring, weeding and/or further seeding shall be conducted as determined necessary by a qualified botanist to attain regrowth targets of local ground cover.
- Regrowth will be evaluated on an annual basis. If success criteria are not met during annual monitoring, weeding will be conducted as determined necessary by a qualified botanist to attain regrowth targets of local ground cover.

Restoration of Special Status Plants and Sensitive Natural Communities

The VRP shall address the following components for onsite restoration of special status plants (Congdon's tarplant and hogwallow starfish) and sensitive natural communities (alkali grassland, native grassland, and wildflower fields) that will be disturbed during construction:

- Seed Collection and Replanting. Seed from the special status plants (Congdon's tarplant and hogwallow starfish) and sensitive natural communities to be impacted will be collected, stored, and replanted onsite after construction. . If construction of the Proposed Project begins prior to the availability of seed, collection of seed for special status plant species and sensitive communities shall be from populations in the vicinity of the Proposed Project site.
- Seed Collection: Timing. Areas of special status plants and sensitive natural communities mapped during surveys shall be revegetated with seed collected prior to construction (or during construction from adjacent sites), and other native species found in the Project region, if necessary.
- Restoration Site Selection. The restoration site assessment for special-status plants shall support the VRP selection of restoration sites. Reseeding should be done at the exact site where individuals were removed if at all possible. If it is known that a location will be subject to tilling before 2021, an alternate suitable location as close as possible to the impact, shall be identified. If this is not possible, the VRP shall either: 1) propose an offsite location in Alameda or Contra Costa County (offsite locations must be secured within a conservation easement that will be in effect in perpetuity) or 2) outline how the seed harvested from two annual CRPR-listed plants (Congdon's tarplant and hogwallow starfish) shall be grown out and amplified at a licensed native plant nursery. The bulk of the amplified seed shall be provided to one or more nature preserves (or similar) within Alameda or Contra Costa County for use in restoration or habitat enhancement projects, and some seed shall remain with the nursery to enable future propagation.
- A statement of number of trees proposed for removal and proposed restoration locations shall be included in the VRP

Mitigation Measure BIO-2: Oak Tree Replanting: Any oak trees removed will be replaced onsite or offsite, including through purchase at a bank, at a 3:1 ratio.

Mitigation Measure BIO-3: Pre-Activity Surveys. Within 14 days prior to any construction or staging activities, a qualified USFWS- and CDFW-approved biologist shall conduct a preconstruction survey for special-status wildlife species (except California tiger salamander and California red legged frog, covered by MM BIO-9 below) in the active construction work areas. Survey results may be documented in a brief memo or monitoring form and shall note the occurrence, location, or indication (e.g. active nest, occupied burrow of any special-status species or If a special-status wildlife species is observed, work shall not begin until the species departs the construction area or is moved, if necessary permits have been obtained, out of the construction area to a CDFW-approved relocation site. If at any point construction activities cease for more than 7 days, additional surveys shall be conducted prior to the resumption of these actions.

Mitigation Measure BIO-4: Work in Dry Weather. During the dry season (April 15 – October 14), Permittee shall limit Covered Activities to periods of low rainfall (less than 0.10 inch per 24-hour period). Ground disturbing activities may resume 48 hours after the rain ceases when there is a less than 40% chance of precipitation in the 24-hour forecast.

Mitigation Measure BIO-5: Biological Monitoring. A qualified USFWS- and CDFW-approved biological monitor ("approved biologist") shall be present onsite during vegetation removal and initial ground disturbing activities within habitat for special status wildlife and plant species. Once ground is disturbed, including scraping of soil and excavation by construction equipment, an approved biologist will inspect and clear sites for wildlife prior to beginning of construction each day and may move between construction sites. An approved biologist must be within the overall Project area at all times when construction is occurring. The approved biologist shall:

- Observe ground disturbing activities and make sure all appropriate protections are in place and permit conditions are followed
- Have experience with the species being surveyed for
- Have the authority to stop any work that may impact wildlife species
- Have the authority to suggest alternative work practices after consultation with construction personnel, as appropriate, if construction activities are likely to impact sensitive biological resources, and to make those suggestions known to CDFW. If the approved biologist exercises this authority, the PG&E project biologist shall be notified immediately and PG&E shall notify, by telephone or electronic mail, USFWS and CDFW within 1 working day
- Be the contact for any employee or contractor who might inadvertently kill or injure a special status species or anyone who finds a dead, injured, or entrapped special status species
- In active construction areas, inspect the area beneath equipment and vehicles for wildlife at the beginning of every work day and prior to beginning of ground disturbing activities

- Possess a working wireless/mobile phone. This phone number, in addition to the PG&E project biologist's phone number, shall be provided to CDFW and USFWS.
- Document all APM, MM, and permit condition compliance and any corrective actions and include these records in regular reporting to CDFW.

Mitigation Measure BIO-6: Entrapment Avoidance. To prevent the accidental entrapment of wildlife during construction, all excavated holes or trenches deeper than 6 inches shall be covered at the end of each work day with plywood or similar materials and completely buried or otherwise sealed around the perimeters. Larger excavations that cannot easily be covered shall be ramped at the end of the work day to allow trapped animals to escape and must be checked at intervals of no less than 24 hours. Ramps for open excavations shall be soil and/or rough plank ramps with a maximum 45-degree angle, and shall be installed at intervals of no less than 30"-45" apart unless otherwise authorized by CDFW. Trenches shall be backfilled as soon as possible. Construction personnel shall inspect open holes and trenches for wildlife prior to backfilling for trapped wildlife. If a special-status species is discovered in a trench or excavation, work in the area shall be redirected, and the animal shall be allowed to leave the trench and the area of its own accord or be relocated by the approved biologist in accordance with agency approvals. In the event a California tiger salamander is trapped in a trench or an excavation and unable to leave on its own accord, it shall be relocated according to Mitigation Measure (MM) BIO-10.

Mitigation Measure BIO-7: Amphibian Capture Best Practices. CDFW/USFWS approved biologists shall use their bare hands to capture California tiger salamander and California red-legged frog, CDFW/USFWS-approved biologists shall not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within 2 hours before and during periods when they are capturing and relocating individual California tiger salamander/California red-legged frog. To avoid transferring disease or pathogens from handling of the amphibians, CDFW/USFWS-approved biologists shall follow the Declining Amphibian Populations Task Force's Code of Practice. Captured California tiger salamanders shall be placed individually into a dark, clean plastic container of suitable size with enough room so the animal can move freely and shall keep the container moist with damp paper towels, soft foam rubber, or natural or synthetic sponge free of soaps and anti-bacterial/antifungal treatments. Containers used for holding or transporting shall not contain any standing water. The lids of the containers shall have small air holes for ventilation. Sponges shall not be reused and all other housing materials shall be disinfected between occupants according to the Task Force's Code of Practice.

Mitigation Measure BIO-8: Restraint and Handling of Live Amphibians. California tiger salamander and California red-legged frog shall be handled and assessed according to the Restraint and Handling of Live Amphibians USGS, National Wildlife Health Center (D. Earl Creene, ARMI SOP No. 100; 16 February 2001). CDFW/USFWS-approved biologist shall move special-status species to appropriate locations within 300 feet of the project boundary pursuant to the Relocation Plan (MM BIO-10). If an injured California tiger salamander or California red-legged frog is found during the project term, the individual shall be evaluated by the approved biologist who shall then immediately contact the PG&E project biologist who shall then contact the CDFW and USFWS, via email and telephone, to discuss the next steps. If the representatives cannot be contacted immediately, the injured amphibian shall be placed

in a shaded container and kept moist. If the representatives are not available or do not respond within 2 hours of initial attempts, then the following steps shall be taken:

- a. If the injury is minor or healing and the amphibian is likely to survive, the amphibian shall be released immediately as follows. The approved biologist shall relocate any California tiger salamander and California red-legged frog found within the work area to an active rodent burrow or burrow system located no more than 300 feet outside of the work area. California tiger salamander and California red-legged frog shall be monitored until it is determined that it is not imperiled by predators or other dangers. Relocation areas shall be identified by the approved biologist based on best suitable habitat available and approved by the agencies prior to the start of project activities. The approved biologist shall document both locations by photographs and GPS positions. The California tiger salamander and California red-legged frog shall be photographed and measured (snout-vent and total length) for identification purposes prior to relocation. All documentation shall be provided by PG&E to CDFW and the USFWS within 24 hours of relocation.
- b. If it is determined that the California tiger salamander or California red-legged frog has major or serious injuries as a result of project-related activities, the CDFW/USFWS-approved biologist shall immediately take it to the Lindsay Wildlife Museum or another agency-approved facility. If taken into captivity, the individual shall remain in captivity and not be released into the wild unless it has been kept in quarantine and the release is authorized by the agencies. The circumstances of the injury, procedure followed, and final disposition of the injured animal shall be documented in a written incident report, as described above.

Mitigation Measure BIO-9: Conduct Preconstruction Surveys for Special-Status Amphibians and Avoid Impacts to Burrows. A CDFW- and USFWS-approved biologist shall survey the project area with potential habitat for California tiger salamander and California red-legged frog immediately prior to ground-disturbing activities. Surveys shall include all potentially suitable upland habitat such as rodent burrows, cracks, ruts, holes near root structures, foundations, abutments, and leaf litter within the project area that contain potential habitat for these species. If any California tiger salamander or California red-legged frog are found, the approved biologist shall contact CDFW and the USFWS to determine if moving any of these life stages is appropriate. In making this determination, CDFW and USFWS shall consider if an appropriate relocation site exists as provided in the Relocation Plan (MM BIO-10). If CDFW and the USFWS approve moving animals, the CDFW- and USFWS- approved biologist would be allowed sufficient time to move California tiger salamander and California red-legged frog from the project area before work activities begin. Only CDFW- and USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frog and California tiger salamander.

The approved biologist shall mark all burrows within the project area no less than 7 days prior to earthmoving activities in those areas. All burrows shall be avoided to the maximum extent practicable during earthmoving activities. Areas with high concentrations of burrows shall be avoided by earthmoving activities to the maximum extent possible. In addition, when concentrations of burrows or large burrows are observed within the site, and if it is possible to avoid

these burrows during construction activities, these areas shall be staked and/or flagged to ensure construction personnel are aware of their location and to facilitate avoidance of these areas when possible.

Mitigation Measure BIO-10: California tiger salamander / California red-legged frog Relocation.

A Relocation Plan for California tiger salamander and California red-legged frog shall be submitted to CDFW for approval five days prior to the start of construction in any area with suitable breeding or estivation habitat for those two species. The Relocation Plan shall include relocation site selection criteria. When either species is observed within work areas, the qualified biologist approved by USFWS and CDFW to handle and relocate them, shall do so. The approved biologist shall relocate any individual to an active rodent burrow system no greater than 300 feet from work area boundaries unless no suitable burrow systems are present within the area. If no suitable burrows are available within 300 feet of the work area, then the California tiger salamander/California red-legged frog will be released at the nearest suitable burrow system. If burrow density allows, the designated biologist shall only release one animal per burrow. Relocation burrows will be chosen based on the presence of similar characteristics to the burrows inside the work area to the extent possible. A suitable burrow should be at least 3 inches in depth and have moist and cool conditions. All relocation burrows will be away from roads and pavement/graveled areas to the extent possible. The biologist shall capture, handle, and assess Covered Species according to the Restraint and Handling of Live Amphibians Protocol, USGS, National Wildlife Health Center (D. Earl Greene, ARMI SOP NO. 100; 16 February 2001; Attachment 2). California tiger salamander shall be released as soon as possible. If the animal repeatedly walks away from the burrow, or partially enters it and then turns around, the qualified biologist shall remove it and find another burrow. A qualified and approved biologist will be identified who is within 30 minutes of the project site to ensure prompt relocation.

The qualified biologist shall document occurrence and relocation sites by photographs and GPS positions. When handled, California tiger salamander and California red-legged frog shall be photographed and measured (snout-vent and total length) for identification purposes prior to relocation. The individual shall be monitored until it is determined that it is not imperiled by predators or other dangers. The qualified biologist shall release individuals one at a time rather than as a group. All documentation shall be provided to CDFW and USFWS within 48 hours of relocation.

Mitigation Measure BIO-11: Implement Wildlife Barriers. At least 15 days prior to commencing any ground disturbing Project activities, PG&E shall submit to CDFW a barrier proposal that shall address the level of need for wildlife exclusion fencing at all project areas within suitable California tiger salamander/California red-legged frog habitat for CDFW approval. The Qualified Biologist shall evaluate site and planned work activities to determine the wildlife exclusion barrier proposal and consider season of work, special-status species occurrence to date, time duration of site activity, and implications for wildlife movement in the proposal. A recommendation not to install fencing may be made if the effects of fencing installation could be greater in extent or duration than those associated with planned work activities. 15.

Fencing will be installed prior to ground disturbing activities (mowing is not considered ground disturbance). Fencing will be installed using a trencher or hand digging. Fences will be made from silt fence, geotextile fabric, plastic mesh, or other similar materials and will not use plastic monofilament netting. The fencing shall include multiple escape funnels, ramp, or another method if approved by CDFW to allow wildlife to leave the project area. Fencing will be at least 3 feet in height, with the lower edge buried 6 inches underground. The remaining 2.5 feet will be left above ground to serve as a barrier for animals moving on the ground surface.

Gates will be installed within exclusion fencing where necessary for access. Gates will not be buried but will include a flexible rubber strip extending from its lower edge so that it lies flat against the ground when the gate is closed. Materials such as gravel bags will be placed on the edge of the gate when closed to form a seal with the ground.

PG&E shall maintain the barrier, and repair openings as soon as possible to ensure that it is functional and without defects. Any California tiger salamander and California red-legged frog found along the barrier shall be relocated in accordance with the Relocation Plan. Location and design of the barriers shall be included within the proposal. The barrier shall be installed under the supervision of a qualified biologist. Following fence installation, the qualified biologist(s) shall block holes or burrows entrances within project area, of burrows avoided by construction activities, if any, that appear to extend under the barrier to minimize California tiger salamander and California red-legged frog movement into the project area. The barrier shall be checked regularly (not less than three times per week) to look for animals and to ensure barrier integrity. Inspection intervals shall be based upon the planned construction activities at each site, recent and forecasted weather events, and the results of preconstruction surveys and previous inspections. The barriers shall be continuously maintained until all construction activities are completed, and then removed as soon as possible, but no later than 7 days after activities have ceased, unless required to remain longer to ensure SWPPP compliance. The barrier shall continue to be checked regularly until it is removed.

Mitigation Measure BIO-12: California tiger salamander & California red-legged frog Habitat Compensation. Prior to construction, or no later than 18 months from issuance of an Incidental Take Permit by CDFW, assuming financial assurance is provided to CDFW (see MM BIO-13), PG&E shall purchase credits at a USFWS/CDFW-approved Conservation Bank to compensate for unavoidable temporary impacts to upland California tiger salamander and California red-legged frog habitat at a ratio approved by the CDFW and USFWS during the permitting processes for this project. It is estimated approximately 57 acres of California tiger salamander upland habitat credits and approximately 19 acres of California red-legged frog upland habitat need to be mitigated as compensation for temporary impacts; however, the final area of temporary impacts and compensatory mitigation may differ.

Mitigation Measure BIO-13: Financial Security. Prior to initiating project activities, and if proof of payment has not been submitted to CDFW and USFWS, PG&E shall provide CDFW with a form of performance security, approved in advance in writing, in an amount comprised of funds necessary for: a) onsite restoration, and 2) offsite mitigation credits.

Alternatively, PG&E may provide, prior to initiating project activities, habitat compensation through the acquisition and commitment for management in perpetuity of suitable habitat, approved by CDFW. Such a purchase would then be subject to a Fee Title/Conservation Easement transfer to CDFW pursuant to terms approved in writing by CDFW.

Mitigation Measure BIO-14: Invasive Plant and Plant Pathogen Abatement. A CDFW/USFWS-approved biologist shall ensure that the spread or introduction of invasive exotic plant species shall be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project area shall be removed. Prior to entry to any project area for the first time, equipment must be free of soil and debris on tires, wheel wells, vehicle undercarriages, and other surfaces (a high pressure washer and/or compressed air may be used to ensure that soil and debris are completely removed).

Mitigation Measure BIO-15: Conduct Preconstruction Surveys for Nesting Birds. If construction activities are scheduled to occur between February 1 and August 31, preconstruction nesting bird surveys shall be conducted by a qualified biologist no more than 7 days prior to the start of construction activities at any location, covering a radius from the work area boundary of 0.5 mile for golden eagles, 500 feet for raptors and 250 feet for passerines. If any active nests containing eggs or young are found, an appropriate nest exclusion zone shall be established by the qualified biologist in accordance with *PG&E Draft Avian Conservation Strategy: Guidelines for Bird Protection and Mitigation* (ICF International 2013 and in coordination with CDFW. No project vehicles or heavy equipment shall be operated in this exclusion zone until the biologist has determined that the nest is no longer active and or the young have fledged.

MM BIO-16: Conduct Preconstruction Surveys for Burrowing Owl and Implement Impact Avoidance, Minimization and Mitigation. Prior to construction at any time of the year, a qualified biologist shall conduct a survey consistent with CDFW's Staff Report on Burrowing Owl Mitigation (Mitigation Guidelines; CDFW, 2012) in areas with suitable habitat for burrowing owl to determine the presence/absence of active burrowing owl nesting or wintering burrows within 250 feet of any ground disturbance. Results of nest surveys and planned no-disturbance set-backs shall be submitted to CDFW.

- If burrowing owls are present within 250 feet of the project area, work shall not commence or resume in this zone until one of the following occurs:
 1. An Avoidance Plan shall be approved by CDFW and implemented by PG&E. The objective of the PG&E-prepared Avoidance Plan shall be to identify what, if any, level of work can begin or resume without disruption of nesting activity or burrow occupancy. The Avoidance Plan shall consider the type and extent of the proposed activity, the duration and timing of the activity, the nesting status of the owls, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities, significant aspects of site such as topography or prevailing wind direction etc. to minimize the potential to affect the reproductive success of the owls. Further steps shall be coordinated with CDFW. The Plan shall include monitoring to be conducted prior to, during, and after initiation or re-initiation of project activity sufficient to ensure take is avoided. The biologist shall monitor all work activities in these zones daily when construction is occurring and assess their effect on the nesting birds. If the

biologist observes any indication that behaviors are changing relative to baseline behaviors observed prior to project activity (e.g. female flapping of wings in an agitated manner, extended concentrated staring at project activities, distress calls, continuous circling over the area of disturbance), or otherwise determines that particular activities pose a risk of disturbing an active nest, project activity shall cease immediately. Permittee efforts to minimize nest abandonment does not eliminate or reduce the risk of prosecution in case nest abandonment occurs. The biologist may then recommend additional measures to minimize the risk of nest disturbance and those measures shall be implemented. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work shall be halted or redirected to other areas until the nesting is completed.

2. A PG&E Biologist submits a Burrowing Owl Exclusion Plan (see Appendix E of the Staff Report on Burrowing Owl Mitigation, Department of Fish and Game, March 2012) and a Burrowing Owl Impact Mitigation Plan based on Appendix F of the Staff Report on Burrowing Owl Mitigation (Department of Fish and Game, March 2012) to CDFW and the plans are approved by CDFW prior to project commencement or re-initiation. Exclusion of nesting burrowing owls is not allowed.

Mitigation Measure BIO-17: American Badger Impact Avoidance, Minimization and Mitigation.

If potential American badger dens are located within the Project site and cannot be avoided during construction, a biologist shall determine if the dens are active. If active, a 250-foot no-activity buffer (or smaller, if approved by CDFW) shall be observed around the den, if possible. If the den cannot be avoided, the entrances of the dens will be blocked with soil, sticks, and debris for 3 to 5 days to discourage the use of these dens prior to project disturbance activities. The den entrances will be blocked to an incrementally greater degree over the 3 to 5-day period. No disturbance of active dens will take place when cubs may be present and dependent on parental care, as determined by the qualified biologist.

Impact BIO-B Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish or U.S. Fish and Wildlife Service?
Less than Significant Impact with Mitigation

Refer to Impact BIO-C, below, for a discussion of impacts to wetlands. As discussed in Section 3.4.3, three natural communities considered to be sensitive—native grasslands, wildflower field, and alkali grassland—were identified within the Project site during botanical surveys in 2016 and 2017. The acreage of each sensitive grassland community within the Project site is provided in Table 3.4-7. Within these sensitive natural communities, vegetation would be mowed and/or cleared and the top 6 to 12 inches of topsoil would be stripped and salvaged where required by land-owners or environmental approvals and restored after construction where excavation would occur. In addition, one blue oak tree, adjacent to Cayetano Creek, would be removed as part of the Proposed Project and other oak trees could be identified for removal/trimming prior to construction. Except for the one oak tree, vegetation along Cayetano Creek and other drainages in the Project site is non-native grassland and is not considered riparian habitat.

Table 3.4-7: Sensitive Natural Communities Identified within the Project Site

Sensitive Natural Communities	Acres
Native Grassland	0.55
Wildflower Field	10.10
Alkali Grassland	6.66
Total	17.31

Sensitive natural communities would be temporarily impacted during site preparation and ground disturbance associated with construction of the Proposed Project. Vehicles and equipment use and other activities which do not result in disturbance of existing vegetation is not considered an impact to existing sensitive natural communities.

PG&E would implement APMs as part of the Project to reduce impacts to sensitive natural communities. APM-1 requires construction employee education on special status species and their habitats, including sensitive natural communities. APM BIO-6, BIO-7, and BIO-15 restrict work areas and access routes to designated areas.

As described in Section 3.4.3, while *Phytophthora* infestations are known from Alameda County, the Project site is located in grassland habitat with only single, sparse trees and shrubs and poses a very low risk for the presence of potential host plants. In addition, the Proposed Project does not support other site conditions favorable to *Phytophthora* such as moist, shaded drainages and tree stands on north- and east-facing slopes. No container stock would be utilized during for revegetation. Therefore, there is a low risk of the spread of *Phytophthora* associated with the Proposed Project. Any minimal risk would be further reduced through implementation of APM BIO-9, which requires that vehicles arrive in sensitive vegetation habitats clean of muddy debris. Cleaning will occur by brushing, washing or other means of manual or mechanical removal and will be confirmed clean by a biological monitor before entering sensitive habitats. APM-BIO-18 requires the Proposed Project to be conducted during the dry season, which would further reduce risk of *Phytophthora*.

Even with implementation of APMs, temporary impacts to sensitive natural communities could occur without restoration of special status plant populations existing before construction. Therefore, a potentially significant impact to sensitive natural communities would occur from the Proposed Project.

PG&E would implement Mitigation Measure BIO-1, which would require restoration of sensitive natural habitats, including native grasslands, wildflower fields and alkali grasslands disturbed by the Proposed Project. In addition, Mitigation Measures BIO-2 would require oak trees removed will be replaced onsite or offsite at a 3:1 ratio. With implementation of mitigation measures, impacts to sensitive natural communities would be less than significant.

Impact BIO-C **Have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**
Less than Significant Impact

Four seasonal swales (W-3, W-5, W-7, and W-8) located within the Project site are considered wetlands under the jurisdiction of the USACE. An additional seasonal swale, W-6, is under the jurisdiction of USACE and is near Staging Area R700.B and would be avoided by the Proposed Project, as show in Figure 2-4. This swale would be flagged and avoided for the duration of use of the staging area. Two ephemeral drainages (W-1 and W-4 [Cayetano Creek]) also located within the Project site will be trenched and are considered other waters of the U.S. under the jurisdiction of the USACE.

Seasonal swales W-5 (Figure 2-3), W-7 and W-8 (Figure 2-6) fall within overland access routes at the Project site. Vegetation would be mowed within these features. Equipment/vehicles would drive through these features in the dry season when it's expected the features will be dry. As described in APM BIO-14, matting/platting would be placed across these swales prior to use of the access routes if necessary. As such, the Proposed Project would not result in removal, filling, or hydrologic interruption of these wetland features.

The Proposed Project would result in temporary impacts to the following features under USACE jurisdiction: seasonal swale W-3, approximately 0.10 acre of temporary impacts (Figure 3-6); ephemeral drainage W-1, approximately 0.001 acre of temporary impacts (Figure 3-7); and Cayetano Creek, W-4, approximately 0.001 acre of temporary impacts (Figure 3-4).

Impacts would result from ground disturbance including the preparation of the site for equipment use by striping, salvaging, and replacing after construction the top 6 to 12 inches of topsoil (in W-3 and where required by landowners or permit requirements), and excavation for installation of the new pipeline and removal of the existing CP cable. Construction activities would occur during the dry season when it's expected these features would not contain surface water. Surface contours would be restored after construction activities are complete.

PG&E has applied for a Lake and Streambed Alteration Agreement (LSAA #1600-2017-041-R3) from the CDFW for temporary impacts to seasonal swales and ephemeral drainages. Project APMs would be implemented to minimize adverse effects to USACE jurisdictional features. APM BIO-1 requires construction employee education on special status species and their habitats, including seasonal swales. APM BIO-5, BIO-6, BIO-7, and BIO-15 restrict work areas and access routes to designated areas. APM BIO-4, BIO-9, BIO-11, BIO-12, BIO-13, and BIO-14 would minimize the potential for impacts to water quality within USACE jurisdictional features by requiring debris abatement, refueling, and stockpiling that would not result in contamination of wetlands, placement of matting or other protective plating to protect seasonal swales along overland routes. APM HWQ-1 would require revegetation to approximate pre-Project conditions. With implementation of these APMs, impacts to seasonal swales and ephemeral drainages would be temporary and adverse effects would be avoided/minimized. Therefore, a less than significant impact would result from the Proposed Project.

Impact BIO-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? <i>Less than Significant Impact</i>
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The Proposed Project does not include construction of any above-ground features that would interfere substantially with wildlife movement from one area to another. Therefore, there are no permanent impacts related to movements of native resident or migratory fish or wildlife species.

The Proposed Project is within dispersal distance of aquatic breeding habitat for both California tiger salamander and California red-legged frog, and will require ground disturbance within upland and dispersal habitat for these species, as shown in in Table 3.4-5 for California tiger salamander and Table 3.4-6 for California red-legged frog. Because both of these species use burrows for upland refugia, burrow elimination within upland habitat resulting from site preparation and excavation along the pipeline alignment would temporarily reduce refugia opportunities in work areas. This temporary impact would be considered minimal for several reasons. While the Project site is within dispersal distance of potential breeding habitat for California tiger salamander and California red-legged frog, construction and operation of the Proposed Project would not impede access to a pond or immediately adjacent upland habitat. In addition, it is expected that small mammals would resume burrow within the temporarily disturbed work areas after restoration, thereby continuing to provide upland dispersal habitat for these species. Construction would be conducted during the dry season when these species are not expected to be dispersing to and from breeding sites. Potential impacts to nesting birds and to American badger are discussed under subsection (a). Foraging and dispersal opportunities in the Project site would be temporarily reduced during the construction period but would be available again after restoration. Impacts to wildlife movement would be temporary and less than significant.

Impact BIO-E Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact

The Alameda County General Plan and the City of Livermore General Plan are the local planning documents that address biological resources in the Project area. This includes tree ordinances set forth under Alameda County Code of Ordinances 12.11 and Livermore Municipal Code 12.20. However, policies in these documents are applicable only within County rights-of-way and/or are not applicable to public utility facilities subject to the jurisdiction of the California Public Utilities Commission. Any impacts to biological resources, including removal of one tree, will be minimized through implementation of the APMs and Mitigation Measures fully described under Impacts BIO-1 through BIO-5, above. Therefore, no impact would occur.

Impact BIO-F Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan?

No Impact

The Project site is located within Conservation Zone 4 of the EACCS, a non-regulatory cooperative agreement intended to streamline and simplify the issuance of permits for proposed projects, establish priorities for mitigation and conservation, and help maintain native biological and ecological diversity in eastern Alameda County (ICF International 2010). The EACCS is a local planning guidance document and does not apply to PG&E's pipeline projects, such as the Proposed Project.

The Proposed Project would affect wildlife species that are focal species under the EACCS, including two federally listed wildlife species, California tiger salamander and California red-legged frog, and two species considered sensitive by CDFW, burrowing owl and American badger. Impacts to these wildlife species would be reduced through implementation of AMMs and mitigation measures, including those which are consistent with EACCS.

The EACCS also includes avoidance measures and recommended mitigation for focal plant species. PG&E is proposing project-specific mitigation for temporary impacts to plant species included as focal species in the EACCS, including Congdon's tarplant. These measures are habitat-based and have been developed considering site-specific characteristics and the temporary nature of impacts from the Proposed Project. The EACCS is not a regulatory document, but rather it provides guidance. In addition, there is no conflict with other local, regional, or state habitat plans adopted in the area. Therefore, no impact would occur.

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3.5 CULTURAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.5.1 Introduction

Summary

This section describes the existing cultural and paleontological resources in the Project area, the different methods used to identify cultural (both architectural and archaeological) and paleontological resources, and analyzes potential impacts associated with construction and operation of the Proposed Project. Cultural resources include archaeological, traditional Native American, and built environment resources, including but not limited to buildings, structures, objects, districts, and sites. Paleontological resources, or fossils, are the evidence of once-living organisms preserved in the geologic record. They include both the fossilized remains of ancient plants and animals and the traces thereof (e.g., track ways, imprints, burrows, etc.). In general, fossils are greater than 5,000 years old (i.e., date to Middle Holocene or older) and are typically preserved in sedimentary rocks.

Information presented in this section relating to cultural resources is based on the Cultural Resources Inventory and Evaluation, Pacific Gas and Electric Company's Gas Transmission Pipeline 131 R707, R700 & R649 Replacement Projects, Alameda County, California (Hallock et al. 2017), prepared by Stantec. Paleontological resources data was compiled from the paleontological database at the University of California, Berkeley's Museum of Paleontology (2017), soil data from the USDA NNRCS Web Soil Survey (USDA NRCS 2017), the Geologic Map of California (California Department of Conservation 2010) and the local 1:250,000 geology map (Wagner et al. 1991).

With implementation of the Applicant's Proposed Measures (APM) CUL-1 through APM CUL-5, impacts to historical resources, unique archaeological resources, and significant paleontological resources would be less than significant.

Methodology – Cultural Resources

To determine the presence of cultural and historical resources within the Project site and vicinity, an assessment was conducted of the Project site and quarter mile radius surrounding the Project site. Specifically, the following was conducted for the Proposed Project: a records search was completed at the Northwest Information Center of the California Historical Resources Information System, Native American outreach, a buried sites sensitivity analysis, and a pedestrian field survey of the Project site. The records search and cultural resources survey were completed in accordance with the CEQA guidelines by: (1) identifying all cultural resources within the Project area; (2) offering a preliminary significance evaluation of the identified cultural resources; (3) assessing resource vulnerability to effects that could arise from Project activities; and (4) offering suggestions designed to protect resource integrity, as warranted.

The pedestrian field survey was conducted by Stantec archaeologists on October 20 and 21 and November 7, 2016. A Trimble GeoXT GPS with sub-meter accuracy pre-loaded with the Project area was utilized by the survey team. The survey was conducted in approximate 15-meter transects to ensure maximum ground coverage in a timely manner and encompassed 97.7% of the total Project area. Approximately 2% of the Project area was not surveyed due to safety issues. Appendix D provides a detailed discussion of the methods used to identify cultural resources for the Proposed Project.

Methodology – Paleontological Resources

To determine the potential for paleontological resources at the Project site, geologic units from maps of the area were analyzed for their potential paleontological sensitivity based on existing literature and known localities; the paleontological database at the University of California, Berkeley's Museum of Paleontology was consulted; and the Society of Vertebrate Paleontology (SVP) guidelines were followed while conducting the paleontological review.

Society of Vertebrate Paleontology's Guidance for Assessing the Paleontological Potential of Rock Units

The SVP have identified two phases for identification of the potential for paleontological resources: (1) assess the potential that nonrenewable paleontological resources could be directly or indirectly impacted or destroyed by the proposed project activities, and (2) generate and implement measures to mitigate any potential impacts from proposed project activities.

The SVP classifies the potential for paleontological resources within rock units as units having high, undetermined, low, or no potential for containing paleontological resources.

High potential is characterized as "rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered, including but not limited to sedimentary formations, some volcanoclastic formations, some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, sedimentary rock units

temporally or lithologically suitable for the preservation of fossils, rock units which contain potentially datable organic remains older than late Holocene and rock units which may contain new vertebrate deposits, traces, or trackways" (SVP 2010).

The SVP classifies underdetermined potential as "rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment" (SVP 2010). Low potential is described as "poorly represented by fossil specimens in institutional collections, or where fossils are only preserved in rare circumstances" (SVP 2010). Rock units with no potential to contain paleontological resources include high-grade metamorphic rock (gneisses, schists) and plutonic igneous rocks (granites, diorite) (SVP 2010).

3.5.2 Regulatory Setting

Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA) sets forth the responsibilities that federal agencies must meet regarding cultural resources. Based on Section 106 and its implementing regulations in 36 CFR Part 800, federal agencies must conduct the necessary studies and consultations to identify cultural resources that may be affected by an undertaking, evaluate cultural resources that may be affected to determine if they are eligible for the NRHP (that is, whether identified resources constitute historic properties), and assess whether such historic properties would be adversely affected. Historic properties are resources that are listed in or eligible for listing in the National Register of Historic Places (NRHP) (36 CFR 800.16[l][1]). A property may be listed in the NRHP if it meets criteria provided in the NRHP regulations (36 CFR 60.4). Typically, such properties must also be 50 years or older (36 CFR 60.4[d]).

Section 106 defines an adverse effect as an effect that alters, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP (36 CFR 800.5[a][1]). Consideration must be given to the property's location, design, setting, materials, workmanship, feeling, and association, to the extent that these qualities contribute to the integrity and significance of the resource. Adverse effects may be direct and reasonably foreseeable or may be more remote in time or distance, or be cumulative (36 CFR 8010.5[a][1]).

The NHPA, as amended, established the NRHP, which contains an inventory of the nation's significant prehistoric and historic properties. Under 36 CFR 60, a property is recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history, or broad patterns of events.
- It is associated with significant people in the past.
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; or it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction.
- It has yielded, or may yield, information important in history or prehistory.

Certain types of properties usually are excluded from consideration for listing in the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

State

California Register of Historical Resources

Under Section 21083.2 of CEQA, an important archaeological or historical resource is an object, artifact, structure, or site that is listed on, or eligible for listing on, the California Register of Historical Resources (CRHR). Eligible resources are those that can be clearly shown to meet any of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

Automatic listings include properties that are listed on the NRHP. In addition, Points of Historical Interest nominated from January 1998 onward are to be jointly listed as Points of Historical Interest and in the CRHR. Resources listed in a local historical register or deemed significant in a historical resources survey, as provided under PRC Section 5024.1(g), are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates that they are not. A resource that is not listed on or determined to be ineligible for listing on the CRHR, not included in a local register of historical resources, or not deemed significant in a historical resources survey may nonetheless be historically significant, as determined by the lead agency (PRC Section 21084.1 and Section 21098.1).

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030). Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains or associated artifacts are discovered. Furthermore, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment. PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological and

Historical Sites, defines any unauthorized disturbance or removal of remains on public land as a misdemeanor.

Paleontological Resources

CEQA includes in its definition of historical resources "any object [or] site ...that has yielded or may be likely to yield information important in prehistory" (14 CCR 15064.5[3]), which is typically interpreted as including fossil materials and other paleontological resources. More specifically, destruction of a "unique paleontological resource or site or unique geologic feature" constitutes a significant impact under CEQA per State CEQA Guidelines Appendix G.

Treatment of paleontological resources under CEQA is generally similar to treatment of cultural resources, requiring evaluation of resources in the project; assessment of potential impacts on significant or unique resources; and development of mitigation measures for potentially significant impacts, which may include monitoring, combined with data recovery excavation and/or avoidance.

3.5.3 Environmental Setting

Natural Setting

The Project area is located within the Alameda Creek watershed, in the Livermore Valley, within California's Coastal Range geographic region and is nestled within the Diablo Mountain Range to the east and the Berkeley Hills to the west (Alt and Hyndman 2000). Alameda Creek drains into San Francisco Bay via Niles Canyon. The Coast Ranges Geomorphic Province consists of northwest trending mountain ranges and valleys extending from beyond the northern California border to the Transverse Ranges in Southern California. At the western edge of the Coast Ranges is the Pacific Ocean where the coastline is uplifted, terraced, and wave-cut. To the east is the Great Valley where rock is overlain by deep alluvial deposits. The Coast Ranges are sub-parallel to the San Andreas Fault, which lies along most of its western edge. The northern California Coast Ranges are dominated by irregular topography formed on the underlying rocks of the Late Jurassic to Cretaceous Age Franciscan Complex (Schoenherr 1992).

Soils in the Project area are predominantly composed of Clear Lake clay, which consists of basin alluvium derived from igneous, metamorphic, and sedimentary rock; Pescadero clay, which is comprised of alluvium derived from sandstone and shale; Linne clay loam, comprised of clay loam and weathered bedrock derived from residuum weathered from sandstone and shale; and Diablo clay, which consists of alluvium derived from shale and siltstone (USDA 2016). The geologic age of deposition in the Project area is classified as "Q" by the CDC. "Q" rock types generally are marine and non-marine (continental) sedimentary rocks of Pleistocene to Holocene age (CDC 2015). More specifically, the Project area is underlain by both Pre-Holocene undifferentiated deposits and Holocene era deposits (Meyer and Rosenthal 2007).

Ethnographic Setting

Please refer to the environmental setting included in Section 3.17, Tribal Cultural Resources.

Historical Setting

The first Spanish explorers arrived in the Livermore Valley in 1772. The Mission system soon followed, with the establishment of three missions in the region: San Francisco Mission Dolores (established 1776), Santa Clara Mission de Asis (established 1777), and Mission San Jose (established in 1797). Many Ohlone were forced to move to the missions to work the lands and tend to the mission's cattle herds.

Once the missions became secularized in 1821 following the independence of Mexico from Spain, an 8,877-acres Mexican land grant surrounding Mission San Jose was established, *Rancho Las Positas*. The Project area is located within this former land grant. Rancho Las Positas was petitioned to the Mexican governor of California by William Gulnac in 1834 and eventually, the rights to the land were ceded to Robert Livermore and Jose Noriega in 1837 (Hoover et al. 2002). Robert Livermore was an English sailor who originally arrived in California in 1821. He eventually became a Mexican citizen in 1844. Due to his citizenship status at the time of application however, Livermore was denied ownership of the Rancho. In 1839, Governor Alvarado of Mexico approved the grant to Salvio Pacheco, who then transferred the land to Livermore and Noriega. Livermore primarily utilized the Rancho for cattle grazing, although his real passion was viticulture. Eventually the Rancho land was expanded by purchasing the *Rancho Cañada de los Vaqueros* to the north (Hoover et al. 2002).

Despite Livermore's pursuit of viticulture and its overall success, the cattle industry continued to dominate the former Rancho lands and the Livermore Valley beyond Livermore's death in 1858. By that time, the United States had annexed California, and the gold rush had brought an influx of population into the region. By the end of the 1860s, small-scale farming was more common throughout the Livermore Valley. The transition from cattle ranching to small-scale farming was encouraged by the increased use of barbed wire fencing, which kept livestock out of crops. Several events occurred that encouraged new settlement and dry land farming in the valley: 1) the construction of the Central Pacific Railroad through Livermore Valley in 1869, 2) in 1873 the United States' Supreme Court confirmed both the Las Positas and Los Vaqueros land grants, and 3) the subsequent availability of 40,000 acres of land. By the 1870s, as the gold rush died down, the Livermore Valley became a center for wheat farming.

The City of Livermore was first established in 1850, when Alphonso Ladd built a house within the City limits. Not long after, in 1855, a hotel was established (Ladd Hotel). The City increased in size, partly due to the railroad, but also the cattle industry and the increasingly important wine production that was occurring in Livermore Valley. The Livermore Collegiate Institute was founded in 1870 by Dr. and Mrs. W.B. Kingsbury; it later was in use as a sanatorium. In 1942, the Livermore Naval Base was established, and in 1952, the University of California initiated the Lawrence Livermore Laboratory (Hoover et al. 2002).

Known Cultural Resources

The records search did not identify cultural resources within the Project area. Cumulatively, the records search identified six cultural resources within the surrounding quarter mile radius of the Project area:

- 1) An isolated hammerstone (No P-number assigned);
- 2) P-01-002194, an isolated wooden trough;
- 3) P-01-002195 (CA-ALA-584H), the remains of a historic-aged concrete foundation and footings, possibly of a barn, listed as "Jim Anderson's house" at the California Historical Resources Information System (CHRIS);
- 4) P-01-002197, a collapsed well house, remnants of a well, piece of machinery or tool, and possible modern corral;
- 5) Contra Costa-Las Positas transmission line (no P-number assigned);
- 6) P-01-000067 (CA-ALA-47), a prehistoric site consisting of two pestles and midden (the site was originally recorded in 1951 and has not been relocated; it may have been destroyed).

None of these resources have been evaluated for eligibility to the NRHP or CRHR. However, per the CEQA, isolated cultural materials do not qualify as significant archaeological resources, and are thus ineligible for the CRHR. Appendix D contains more detailed information about cultural resources identified with the Project area.

The NAHC search of the Sacred Lands File did not identify recorded places of tribal importance in the immediate Project area. PG&E corresponded with five Native American contacts to request any input they may have on the Proposed Project, which included Tony Cerda (Chairperson, Costanoan Rumsen Carmel Tribe), Irenne Zwierlein (Chairperson, Amah Mutsun Tribal Band of Mission San Juan Bautista), Katherine Erolinda Perez (Chairperson, North Valley Yokuts Tribe), Rosemary Cambra (Chairperson, Muwekma Ohlone Indian Tribe of the SF Bay Area), Andrew Galvan (The Ohlone Indian Tribe), and Ann Marie Sayers (Chairperson, Indian Canyon Mutsun Band of Costanoan). A response was received from the Northern Valley Yokuts/Ohlone/Bay Miwuk Tribe, identifying the Livermore Valley and the Vasco areas as highly sensitive to the tribe and requesting that a tribal monitor be present for ground-disturbing activities. Additionally, Chairperson Zwierlein of the Amah Mutsun Tribal Band of Mission San Juan Bautista recommended sensitivity training (Cultural Resources Tailboard) for the construction crew prior to construction. She recommended that a Native American monitor and Archaeologist be contacted if there are any inadvertent discoveries during construction.

Buried Site Sensitivity Analysis

A buried site sensitivity analysis was conducted to assess the likelihood of encountering subsurface archaeological materials. Based on the age of soils mapped at the surface and proximity to perennial water sources, it is estimated that the Project area located approximately 1,500 feet to the southwest and 4,450 feet to the northeast of Cayetano Creek has a moderate to high likelihood of containing buried archaeological resources and that the remainder of the Proposed Project area has low sensitivity for the presence of buried archaeological resources (Meyer and Rosenthal 2007; Thomas and Meyer 2012).

Paleontological Resources

The paleontological database at the University of California, Berkeley's Museum of Paleontology (2017), soil data from the USDA NNRCs Web Soil Survey (USDA NRCS 2017), the Geologic Map of California (California Department of Conservation 2010) and the local 1:250,000 geology map (Wagner et al. 1991) were reviewed to determine the potential for paleontological resources within the Project area. The Project area is located within the Livermore Valley, which is underlain by rock type Q (California Department of Conservation 2010). Rock type Q is classified as being between Pleistocene and Holocene age and is composed of marine and nonmarine (continental) sedimentary rocks, and is overlain by alluvium, lake, playa, and terrace deposits, both unconsolidated and consolidated. The 1:250,000 geological map for the area indicates (Wagner et al. 1991):

- Quaternary/Early Tertiary (Plio-Pleistocene) non-marine sand and gravel in the upland at the south end of the Project area
- Holocene alluvium for most of the Project area, which lies along the Livermore Valley floor
- Late Miocene marine sediments (largely sandstone) of the San Pablo Group (Cierbo Formation), which contain marine invertebrate fossils, including echinoderms, pelecypods and gastropods (Arnold 1906)

A search of the University of California Museum of Paleontology (2017) database for mammal fossils did not identify any paleontological resources within the Project site. The closest vertebrate fossil sites to the Project were: three specimens located approximately 3 miles to the northwest in the Tassajara Hills, which date to the Miocene (Clarendonian 12.5-9 mya); one approximately 13-miles to the west, along the western periphery of the San Ramon Valley, located along San Catanio Creek, which dates to the Clarendonian; two approximately 9 miles to the southwest, located along the Arroyo de la Laguna, dating to the Irvingtonian and to the Rancholabrean (450-10 Ka); and one located approximately 10 mile to the south, along Indian Creek, in the hills to the south of La Costa Valley, which dates to the Clarendonian.

Although the uplands at each end of the Project site contain strata that are geologically favorable for the presence of paleontological resources (Plio-Pleistocene age sedimentary rock in the south and Miocene age marine sediments in the north), no mammal fossils have been recovered from the Project site or the Livermore Valley. However, there are mammalian fossil localities in upland areas around the Project. The lowland areas of the Project site are considered to have low potential. The uplands in the south have moderate potential for significant paleontological resources (Plio-Pleistocene age vertebrates). The uplands to the north are considered to have low potential for significant paleontological resources as the Miocene Cierbo Formation yields only common invertebrate fossils.

3.5.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APMs would be implemented as part of the

Proposed Project to avoid/minimize potential impacts to cultural resources. APMs are described in detail in Section 2.10.

- APM CUL-1: Prehistoric or Historic-Period Materials Discovered during Construction.
- APM CUL-2: Human Burials Encountered during Construction.
- APM CUL-3: Workers Awareness Training.
- APM CUL-4: Archaeological Construction Monitoring.

Impact CUL-A Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?

Less than Significant Impact.

No historical resources have been identified in the Project Site. The CHRIS records search identified one built environment historical resource within 0.25 mile of the Project site. As the resource is located outside the Project site, it would not be impacted by the Proposed Project. However, the Project site is located within predominantly Holocene soils. Holocene sediments are a geologic unit that represents a period in which humans are known to have existed. Thus, there is potential to encounter as-of-yet unidentified buried historical resources during ground disturbing construction activities (i.e., grading, deeply rooted vegetation removal, trenching, or boring). Implementation of APM CUL-1 through 4 would reduce the effects of adverse impacts that could otherwise change or alter a resource's eligibility to the NRHP or CRHR, thus reducing impacts to a less than significant level.

Impact CUL-B Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant Impact

The records search identified four archaeological resources (one prehistoric and three historic-era) within 0.25 mile of the Project site, none of which are located in the Project site. As a result, they would not be subject to adverse impacts resulting from Proposed Project activities.

The results of the buried site sensitivity assessment reveal that portions of the Project site near Cayetano Creek have a moderate to high potential to contain buried archaeological resources (Meyer and Rosenthal 2007; Thomas and Meyer 2012). Excavation activities during construction could potentially damage or destroy previously undiscovered archaeological resources, within areas of elevated buried sensitivity or elsewhere on the Project site.

APM CUL-3 would be implemented prior to Project construction to train construction personnel on procedures if potential archaeological resources are identified. APM CUL-1 would be incorporated into the Proposed Project if any cultural resource that may be considered a unique archaeological resource is encountered during construction activities. However, damage to archaeological resources in areas of elevated buried sensitivity could occur and would be a potentially significant impact if the resource is determined to be a historical resource per CEQA. APM CUL-4 would be implemented to ensure that qualified archaeological construction monitors are present during ground disturbing activities in areas identified as having moderate to high sensitivity for containing

buried cultural deposits. Impacts from the Proposed Project would be less than significant with the incorporation of APMs CUL-1, CUL-3, and CUL-4.

Impact CUL-C Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact

A review to assess the potential for significant paleontological resources determined most of the Project site has low potential for paleontological resources. Therefore, it is unlikely that paleontological resources would be encountered during construction. However, the uplands at each end of the Project site have higher potential for containing paleontological resources. Implementation of APM CUL-3 and CUL-5 would ensure that construction personnel are sufficiently trained on procedures of avoidance if paleontological resources are identified. Impacts from the Proposed Project would be less than significant with the incorporation of APM CUL-3 and CUL-5.

Impact CUL-D Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact

There is no indication that the Project site has been used for burial purposes in the recent or distant past. Therefore, it's unlikely that human remains would be encountered during construction. However, archaeological, historical, and prehistoric materials may be present within the Project site and human remains associated with these items could be encountered. Implementation of APM CUL-2 would reduce potential impacts related to the discovery of human remains to a less than significant level by ensuring compliance with Section 7050.5 of the California Health and Safety Code and PRC 5097.98.

3.6 GEOLOGY AND SOILS

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.6.1 Introduction

Summary

This section describes the existing geology and soils setting and potential impacts from the Proposed Project. Based on the impact analysis, the Proposed Project would result in less than significant impacts on geology and soils.

Methodology

The evaluation of potential geologic and soil impacts is based on a review of documents pertaining to the Proposed Project, including the Alameda County and City of Livermore General Plans, NRCS Web Soil Survey, and California Geological Survey (CGS) Regulatory Maps related to landslides, liquefaction, and fault zones. In addition, this analysis was based on the September 2, 2016, Geotechnical Study prepared by Trinity Geotechnical Engineering Inc. for the R700 and R707 Projects (Appendix E), the November 2016 Greenville Fault Geological Assessment prepared by Golder Associates Inc. for the R707 Project (Appendix F), and the September 6, 2016, *Assessment of Need for Modifying the Line 131 Replacement Alignment* Memorandum prepared by D.G. Honegger Consulting (2016). The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental impacts related to geology and soils.

3.6.2 Regulatory Setting

Federal

The United States Department of Transportation ("DOT") is the primary regulator of the operation of natural gas pipelines pursuant to the Natural Gas Pipeline Safety Act of 1978 (codified at Title 49 of the United States Code, Chapter 601). Within the DOT, the Pipeline and Hazardous Materials Safety Administration ("PHMSA"), through the Office of Pipeline Safety ("OPS"), is responsible for establishing and enforcing proper design, construction, operation, maintenance, testing and inspection standards for natural gas pipelines. These regulations are published in Title 49 of the Code of Federal Regulations, Parts 190-199.2. In addition to DOT/PHMSA's regulation of gas pipeline safety, the Federal Energy Regulatory Commission ("FERC") regulates pipelines. FERC is responsible for rate setting for interstate natural gas pipelines; intrastate rates are regulated by state public utility commissions. The Natural Gas Act of 1938 conferred the authority on FERC's predecessor agency (the Federal Power Commission) to review and grant certificates for the construction and operation of interstate natural gas pipelines and interstate natural gas facilities.

The Federal government has exclusive responsibility for the pipeline safety regulations for interstate (pipelines that cross state boundaries) and primary responsibility for intrastate pipelines (pipelines that are contained within the borders of a state). Although OPS can designate a state to act as its agent in the inspection of interstate lines, OPS remains solely responsible for enforcement. Most states, including California, work with OPS in the oversight of the pipelines.

State

Alquist-Priolo Earthquake Fault Zoning Act

Alquist-Priolo Earthquake Fault Zoning Act is the State law that focuses on hazards from earthquake fault zones. The purpose of this law is to mitigate the hazard of surface fault rupture by regulating structures designated for human occupancy near active faults. As required by the Act, the CGS has delineated Earthquake Fault Zones along known active faults in California.

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690-2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong groundshaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong groundshaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, lead agencies are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

California Building Standards Code

The State of California provides minimum standard for building design through the California Building Code (CBC) (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The CBC also applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis).

The CBC has been modified for California conditions with numerous more detailed and/or more stringent regulations. The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design.

California Public Utilities Code

California's Gas Safety Program requirements are codified in California Public Utilities Code Sections 315, 768, 4351-4361 and 4451-4465. The CPUC's regulations are set forth in CPUC General Order 112-E.

3.6.3 Environmental Setting

The Proposed Project would involve the replacement of approximately 5 miles of the existing L131 pipeline primarily in unincorporated Alameda County, with a small section of pipe (the R649 Project) in the City of Livermore. The pipeline extends from northeast to southwest and largely traverses rural agricultural lands. The elevation of the Project site ranges from a high of approximately 1,160 feet above mean sea level at the northeast corner of the alignment to a low of approximately 515 feet above mean sea level at the southwest end of the alignment (Appendix E).

Geology

Based on the geologic site reconnaissance, subsurface exploration, and review of geologic maps, the subsurface conditions generally consist of Miocene Sedimentary Rocks, Early Pleistocene and Pliocene Sediments and colluvial deposits, and Alluvial deposits (Appendix E).

The Miocene sedimentary rocks, also known as the Cierbo Formation, consist of friable sandstone, sand gravel, and traces of shale. The sandstone is very dense with round gravel pebbles, and has a medium to coarse grained texture. The Early Pleistocene and/or Pliocene sediments and colluvium consist of fine to coarse grained sandstone with silt and clay. These soils are poorly to moderately consolidated. The Alluvial deposits found within the Project area consist of brown alternating layers of clayey to silty sand and sandy silt with traces of gravel, and cobbles. The alluvial deposits are considered loose, soft to very dense, and hard (Appendix E).

Soils

Ten soil map units are present along the alignment, with the northern portions dominated by Altamont clay, which transitions to Diablo Clay, then to Clear Lake Clay in the center of the alignment, to Linne Clay Loam at the southern end. The Natural Resources Conservation Service descriptions indicate that the Altamont clay soil unit at the fault crossing (GF-131-01) is composed of 35% to 60% clay from the surface to a depth of between 28 to 50 inches.

Seismic Setting

The Project area is in the Livermore Valley Basin. The Livermore Valley Basin is bounded by the Calaveras and Greenville faults, active right-lateral strike-slip faults, located to the west and east of the Project area respectively. This is considered a seismically active area of northern California.

The Greenville fault is within the northeast portion of the Project area and crosses the northeast section of the R707 Project. The Greenville Fault is estimated to be 19.4 miles in length, with an average slip rate of 0.08 ± 0.04 inches per year. Appendix F provides a description of the fault in greater detail and is summarized here. The Proposed Project is located within an Alquist-Priolo Earthquake Fault Zone, and within an area susceptible to potential fault rupture. Other major faults in the region are the Hayward Fault Zone, approximately 15 miles west of the Proposed Project, and the San Andreas Fault Zone, approximately 35 miles west of the Proposed Project (Appendix E).

Since 1800, several earthquakes with magnitudes greater than 6.5 have occurred in the Project region, including the 1868 magnitude 6.8 earthquake on the Hayward Fault, 1906 magnitude 7.9 San Francisco earthquake on the San Andreas Fault, and the more recent 1989 magnitude 6.9 Loma Prieta earthquake that occurred in the Santa Cruz Mountains. The most recent and nearest earthquake occurred on January 27, 1980, approximately 2 miles east of the R707 Project with a 5.4 magnitude earthquake. These earthquakes caused significant damage and ground failures in the San Francisco Bay Region, but no damage to L-131 was identified.

Landslides

Landslides commonly occur during or following large storms or during earthquakes. Landslides are most likely to take place in areas where they have previously occurred. The Project area includes

a late Quaternary alluvial plain running east to west across the middle of the Livermore/San Ramon Valley with moderately steep to steep hills with flat summits south of the alluvial plain and moderately steep to steep hills along the Calaveras fault and between the fault and the Santa Clara Valley. Elevation ranges from 300 feet to 1,200 feet in Livermore Valley to 2,594 feet on Monument Peak, which lies west of the Alameda Watershed boundary. This subsection contains mainly Miocene marine sediments along the Calaveras fault south of the Livermore/San Ramon Valley and Plio-Pleistocene non-marine sediments in the south end of the Livermore Valley (USDA 1997). As mentioned in Appendix E, the southwest section of the Proposed Project is located in an area with earthquake induced landslide potential, where the early Pleistocene and/or Pliocene Sediments and Colluvium are susceptible to erosion and slope failure due to their relatively unconsolidated condition. Their permeability and tendency to become saturated during heavy rain events increases the risk of landslide along steeper slopes.

Liquefaction

Liquefaction of soils can be caused by ground shaking during earthquakes. Historical data indicates that loose, relatively clean granular soils are most susceptible to liquefaction and dynamic settlement, whereas the stability of the majority of clayey silts, silty clays, and clays are not adversely affected by ground shaking. Criteria for defining a liquefaction zone includes areas known to have experienced liquefaction during historical earthquakes, or areas where sufficient geotechnical data and groundwater conditions indicate the potential for liquefaction (CGS 2014). Susceptibility to liquefaction is determined based on the relative resistance of a soil to loss of strength when subjected to ground shaking.

According to the CGS 2008 Landslide/Liquefaction Map, the Proposed Project is located in a liquefaction hazard area. Trinity Geotechnical Engineering conducted a liquefaction analysis for the R707 and R700 Projects to determine the potential liquefaction-induced settlement following the CGS's Guidelines for Evaluating and Mitigating Seismic Hazards in California. Based on the historical high groundwater table at 10 feet below grade, the estimated amount of ground shaking, and presence of loose to very dense silty sand the Project site is susceptible to potential liquefaction (Appendix E).

3.6.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APMs would be implemented as part of the Proposed Project to avoid/minimize potential impacts to cultural resources. APMs are described in detail in Section 2.10.

- APM GEO-1: Backfill Operations.
- APM GEO-2: Geotechnical Report Recommendations.
- APM HWQ-1: SWPPP Development and Implementation, Erosion, and Sedimentation.

Impact GEO-A Expose people or structures to 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?**

Less than Significant Impact

i. Alquist-Priolo Earthquake Fault Zone

No new above-ground, occupied structures would be developed as part of the Proposed Project. The existing pipeline would remain in its existing location and abandoned in place. The Proposed Project would involve the placement of a new pipeline that parallels the existing pipeline. The proposed pipeline would be located within a designated Alquist-Priolo Earthquake Fault Zone associated with the Greenville Fault (see Golder report, Appendix F). Specifically, as depicted on Figure 2-9, the northern portion of the R707 Project crosses mapped active and/or potentially active major and secondary fault traces associated with the Greenville Fault Zone (Appendix E). The Golder report indicates that pipeline GF-131-01 has an estimated fault rupture displacement of 2.8 feet on the main strand of the Greenville fault for a local event; similar fault rupture displacement should be expected on pipeline R707 Project where it crosses the main strand of the fault.

According to the technical memorandum prepared by D.G. Honegger Consulting (2016), due to the location of the existing pipeline in relation to the crossing of the Greenville fault, the existing pipeline is experiencing nearly pure bending strains with slightly higher compressive strains due to the crossing angle of the pipeline with the fault traces. To prevent these types of strains, the replacement pipeline would be constructed at a 90-degree angle where the northeastern section of the Proposed R707 Project crosses the Greenville fault as noted in APM GEO-2. This would decrease the potential for the new pipeline to fail in the event of an earthquake, and ensure the new pipeline would remain operable and safe. As such, potential impacts related to the Alquist-Priolo Earthquake Fault Zone would be less than significant.

ii. Strong seismic ground shaking

The Proposed Project is in a seismically active area. One of the most significant seismic hazards at the Project site is potential strong ground shaking caused by an earthquake occurring on a nearby or distant active fault such as, the Greenville Fault Zone, Calaveras Fault Zone, or the Hayward Fault Zone. As discussed above, the existing pipeline currently crosses the Greenville Fault Zone and is experiencing pure bending strains with slight compressive strains due to the crossing angle with the fault trace. APM GEO-2 would be implemented to ensure that pipeline design would be approved by a structural engineer, and conform to recommendations in the site-specific geotechnical report and the current design provisions of the CBC to minimize losses from ground shaking. . Therefore, the potential for failure due to ground shaking would be less than significant.

iii. Seismic-related ground failure, including liquefaction

The Proposed Project is in a liquefaction zone. The Project site is underlain by loose to very dense silty sand and soft to hard silty sand. According to the Geotechnical Report (Appendix E), estimated liquefaction-induced settlement was calculated to range from approximately 0 to 0.5 inch. However, the report concludes that the level of ground disturbance associated with the Proposed Project would be unlikely to warrant geotechnical remediation (Appendix E). The Proposed Project would implement APM GEO-2 to ensure all seismic related hazards due to liquefaction are avoided or minimized through implementation of the design recommendations, as approved by a structural engineer. Therefore, impacts related to seismic-related ground failure, including liquefaction, would be less than significant.

iv. Landslides

The Proposed Project does not involve the construction of any above-ground occupied facilities. Therefore, the Proposed Project would not expose people to the risk, loss, or injury due to landslides. According to the CGS 2008 Seismic Hazard Map, the R649 Project is located within an area with the potential for earthquake induced landslides to occur. As mentioned in Appendix E, the Early Pleistocene and/or Pliocene Sediments and Colluvium are susceptible to erosion and slope failure, primarily due to being relatively unconsolidated, and exacerbated by the potential to become saturated during rain events. Excavations for the R 649 Project would be approximately five feet bgs. APM GEO-2 would be implemented to ensure that pipeline design would conform to recommendations in the site-specific geotechnical report and the current design provisions of the CBC to avoid or minimize losses from landslides. Therefore, impacts with respect to landslides and slope instability would be less than significant.

Impact GEO-B Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact

The workspace and staging areas are predominately flat and in agricultural fields, and site preparation would not require permanent grading or the import and export of material. Preparation of the construction areas consists of mowing grasses, vegetation removal (including one tree), debris disposal, and topsoil salvaging and segregating. PG&E would strip approximately 6 to 12 inches of topsoil from the construction areas where requested by landowners and required for environmental purposes, including throughout seasonal wetland W-3. The excavated subsoil would be maintained in a separate windrow, or linear pile, to be used as trench backfill and for passive reseeding of native plants following installation of the pipe. Vegetation removal and topsoil salvaging would end before the top of the bank on either side of ephemeral drainages W-1 and W-4. APM HWQ-1 would be implemented throughout construction to ensure erosion control measures are implemented to protect against soil erosion and to maintain water quality during construction. Excavated material would be maintained within the approved construction areas. The erosion control measures would be part of the project SWPPP, and may include silt fences, straw wattles/temporary berms, and temporary soil stabilization through hydroseeding, mulching, and other techniques.

After installation of the pipeline, suitable excavated subsoil and engineered fill, as necessary, would be placed into the trenches followed by placement of segregated topsoil to restore the

original grade to approximate pre-Project contours and grade. As a result, Project construction is not expected to be a significant source of erosion and potential erosion impacts would be less than significant with implementation of APM HWQ-1.

Impact GEO-C Be located on strata 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

The south section of the R649 Project at MP 32.29 is within an area with earthquake induced landslide potential. Excavations for the R 649 Project would be approximately five feet bgs. APM GEO-2 would be implemented to ensure that pipeline design would conform to recommendations in the site-specific geotechnical report and the current design provisions of the CBC to avoid or minimize losses from landslides. Therefore, impacts with respect to landslides and slope instability would be less than significant.

Ground subsidence usually occurs in valleys and basins when underground fluids are extracted in large volumes. During the geotechnical analysis, groundwater was encountered from about 29 to 38 feet. The historic high groundwater level ranges from approximately 10 to 30 feet below grade along the proposed alignment (Appendix E). While generally not expected for the Proposed Project due to the shallow depth of excavations, groundwater could be encountered, especially in deeper bore pit excavations. If encountered, groundwater would be conveyed via piping into temporary storage tanks for testing and hauling off-site for disposal. This minimal expected level of groundwater removal during construction activities indicates that there is minimal potential for subsidence to occur due to the Proposed Project.

The Project area is within a liquefaction zone (CGS 2008). According to the Geotechnical Report prepared by Trinity Geotechnical Engineering, the estimated liquefaction-induced settlement was calculated to range from approximately 0 to 0.5 inch. However, it is unlikely that the level of ground disturbance associated with the Proposed Project would warrant geotechnical remediation. Lateral displacement is not anticipated at the Project site because any potentially liquefiable materials would be physically constrained (e.g., no open face to allow lateral spread; Appendix E). APM GEO-1 would be implemented to ensure soils covering the pipe consist of granular, non-expansive soil. Soil would not contain any contaminated soil, expansive soil, debris, organic matter, or other deleterious materials that would become unstable. In addition, APM GEO-2 would be implemented to ensure that pipeline design would conform to recommendations in the site-specific geotechnical report and the current design provisions of the CBC to avoid or minimize losses from liquefaction. Therefore, impacts in these areas would be less than significant.

Impact GEO-D Be located on expansive soil, as defined in Table 18 1B of the Uniform Building Code, creating substantial risks to life or property?

Less than Significant Impact

The Project site is located in a rural agricultural area north of the City of Livermore in Alameda County. The Project site is underlain by layers of silty sand, sandy to clayey silt, and sandy clay. According to the Geotechnical Report, the Expansion Index of these on-site soils is considered to

have a low to medium range (Appendix E). APM GEO-1 would be implemented to ensure on-site soils are used as backfill within non-structural areas only. All imported fill would consist of granular, non-expansive soil with an Expansion Index of 20 or less. Import material would be evaluated prior to transport to the Project site and would not contain any contaminated soil, expansive soil, debris, organic matter, or other deleterious materials. The Proposed Project would not include the development of permanent above-ground occupied structures, and would not result in the increase in risk to life or property. Therefore, the Proposed Project would not be located on expansive soil, and impacts under this criterion would be less than significant.

Impact GEO-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?

No Impact

The Proposed Project does not include or require septic tanks or other wastewater disposal systems. Construction workers would use contractor-supplied portable restroom facilities. The wastewater generated would be taken off-site to a wastewater treatment facility for processing. Therefore, no potential impacts associated with these systems would occur.

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3.7 GREENHOUSE GASES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.7.1 Introduction

Summary

This section describes existing conditions, potential impacts related to the Proposed Project, and APMs for GHG issues in the Project area. Included are descriptions of the environmental setting in terms of existing GHG emissions and federal, state, and local air quality regulations are discussed, followed by discussions of APMs and evaluation of impacts. The analysis concludes that the project would result in less than significant impacts to GHGs.

The most important and widely occurring anthropogenic GHG is carbon dioxide (CO₂), primarily from the use of fossil fuels, like petroleum products or natural gas, as a source of energy. Other anthropogenic activities that are major sources of CO₂ include deforestation and other changes in land use. The second most important anthropogenic GHG in the atmosphere is methane (CH₄), which is the principal component of natural gas. Fertilizer use and agriculture are also major contributors to CH₄ and nitrous oxide (N₂O) emissions, which are more potent than CO₂ as anthropogenic drivers of climate change.

Methodology

With respect to project-related GHGs, CARB developed statewide interim thresholds of significance in 2008. For industrial projects, CARB proposed a quantitative threshold of 7,000 metric tons of CO₂e per year (CARB, 2008). This threshold was used to evaluate the project's construction-related climate change impact and significance of GHG emission. In May 2017, the BAAQMD released the most-recent version of its CEQA air quality guidelines to provide guidance to CEQA lead agencies analyzing greenhouse gas emissions, and these guidelines recommend a threshold of significance for new sources at a level of more than 10,000 metric tons of CO₂e per year. There is no BAAQMD-recommended threshold of significance for GHG emissions during construction.

3.7.2 Regulatory Setting

Federal

On April 2, 2007, in *Massachusetts v. USEPA*, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the Federal Clean Air Act (FCAA). The Court held that the USEPA must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the USEPA was required to follow the language of Section 202(a) of the FCAA. This is because the Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations.

On April 17, 2009, the USEPA Administrator signed proposed “endangerment and cause or contributes findings” for GHGs under Section 202(a) of the FCAA. The USEPA held a 60-day public comment period, which ended June 23, 2009, and received over 380,000 public comments. These included both written comments as well as testimony at two public hearings in Arlington, Virginia, and subsequently Seattle, Washington. The USEPA carefully reviewed, considered, and incorporated public comments and has now issued these final Findings.

The USEPA found that six GHGs taken in combination endanger both the public health and the public welfare of current and future generations. The USEPA also found that the combined emissions of these GHGs from new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare under FCAA section 202(a). These Findings were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the Proposed Findings published April 24, 2009. These Findings went into effect on January 14, 2010 (USEPA 2014).

State

There are a variety of statewide rules and regulations that have been implemented or are in development in California that mandate the quantification or reduction of GHGs. Under CEQA, an analysis and mitigation of emissions of GHGs and climate change in relation to a proposed project is required where it has been determined that a project would result in a significant addition of GHGs. Certain Air Pollution Control Districts (APCDs) have proposed their own levels of significance.

Executive Order S-3-05

Executive Order S-3-05 was established by Governor Arnold Schwarzenegger in June 2006 and establishes the following statewide emission reduction targets through the year 2050:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels;
- by 2050, reduce GHG emissions to 80% below 1990 levels.

This Executive Order does not include any specific requirements that would pertain directly to the Proposed Project. However, actions taken by the State to implement these goals may affect the Proposed Project, depending on the specific implementation measures that are developed.

Assembly Bill 32

AB 32, also known as the California Global Warming Solutions Act of 2006 designates the California Air Resources Board (CARB) as the State agency charged with monitoring and regulating sources of emissions of GHGs. Under AB 32, the State board is required to approve a statewide GHG emissions limit equivalent to the statewide GHG emissions level in 1990 to be achieved by 2020 and to adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG emissions reductions. The law establishes periodic targets for reductions, and requires certain facilities to report emissions of GHGs annually. The bill also reserves the ability to reduce emissions targets lower than those proposed in certain sectors which contribute the most to emissions of GHGs, including transportation. Additionally, the bill includes provisions to:

- Prepare and approve a Scoping Plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020, and update the Scoping Plan every five years.
- Maintain and continue reductions in emissions of GHG beyond 2020.
- Identify the statewide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020.
- Identify and adopt regulations for discrete early actions that could be enforceable on or before January 1, 2010.
- Adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit GHG emissions.
- Convene an Environmental Justice Advisory Committee to advise the Board in developing and updating the Scoping Plan and any other pertinent matter in implementing AB 32.
- Appoint an Economic and Technology Advancement Advisory Committee to provide recommendations for technologies, research and GHG emission reduction measures.

The Assembly Bill 32 Scoping Plan contains the main strategies California will use to reduce the GHG that cause climate change. The scoping plan has a range of GHG reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program.

Senate Bill 32

The California Global Warming Solutions Act of 2006 emissions limit was signed into law by Governor Brown on September 8, 2016. This bill requires the State board to ensure that statewide GHG emissions are reduced to 40% below the 1990 level by 2030.

GHG Emission Standards for Crude Oil and Natural Gas Facilities

The CARB approved regulations, effective October 1, 2017 (17 CCR 95665-95677), to reduce methane emissions from oil and gas facilities, including upstream production as well as natural gas transmission compressor stations. These regulations require natural gas transmission companies, including PG&E, to take actions to limit intentional (vented) and unintentional (leaked or fugitive) emissions of methane. The controls would also have the effect of reducing air pollutant emissions of ozone-precursor volatile organic compounds. The regulation helps to implement the AB 32 Scoping Plan and the statewide strategy for short-lived climate pollutants.

Regional

GHG emissions are subject to the jurisdiction of CARB. Because the CPUC has jurisdiction over the design, construction, and operation of gas pipelines and associated facilities, the Proposed Project is not subject to local discretionary regulations.

Bay Area Air Quality Management District

The BAAQMD regulates air quality in the San Francisco Bay Area Air Basin and Alameda County. The BAAQMD is responsible for controlling and permitting industrial pollution sources (such as power plants, refineries, and manufacturing operations) and widespread, area wide sources (such as bakeries, dry cleaners, service stations, and commercial paint applicators), and for adopting local air quality plans and rules.

Air Quality Plans

As described in the Air Quality (Section 3.3.2) discussion of Federal and State regulations, a SIP is a federal requirement; each state prepares a SIP to describe existing air quality conditions and measures that will be followed to attain and maintain the federal standards.

The latest Air Quality Plan adopted by the BAAQMD is the 2017 Clean Air Plan, which is a single integrated plan that includes SIP components and also plans for controls of GHG emissions. The plan prioritizes decreasing the region's demand for fossil fuels (including natural gas), defines a vision for transitioning the region to a post-carbon economy, which is needed to achieve ambitious greenhouse gas reduction targets for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

3.7.3 Environmental Setting

BAAQMD periodically prepares GHG emissions inventories, which include direct and indirect GHG emissions due to human activities, to support BAAQMD's climate protection activities. Table 3.7-1 presents the 2011 GHG emissions inventory for Alameda County, which is the most recently available inventory. Alameda County emits approximately 13.2 million metric tons/year of CO₂e; this represents approximately 15.2% of CO₂e emissions within the Bay Area Air Basin (BAAQMD 2011).

Table 3.7-1: Alameda County 2011 Greenhouse Gas Emissions Inventory

End-use Section	CO ₂ e Emissions (million metric tons/year)
Industrial/Commercial	2.7
Residential Fuel Usage	1.3
Electricity/Cogeneration	0.9
Off-road Equipment	0.2
Transportation	7.9
Agriculture/Farming	0.1
Total	13.2

3.7.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary.

Impact GHG-A Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact

The project would emit GHG emissions during construction from the off-road equipment, worker vehicles, and any hauling that may occur. In addition, in taking the line temporarily out of service, approximately 5.5 miles of the line would be isolated and cleared of natural gas. This would release to the atmosphere the line's volume of methane from a line pressure of up to 125 psi. PG&E does not propose to flare or otherwise reduce the quantity of the methane release. The venting and construction-related emissions would be a one-time event.

The BAAQMD does not presently provide a construction-related GHG generation threshold, but recommends that construction-generated GHGs be quantified and disclosed. Therefore, the Project's construction emissions were compared to the CARB's recommended threshold of significance of 7,000 metric tons of CO₂e per year. GHG emissions from project construction equipment and worker vehicles, and line venting, are shown in Table 3.7-2.

Table 3.7-2: Construction Greenhouse Gas Emissions

Source	One-Time Emissions (metric tons of CO ₂ e)
Construction Equipment Emissions	864
Venting Emissions	390
Total Construction Emissions	1,254
CARB GHG Screening Threshold	7,000

The Proposed Project would emit 1,241 metric tons of CO₂e, during the one-time construction necessary to implement the Proposed Project, from construction activities and venting of natural gas and methane. This one-time project-level emission rate is less than the 7,000 metric tons of CO₂e annual screening threshold documented by CARB and less than the threshold of significance of 10,000 metric tons of CO₂e per year recommended by BAAQMD for new sources.

No notable change in GHG emissions would occur with routine operation and maintenance of the replacement pipeline relative to current O&M. Therefore, construction emissions would not conflict with the AB 32 Scoping Plan and would be less than significant.

Impact GHG-B Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact

The proposed project would generate limited quantities of direct GHG emissions from construction, due to fuels used by the vehicles and equipment, and produce no notable change in O&M activities. California's regulatory setting for GHG emissions ensures that most of the existing and foreseeable GHG sources that use transportation fuels or that transport and deliver natural gas are subject to one or more programs aimed at reducing GHG. California's Cap-and-Trade program ensures that all fuel suppliers, including pipeline companies, must cover the end-user's GHG emissions. As discussed in Impact GHG-A, the Project's construction emissions would be substantially less than CARB's 7,000 metric tons of CO₂e threshold. By complying with California's GHG control requirements, the Project would not conflict with any applicable GHG management plan, policy, or regulation, and this impact would be less than significant.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely-hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to <i>Government Code Section 65962.5</i> and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.8.1 Introduction

Summary

This section describes the environmental setting and impacts related to hazards and hazardous materials. Based on the impact analysis, the Proposed Project would result in less than significant impacts to hazards or hazardous materials.

Definition of Hazardous Materials

For the purposes of this analysis, the term “hazards” refers to risk associated with issues such as fires, explosions, exposure to contaminated soil, and other hazardous materials as well as interference with emergency response plans.

The term “hazardous material” is defined in different ways for different regulatory programs. For this analysis, “hazardous material” are materials that, “...because of their quantity, concentration, or physical or chemical characteristics, pose a significant present or potential hazard to human health and safety or to the environment if release into the workplace or the environment” (California Health and Safety Code, Section 25501).

“Hazardous waste” is a subset of hazardous materials. For this analysis, “hazardous waste” is defined by the California Health and Safety Code, Section 25517, and in 22 CCR Section 66261.2 as waste that, because of its quantity, concentration, or physical or chemical characteristics, may either cause or significantly contribute to an increase in mortality or an increase in serious illness or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Methodology

This analysis considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from the Proposed Project and identifies the primary ways that these hazardous materials could expose individuals or the environment to health and safety risks. Local and state agencies would be expected to continue to enforce applicable requirements to the extent that they do so now.

Project designs of the pipeline were reviewed to identify any potentially hazardous conditions at the Project site. Additionally, a review of the SWRCB GeoTracker Database and the Department of Toxic Substance Control (DTSC) EnviroStor Database was performed to identify existing leaking underground storage tank (LUST) sites and other contaminated sites on- or off-site of the Project. Database results are provided in Appendix G. The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental impacts.

3.8.2 Regulatory Setting

The storage and use of hazardous materials and regulated substances are governed by federal, state, and local laws. Applicable laws and regulations address the use and storage of hazardous materials to protect the environment from contamination, and to protect facility workers and the surrounding community from exposure to hazardous and regulated substances.

Federal

Federal Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) regulates the preparation and enforcement of occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure. OSHA regulates workplace exposure to hazardous chemicals and activities through regulations governing work place procedures and equipment.

U.S. Department of Transportation

The U.S. Department of Transportation (DOT) regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes also must meet the requirements of additional statutes such as Resource Conservation and Recovery Act.

Pipeline Regulations

Additionally, the DOT provides oversight for the nation's natural gas pipeline transportation system. Its responsibilities are promulgated under Title 49, U.S.C. Chapter 601. The PHMSA, Office of Pipeline Safety (OPS), administers the national regulatory program to ensure the safe transportation of gas and other hazardous materials by pipeline. Two statutes provide the framework for the federal pipeline safety program. The Natural Gas Pipeline Safety Act of 1968 as amended authorizes the DOT to regulate pipeline transportation of natural (flammable, toxic, or corrosive) gas and other gases.

The OPS shares portions of this responsibility with State agency partners and others at the federal, state, and local levels. The State of California is certified under 49 U.S.C. Subtitle VIII, Chapter 601, section 60105. The State has the authority to regulate intrastate natural and other gas pipeline facilities. The CPUC is the agency authorized to oversee intrastate gas pipeline facilities, including

those proposed by PG&E. The CPUC has rules governing design construction, testing, operation, and maintenance of gas gathering, transmission, and distribution piping systems (General Order No. 112-E). The California State Fire Marshal has jurisdiction for hazardous liquid pipelines.

The federal pipeline regulations are published in Title 49 of CFR 26, Parts 190 through 199. Title 49 CFR 192 specifically addresses natural and other gas pipelines. Many of these pipeline regulations are written as performance standards. These regulations set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve the desired result.

High Consequence Areas

The Proposed Project would be designed, constructed, operated, and maintained in accordance with 49 CFR 192, and is partially designed to ensure the pipeline is in compliance with Class 3 requirements. Regulation 49 CFR 192 defines area classifications based on population density in the vicinity of a pipeline and specifies more rigorous safety requirements for more heavily populated areas. The class location is an area that extends 660 feet (220 yards) on either side of the centerline of any continuous one mile length of pipeline. The four high consequence area (HCA) classifications are defined as follows:

- Class 1: A location with 10 or fewer buildings intended for human occupancy.
- Class 2: A location with more than 10 but less than 46 buildings intended for human occupancy.
- Class 3: A location with 46 or more buildings intended for human occupancy or where the pipeline lies within 300 feet (100 yards) of any building or small well-defined outside area occupied by 20 or more people during normal use.
- Class 4: A location where buildings with four or more stories aboveground are prevalent.

Pipeline facilities located within class locations representing more populated areas are required to have a more conservative design. The R649 Project is necessary to upgrade the pipeline in compliance with Class 3 requirements due to recent residential development adjacent to the pipeline alignment. Pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches at public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock. All pipelines installed in navigable rivers, streams, and harbors must have a minimum cover of 48 inches in soil or 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve⁴ (e.g., 10 miles in Class 1, 7.5 miles in Class 2, 4 miles in Class 3, and 2.5 miles in Class 4 locations). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure, inspection and testing of welds, and frequency of pipeline patrols and leak surveys also must conform to higher standards in more populated areas.

⁴ Sectionalizing block valves are installed at regular intervals to isolate pipeline sections during emergencies like leakage in pipelines as per statutory requirements.

Pipeline Integrity Management Regulations

Title 49 CFR 192 Subpart O, Pipeline Integrity Management was established following a series of pipeline incidents with severe consequences. This subpart requires operators of gas pipeline systems in HCAs to significantly increase their minimum required maintenance and inspection efforts. For example, all lines located within HCAs must be analyzed by conducting a baseline risk assessment. In general, the integrity of the lines also must be evaluated using an internal inspection device or a direct assessment, as prescribed in the regulation.

State

California Government Code Sections 4216-4216.9

"Protection of Underground Infrastructure" requires an excavator to contact a regional notification center (e.g., Underground Services Alert or Dig Alert) at least 2 days prior to excavation of any subsurface installations. Anyone seeking to begin a project that could damage underground infrastructure can call Underground Service Alert, the regional notification center for Northern California. Underground Service Alert would notify the utilities that may have buried lines within 100 feet of a project. Representatives of the utilities are then notified and are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area.

Fire Protection

California fire safety regulations apply to State Responsibility Areas (SRAs) during the time of year designated as having hazardous fire conditions. During the fire hazard season, these regulations: a) restrict the use of equipment that may produce a spark, flame, or fire; b) require the use of spark arrestors on equipment that has an internal combustion engine; c) specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and d) specify fire suppression equipment that must be provided on-site for various types of work in fire-prone areas. The CAL FIRE has primary responsibility for fire protection within SRAs.

CPUC Pipeline Regulations

The pipeline associated with the Proposed Project would be under the jurisdiction of the CPUC, as a result of their certification by the OPS (The State of California is certified under 49 U.S.C. Subtitle VIII, Chapter 601, section 60105.) The state requirements for designing, constructing, testing, operating, and maintaining gas piping systems are stated in CPUC General Order Number 112E. These rules incorporate the federal regulations by reference.

Local

Because the CPUC has jurisdiction over the design, construction, and operation of gas pipelines and associated facilities, the Proposed Project is not subject to local discretionary regulations. This section includes a description of the local regulations addressing hazards and hazardous materials generally, and is provided for informational purposes to assist CEQA review.

Alameda County General Plan*Environmental Health and Safety Element*

Goal 3: To reduce hazards related to flooding and inundation.

Goal 4: Minimize residents' exposure to the harmful effects of hazardous materials and waste.

P1: Uses involving the manufacture, use, or storage of highly flammable (or toxic) materials and highly water reactive materials should be located at an adequate distance from other uses and should be regulated to minimize the risk of on-site and off-site personal injury and property damage. The transport of highly flammable materials by rail, truck, or pipeline should be regulated and monitored to minimize risk to adjoining uses.

P6: Adequate separation shall be provided between areas where hazardous materials are present and sensitive uses such as schools, residences, and public facilities.

City of Livermore General Plan*Infrastructure and Public Services Element*

Goal INF-8: Collect, store, transport, recycle, and dispose of solid waste in ways that are safe, sanitary, and environmentally acceptable.

Goal PS-4: Protect the community from the harmful effects of hazardous materials.

Goal PS-5: Minimize risks associated with aircraft operations at the Livermore Municipal Airport.

3.8.3 Environmental Setting

The Project area is located north of I-580 and west of Vasco Road on relatively level terrain, in a relatively sparsely populated portion of unincorporated Alameda County. The southern portion of the R649 Project is located within the City of Livermore. In unincorporated Alameda County, few residences are located in the vicinity of work areas, the closest being immediately adjacent to the R700 Project along North Livermore Road where the pipeline would be realigned around the residence (Figure 2-6). In Livermore, the southern portion of the R649 Project is located immediately south of the existing Shea Homes residential development (Figure 2-2).

Schools

No existing or proposed schools have been identified within 0.25 mile of the Project site. The nearest schools to the Project site include Las Positas Community College (located approximately 0.35 mile northwest of the nearest access road associated with the Proposed Project and approximately 0.45 mile northwest of the proposed pipeline alignment), and Rancho Las Positas Elementary School (located approximately 0.9 mile south of the R649 Project).

Hospitals

The nearest hospital is Valley Care Medical Center, located in the City of Pleasanton approximately 4.75 miles from the southern portion of the R649 Project.

Airports

A portion of the Proposed Project (the R649 Project and a segment of the R700 Project) is located within 2 miles northeast of the Livermore Municipal Airport. The R649 Project and southern portion of the R700 Project fall within the Airport Influence Area (AIA) of the Livermore Municipal Airport as defined in the Livermore Municipal Airport Land Use Compatibility Plan (ALUCP), which is a local planning tool that does not apply to the Proposed Project. Likewise, the Alameda County ALUCP, which also does not apply to this project, guides airport development in the County. The Proposed Project is not located within the vicinity of a private airstrip.

Hazardous Materials

The Project area is not identified on a list of hazardous materials sites pursuant to Government Code Section 65962.5 (Cortese List) (CAL EPA 2017). Additionally, a review of the SWRCB GeoTracker Database and the DTSC EnviroStor Database was performed to identify existing LUST sites and other contaminated sites on- or off-site of the Project site. The list of hazardous material sites pursuant to Government Code Section 65962.5, as reported by GeoTracker (SWRCB 2015) and EnviroStor (DTSC 2017) does not identify any sites along the Proposed Project or within 2,500 feet of the Project site. DTSC is responsible for maintaining a portion of the information captured on the Cortese List, as reported on DTSC's EnviroStor Database. Government Code Section 65962.5 requires the USEPA to update the Cortese List annually.

Hazardous materials to be used during construction activities (fuels, oils, and lubricants) are of low toxicity. These materials are required for operation of construction vehicles and equipment.

Fire Hazards

Fire protection in the Project area is provided by ACFD (unincorporated County; majority of Proposed Project) and Livermore-Pleasanton Fire Department (LPFD) (southern portion of R649 Project). CAL FIRE has developed a Fire Hazard Severity Scale that uses three criteria to evaluate and designate potential fire hazards in wildland areas: fuel loading (vegetation), fire weather (winds, temperatures, humidity levels, and fuel moisture contents), and topography (degree of slope). Based on these criteria, the Proposed Project crosses moderate and high fire hazard severity zones, and also includes portions crossing Unincorporated Local Responsibility Areas (LRAs) (CAL FIRE 2007).

3.8.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APMs would be implemented as part of the Proposed Project to avoid/minimize potential impacts to hazards and hazardous materials. APMs are described in detail in Section 2.10.

- APM HAZ-1: Hazardous Substance Control and Emergency Response.
- APM HAZ-2: Fire Avoidance and Suppression.
- APM HWQ-1: SWPPP Development and Implementation, Erosion and Sedimentation.
- APM HWQ-2: Worker Environmental Awareness Program Development and Implementation.
- APM HWQ-3: Secondary Containment
- APM BIO-10: Vehicles and Equipment Fueling and Maintenance.
- APM T&T-1: Traffic Coordination.

Impact HAZ-A Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
Less than Significant Impact

Regular fueling and maintenance activities would be performed off-site; however, construction equipment would require occasional refueling and maintenance at designated areas within the Project site. Vehicles and equipment would not be refueled within 100 feet of a wetland or water body unless appropriate spill control and containment areas are provided as specified in APM BIO-10. Appropriate materials would be used on-site to prevent and manage any spills. These procedures are detailed in APM HAZ-1 and would be outlined in the project-specific SWPPP, required pursuant to APM HWQ-1.

The majority of hazardous materials to be used during construction (fuels, oils, and lubricants) are required for operation of construction vehicles and equipment and are of low toxicity. APMs HWQ-1 and BIO-10 would reduce the exposure to or potential for accidental spills involving the use of these materials. Implementation of standard BMPs under APM HWQ-1 would reduce exposure to hazardous materials during operations to a less than significant impact. APM HWQ-2 would ensure that the Proposed Project workforce know the correct spills prevention and response measures and BMP implementation.

Compressed natural gas would be temporarily provided to existing customers while gas is purged from L131. CNG trailers would be parked at the customer's property for the duration of time L131 is out of service. There would be a total of 8 trips (including both trailer drop-off and pick-up) at each CNG location. The use, storage, and disposal of hazardous materials and wastes are controlled by existing regulations that would be followed during construction and operation of the Proposed Project. Additionally, the standard construction BMPs outlined in APM HWQ-1 would be implemented to further reduce the potential for pollutant discharge during construction. Therefore, construction of the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and impacts would be less than significant under this criterion.

Pipeline cleaning could generate contaminated water and cleaning fluids that would require transport and disposal. The solution used to clean retired pipe segments typically has high pH and may contain mercury concentrations, so it would be hauled to an approved disposal site. All hydrotest water generated from the retired pipe cleaning work would be collected in temporary

storage tanks, tested, and used onsite for dust control, if appropriate based on testing results, or hauled to an approved disposal site in accordance with all applicable federal, state, and local regulations. APM HWQ-3 would require secondary containment such as rubber berms with lips, larger layflat hose, or other suitable materials, be provided for water piping/hoses, frac tanks, and other equipment used to convey and temporarily store water and cleaning fluids. Therefore, cleaning and retiring the existing L131 pipeline segments would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and impacts would be less than significant.

Operation of the Proposed Project would not require the transport, use, or disposal of hazardous materials.

Impact HAZ-B Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact

The Proposed Project would require use of hazardous materials, primarily for operation of construction vehicles and equipment, contaminated water, and cleaning fluids from pipeline cleaning. These hazardous materials could result in accidental spills or upsets releasing the materials into the nearby area. PG&E would properly maintain all construction equipment to prevent leaks of fuels, lubricants, or other fluids into waterways. Emergency spill supplies and equipment would be kept at staging areas and would be clearly marked. PG&E would take appropriate precautions when handling and/or storing chemicals (e.g., fuel and hydraulic fluid) near waterways and wetlands, and any and all applicable laws and regulations would be followed. Regular fueling and maintenance activities would be performed off-site. If service and refueling is necessary on-site, these activities would take place at staging areas and at least 150 feet away from waterways and wetland boundaries to prevent spills from entering waterways or wetlands unless appropriate spill control and containment areas are provided as specified in APM BIO-10. Appropriate materials would be on-site to prevent and manage spills. These procedures are detailed in APM HAZ-1 and would be outlined in the project-specific SWPPP, required pursuant to APM HWQ-1.

No hazardous materials were identified either at the site or within 2,500 feet of the pipeline alignment so it is not anticipated that the Proposed Project workforce would encounter any contaminated soils during construction. Nonetheless, pipeline operations are highly regulated to reduce significant hazard conditions. If hazardous substances are unexpectedly encountered, work would be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment, pursuant to APM HAZ-1. If excavation of hazardous materials is required, they would be handled, transported, and disposed of in accordance with all applicable federal, state, and local regulations. Therefore, the Proposed Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; impacts would be less than significant.

Impact HAZ-C **Emit hazardous emissions or handle hazardous or acutely-hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**
No Impact

There are no existing schools within 0.25 mile of the Project area. Therefore, the project would not emit hazardous emission or handle hazardous or acutely-hazardous substances or waste within one-quarter mile of an existing or proposed school and no impact would occur.

Impact HAZ-D **Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**
No Impact

The Proposed Project would not be located on a site that is included on the listing of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As such, it would not create a significant hazard to the public or environment and no impact would occur.

Impact HAZ-E **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**
No Impact

A portion of the south end of the Proposed Project (the R649 Project and a segment of the R700 Project) is located within 2 miles of the Livermore Municipal Airport and falls within the AIA of the Livermore Municipal Airport as shown in the Livermore Municipal ALUCP. Although the Proposed Project is not subject to this local plan, it would not conflict with it.

All linear infrastructures (pipeline and CP cable) would be located below ground. Small existing above-ground features associated with pipeline operations would be removed and replaced with similar new features – ETS/CTS, pipeline markers, and rectifiers for the CP system. Therefore, the Proposed Project components would not have potential to affect the safety of an airport, or the safety of people residing or working in the Project area and there would be no impact.

Impact HAZ-F **For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the Project area?**
No Impact

The Proposed Project is not within the vicinity of a private airstrip. As such, it would not result in a safety hazard and no impacts would occur.

Impact HAZ-G **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**
Less than Significant Impact

The Proposed Project would not introduce permanent features impairing implementation of, or physically interfering with, an emergency response plan or emergency evacuation plan. Public

road closures are not proposed during construction of the Proposed Project; however, it is possible encroachment permits obtained from the County for trenching through roadways could require temporary roadway closure. Temporary closures would be limited to pipe installation and restoration of pavement, and the construction site would be plated when construction is not actively occurring, to facilitate access. Encroachment permits could also require traffic control and detours as necessary. APM T&T-1 would be implemented to notify emergency service providers of the timing, location, and duration of construction activities; traffic control devices and signage would be used as needed. As such, the Proposed Project would not interfere with emergency plans or access around construction activities. Therefore, impacts would be less than significant.

Impact HAZ-H Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less than Significant Impact

Project construction activities would occur within or in areas surrounded by annual grassland that is susceptible to wildland fires. Work that involves flame, arcing, or sparking equipment (such as welding) during pipeline joining and cutting could potentially result in the combustion of native materials located close to the site if sufficient controls are absent. All grassland would be mowed in construction work areas including overland access routes prior to mobilization of equipment. Construction areas would regularly be treated with water for dust control, which also enhances fire protection. Open fires would not be allowed at or near work areas. Heat or sparks from vehicles or equipment have the potential to ignite dry vegetation and cause a fire; however, CAL FIRE requires the use of spark arrestors on all internal combustion engines. In addition, PG&E would implement fire prevention and suppression measures described in APM HAZ-2 during construction. With the implementation of APM HAZ-2, impacts are considered less than significant.

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3.9 HYDROLOGY AND WATER QUALITY

Would the Project:		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b)	Substantially deplete ground-water supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f)	Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g)	Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation of seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.9.1 Introduction

Summary

This section documents the existing hydrological setting in the Project area and evaluates the potential impacts resulting from construction of the Proposed Project. Based on the impact analysis, the Proposed Project would result in less than significant impacts to hydrology and water quality with implementation of mitigation measures.

Methodology

Evaluation of potential hydrologic and water quality impacts was based on a review of Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Maps of the Project site, the Alameda County General Plan, and the City of Livermore General Plan. The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental effects. In determining the level of significance, the analysis assumes that the Proposed Project would comply with relevant federal, state, and local ordinances and regulations.

3.9.2 Regulatory Setting

The federal Clean Water Act (CWA), managed by the USEPA, regulates water quality in California. Implementation of CWA regulations is the responsibility of the SWRCB and the nine RWQCBs. Water quality at the Project site is primarily regulated by the San Francisco Bay RWQCB. FEMA is responsible for flood protection guidance and information, which is implemented at the state and local level through state legislation and local flood protection ordinances. The following laws and regulations provide the water quality requirements applicable to the Proposed Project.

Federal

Clean Water Act

The CWA is managed by the USEPA and sets water quality standards for contaminants in surface waters. The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and programs in California, to the SWRCB and the nine RWQCBs.

Section 401 of the CWA requires a project that discharges into waters of the U.S. to obtain certification that the project would not violate water quality standards. In California, SWRCB and the nine RWQCBs have the primary responsibility for administering State and federal regulations related to water quality, including Section 401 water quality certification.

Section 402 of the CWA established the NPDES, which requires any discharge of pollutants into waters of the U.S. to comply with a NPDES permit. In California, stormwater discharges associated with construction activities are covered by a statewide General Permit, discussed below in local regulations.

Section 404 of the CWA prohibits discharge of fill or dredge material into waters of the U.S., including wetlands. Section 404 compliance is discussed further in Section 3.4, Biological Resources.

State

NPDES Permit Requirements

The Porter-Cologne Water Quality Act provides the basis for water quality regulation in California. The Act requires the nine RWQCBs to adopt water quality control plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and existing water quality problems. The SWRCB and the RWQCBs have the authority under this act to regulate waste discharge to surface waters or land, and also to provide the certification required by Section 401 of the CWA as described above.

The CWA has nationally regulated the discharge of pollutants to the waters of the U.S. from any point source since 1972. In 1987, amendments to the CWA added Section 402(p), which established a framework for regulating non-point source storm water discharges under the NPDES, which is administered through State agencies, such as the California SWRCB. The Proposed Project is required to comply with two NPDES permit requirements.

The NPDES General Construction Permit Requirements apply to clearing, grading, and disturbances to the ground such as excavation. Project applicants are required to submit a Notice of Intent with the SWRCB's Division of Water Quality. The Notice of Intent includes general information on the types of construction activities that would occur on the site. Applicants also are required to submit a site-specific SWPPP for construction activities. The SWPPP would include a description of BMPs to minimize the discharge of pollutants from the site during construction as well as appropriate monitoring, sampling, and reporting.

California Streambed Alteration Notification and Agreement

Section 1602 of the California Fish and Game Code requires that a Streambed Alteration Notification be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, 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.” CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The proposal that is finally and mutually agreed upon by CDFW and the applicant is the Streambed Alteration Agreement (SAA). PG&E has applied for a SAA due to an overland crossings or other impacts to Cayetano Creek and two other ephemeral drainages, as well as four onsite swales (notification number 1600-2017-0041-R3). Elements of channel topography and function, such as channel profiles, contours, and bank stability, will be protected through the measures in the SAA.

Local

Because CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. The following summary of local regulations and regulatory agencies relating to hydrogeology and water quality is provided for informational purposes and to assist with the CEQA review.

In Alameda County, each of the 14 cities, the unincorporated area, and the two flood control districts share one NPDES permit through the ACCWP. Measures in the Alameda County Municipal NPDES permit address stormwater treatment and control, source control and site design, and hydromodification management. The Alameda County C.3 Stormwater Technical Guidance (2016) identifies post-construction stormwater controls for projects to meet local municipal requirements. The municipalities in Alameda County require post-construction stormwater controls or permanent features to be included in a project to reduce pollutants in stormwater and/or erosive flows during the life of the project.

The Alameda County General Plan contains water resource objectives that include sound design of drainage systems throughout the County to control soil erosion caused by water; in addition, the General Ordinances of Alameda County administered by the Alameda County Public Works Agency are related to grading and construction, including those that may directly or indirectly affect surface water quality by contributing to erosion or siltation or alter existing drainage patterns. Chapter 13.08 of the General Ordinances of Alameda County, Supp. No. 84, Stormwater Management and Discharge Control Ordinance regulates discharges into the County storm drain system, including the provisions for stormwater permits. Ordinance Chapter 15.36 Grading, Erosion and Sediment Control controls the construction of cuts and fills on private property, particularly with regard to limiting sedimentation of the County storm drain and flood control systems.

3.9.3 Environmental Setting

The following paragraphs describe the hydrologic and water quality setting within Alameda County.

Climate

Alameda County has a Mediterranean climate characterized by warm, dry summers and cold, moist winters in the eastern portion and a marine influence in the western portion. The Project site, located just north of Livermore, is in the north-northeastern portion of the County. In general, the amount of precipitation increases inland from the San Francisco Bay as the elevation increases (Soil Conservation Service 1975). Most annual precipitation in the County occurs as rain during the wet season, which extends from November to April. The average annual precipitation for Alameda County is 23 inches (USA.com 2013).

Surface Water Resources

The Project area is located within the Alameda Creek Watershed, which encompasses approximately 633 square miles between Mt. Diablo in the north, Mt. Hamilton in the south, Altamont Pass in the east, and the San Francisco Bay to the west. Land uses in this watershed are largely undeveloped, open range, and comprised of public lands and parks, cropland, and smaller areas of residential, commercial, and industrial uses (Alameda County Water District [ACWD] 2016a). During rain events, water flows from the uplands in the surrounding hills into a network of ephemeral channels and swales that drain into Cayetano Creek, that in turn flows south for 2.09 miles to Arroyo Las Positas, then for 5.34 miles west to Arroyo Mocho, then 3.14 miles west to Arroyo de la Laguna, and 7.14 miles south to Alameda Creek. Alameda Creek then enters San Francisco Bay to the west of the City of Fremont.

Approximately 0.25 acre of potential Waters of the U.S. were identified within the Project site, consisting of approximately 0.05 acre of ephemeral drainages (W-1, W-2, and W-4), and approximately 0.20 acre of seasonal swales (W-3, W-5, W-7, and W-8). Ephemeral drainage W-4, Cayetano Creek, drains to Arroyo Las Positas. The R649 project is located immediately adjacent to Arroyo Las Positas where it runs parallel to I-580. These water features are described in Section 3.4, Biological Resources, and shown in Figures 2-0 through 2-9.

Groundwater Resources

The Project site is underlain by the Niles Cone Groundwater Basin, a sub-basin of the Santa Clara Valley Groundwater Basin, the primary groundwater basin in Alameda County. The Niles Cone Groundwater Basin is an alluvial aquifer system consisting of unconsolidated gravel, silt, and clay. The primary source of recharge for the Niles Cone Groundwater Basin is local runoff from the Alameda Creek Watershed. To a lesser extent, infiltration of rainfall and water applied for dust control also provide a local source of recharge for the groundwater basin (ACWD 2016b).

Water quality in the groundwater system is characterized by fresh groundwater in the eastern portion of the groundwater basin near the Project site, transitioning into brackish groundwater to the west. The brackish groundwater is a residual result of historical seawater intrusion from the adjacent San Francisco Bay. The Niles Cone Groundwater Basin has capacity to store water from

year to year; however, the usable storage capacity is significantly limited by the potential for seawater intrusion if groundwater levels become too low. Local groundwater storage provides a short-term source of supply during dry years (ACWD 2016c). During the geotechnical analysis, groundwater was encountered from about 29 to 38 feet. The historical high groundwater level ranges from approximately 10 to 30 feet below grade along the Proposed Project (Appendix E).

3.9.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project. BMPs such as those outlined in the California Stormwater Quality Association's (CASQA) Construction BMP Handbook (CASQA 2010) would be implemented during project construction. These BMPs are standard in the construction industry and are commonly used to protect water quality. Standard practices and BMPs would be incorporated into project design. PG&E's SWPPP and erosion control BMPs would be used to minimize any soil erosion from surface runoff or wind. Furthermore, project activity in the vicinity of Cayetano Creek and the six other drainages and swales would be subject to the protective measures in the Streambed Alteration Agreement issued by CDFW. Finally, implementation of the following APMs would ensure that hydrology and water quality impacts would be less than significant. The following APMs would be implemented as part of the Proposed Project to avoid/minimize potential impacts to hydrology and water quality. APMs are described in detail in Section 2.10.

- APM HWQ-1: SWPPP Development and Implementation, Erosion and Sedimentation.
- APM HWQ-2: Worker Environmental Awareness Program Development and Implementation.
- APM BIO-10: Vehicles and Equipment Fueling and Maintenance.

Impact HWQ-A Violate any water quality standards or waste discharge requirements?

Less than Significant Impact

Project activities would include hydrostatic testing, pipeline cleaning and, although not expected, possible dewatering of groundwater encountered in excavations, all of which would result in residual water requiring disposal. Any water or fluids used as part of a construction activity would be conveyed by piping to temporary storage tanks for testing before being reused on site for dust control, hauled off-site for disposal at an appropriate disposal site, or discharged to a sewer drain connected to a publicly owned treatment network. If used for on-site dust control, free-standing water would not be allowed to collect on-site, and water would not be allowed to enter on-site wetlands. Solution used to clean the pipeline that has a high pH and any cleaning or rinse water with high concentrations of mercury would be hauled offsite and disposed of at an approved facility. Groundwater encountered during dewatering would be tested prior to disposal. Trenching through W-1, W-3, and W-4 and removal of the span from W-4 would be conducted during the dry season when flowing water is not anticipated and in accordance with authorizations obtained from the RWQCB and CDFW for the project.

Other potential water pollutants associated with the Proposed Project could include soil sediment and petroleum-based fuels or lubricants. The Proposed Project involves ground-disturbing activities

that could potentially cause soil erosion and release excess sediment into the nearby receiving waterbodies, particularly if precipitation occurs during or immediately following ground disturbing activities. Implementation of a Project-specific SWPPP, worker training, and appropriate vehicle refueling and spill containment measures, as described in APM HWQ-1, APM HWQ-2, and APM BIO-10, along with BMPs outlined in the California Stormwater Quality Association's Construction BMP Handbook, would ensure the Proposed Project complies with water quality standards and waste discharge requirements. Therefore, impacts on water resources would be less than significant under this criterion.

Impact HWQ-B Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?
Less than Significant Impact

Temporary construction water supply for the Proposed Project would be provided by a local municipal water supplier. Additionally, potable water would be purchased and trucked to the site for workers during construction. Therefore, the Proposed Project is not expected to directly consume groundwater.

The historical high groundwater level ranges from approximately 10 to 30 feet below grade along the Proposed Project (Appendix E). Excavations for the Proposed Project would be shallow, i.e. approximately 8 feet below the ground surface. Deeper excavations would be required for mechanical boring beneath roadways. While generally not expected for the Proposed Project, groundwater could be temporarily encountered in trenches and bore pit excavations. If encountered, groundwater would be conveyed by piping to temporary storage tanks for testing before being reused on site or hauled off-site for disposal. Since the Proposed Project would not directly use groundwater or install new impervious surfaces that could affect ground water recharge, and the potential for encountering ground water while digging bore pits is low, impacts to local groundwater resources would be less than significant

Impact HWQ-C Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?
Less than Significant Impact with Mitigation

Construction of the Proposed Project involves earth moving activities (trenching, spoils storage, and backfilling) and the use of existing access roads within the Project site. Earth moving activities have the potential to alter existing drainage patterns through the modifications of intermittent and ephemeral streams in a manner that may result in erosion or siltation within the Project site and receiving waterbodies. Three seasonal swales (W-5, W-7, and W-8) are located along access routes to the R700 Project. At these locations, vegetation would be mowed and mats/plates would be installed if needed to facilitate access; however, grading, blading or other discharge of material would not occur within or adjacent to these features. The contours of these features

would be preserved throughout construction. Impacts to seasonal swale W-6, located within Staging Area R700.B, would be avoided.

The new pipeline for the R700 Project would be installed by trenching through two ephemeral drainages (W-1 and W-4) and one seasonal swale (W-3). An existing pipeline span also would be removed from the banks of ephemeral drainage W-4 as part of the R700 Project. Construction equipment would routinely cross W-1 and W-4 for access along the construction areas. At these locations, PG&E would use clear span temporary bridges to facilitate access without impacting the drainage contours. Excavated soils would be stockpiled in an adjacent upland areas away from water features and returned to their former locations after removal of the above-ground pipe structures. Implementation of APM HWQ-1 would control and minimize erosion during and after construction activities. Impacts on the roadside drainage W-2 would be avoided by extending the boring beneath May School Road away from this feature.

Construction would occur during the dry season when streambeds are expected to be dry. However, if surface water is present, construction activities would temporarily alter the drainage patterns of W-1 and W-4, which is considered a potentially significant impact. Implementation of **Mitigation Measure HWQ-1** would ensure water barriers and dewatering structures are installed to divert water around the Work Area to maintain downstream flows and avoid/minimize erosion and downstream turbidity. No substantial alteration to the swales and ephemeral drainage channels would therefore occur, and impacts would be less than significant with implementation of **Mitigation Measure HWQ-2**.

Mitigation Measures

Mitigation Measure HWQ-1: Prepare and Implement a Water Diversion and Dewatering Plan.

Although flowing water is generally not expected at any work areas, there is some possibility for water to be present at W-1 and W-4. A Water Diversion and Dewatering Plan shall be prepared and provided to CDFW for review and approval 15 days prior to the start of construction near any drainage that may have water during the work period. The Plan shall include specific provisions for each site where dewatering or diversion could possibly be necessary and measures to maintain natural flows to the greatest extent feasible and minimize erosion. Water diversions (e.g., coffer dam, sand bags) around channel bank work areas would be installed if there is a 30 percent or greater chance of precipitation forecasted as shown in the National Oceanic and Atmospheric Administration (NOAA) website at www.NOAA.gov.

Mitigation Measure HWQ-2: Restore Swale and Channel Contours. Upon completion of excavation burial, and prior to October 15 in any construction year, swale and channel contours shall be restored to previous contours.

Impact HWQ-D Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less than Significant Impact with Mitigation

Three seasonal swales (W-5, W-7, and W-8) are located along access routes to the R700 Project. At these locations, vegetation would be mowed and mats/plates would be installed if needed to facilitate access. No grading or blading or other discharge of material would occur in these swales, and contours would be preserved throughout construction. Impacts to seasonal swale W-6 located within Staging Area R700.B would be completely avoided during construction. The new pipeline for the R700 Project would be installed by trenching through two ephemeral drainages (W-1 and W-4) and one seasonal swale (W-3), and boring beneath and avoiding an asphalt lined roadside drainage (W-2). An approximately 100-foot above-ground pipeline section spanning ephemeral W-4 would be removed to prevent atmospheric corrosion after deactivation of the pipeline. Construction equipment would routinely cross two ephemeral drainages, W-1 and W-4, for access along the construction areas. At these locations, PG&E would use clear span temporary bridges to facilitate access without impacting the drainage contours. The Proposed Project would not affect overall local drainage patterns or change erosion or siltation patterns in a manner that would result in flooding. With the implementation of Mitigation Measure HWQ-2 at W-1 and W-4, potential impacts under this criterion would be less than significant.

Impact HWQ-E Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant Impact

The Proposed Project would not result in any new paved/impervious surfaces. As described above, upon completion of construction activities, all disturbed areas would be restored to approximate pre-Project conditions. Water or fluids generated during pipeline cleaning, hydrotesting and, although unlikely, possible groundwater encountered in excavations, would be tested and reused on site, or hauled off-site and appropriately disposed of. These activities would not result in an increased volume of runoff water such that existing or planned stormwater drainage systems would be overwhelmed. Implementation of APM HWQ-1 would include BMPs to control runoff including water quality during and after construction activities. Therefore, this impact would be less than significant.

Impact HWQ-F Otherwise substantially degrade water quality?

Less than Significant Impact

Construction would be conducted during the dry season to minimize stormwater runoff and potential for surface water in drainages/seasonal swales. Implementation of APM HWQ-1 would include erosion control and sediment transport BMPs during construction, and installation of erosion and sediment control measures, such as straw wattles, covers, and silt fences, before the onset of winter rains or any anticipated storm events. Upon completion of construction activities, disturbed areas would be restored to approximate pre-Project conditions. The Proposed Project would not create a substantial additional source of polluted runoff or otherwise substantially degrade water quality. Therefore, impacts would be less than significant.

Impact HWQ-G Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*No Impact*

The Project site is outside the 100-year flood plain hazard area (FEMA 2009) and does not involve construction of housing. Therefore, no impacts would result.

Impact HWQ-H Place within a 100-year flood hazard area structures which would impede or redirect flood flows?*No Impact*

The Project site is outside the 100-year flood hazard area and not located near main drainages (FEMA 2009), and as a result would not impede flood flows. Therefore, no impacts would result.

Impact HWQ-I Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*No Impact*

The Project site does not lie in a dam inundation area (Alameda County General Plan 2014). The Project site is located outside of a 100-year floodplain, as defined by FEMA (FEMA 2009), and does not involve construction of structures. Therefore, no impacts would result.

Impact HWQ-J Inundation of seiche, tsunami, or mudflow?*No Impact*

The Project site, primarily because of its location and topographical characteristics, would not be susceptible to seiche, tsunami, or mudflow. Seiches affect locations adjacent to larger water bodies such as lakes or reservoirs; the Project site, at the north end, is located almost 3 miles from Los Vaqueros Reservoir and is not located near any other such water body. The Project site is located over 45 miles from the Pacific Ocean, and over 10 miles from Suisun Bay, which substantially reduces the potential for impacts from tsunami. In addition, based upon the gently sloping topography of the Project site, as well as the lack of adjacent hillsides and embankments, the potential for mudflow on the Project site also would be minimal. Therefore, no impacts associated with seiche, tsunami, or mudflow would occur.

3.10 LAND USE AND PLANNING

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural communities' conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.10.1 Introduction

Summary

This section includes information on regulatory and environmental settings and analysis of potential land use impacts resulting from the Proposed Project. Based on the impact analysis, the Proposed Project would result in less than significant or no impacts to land use and planning.

Methodology

Evaluation of potential land use impacts are based on a review of documents pertaining to the Proposed Project, including the County of Alameda and City of Livermore General Plans, and Municipal Codes and Zoning Ordinances. In determining the level of significance, this analysis assumes that the Proposed Project would comply with relevant state and local ordinances and regulations, as well as county and city General Plan goals, policies, and actions.

3.10.2 Regulatory Setting

Local

Because the CPUC has jurisdiction over the design, construction, and operation of gas pipelines and associated facilities, the Proposed Project is not subject to local discretionary regulations. This section includes a description of the local regulations addressing land-use resources issues generally, and is provided for informational purposes to assist CEQA review.

Alameda County General Plan*Land Use Element*

The primary land use designations for the Proposed Project are Resource Management (RMG) and Large Parcel Agriculture (LPA).

Public Services and Facilities Element

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.

City of Livermore General Plan

The land use designations for the R649 Project are Business and Commercial Park (BCP)/Urban High Residential (Category 4) (UH-4).

Land Use Element

Goal LU-7: Ensure that alterations to existing topography are minimized.

P1: Consistent with the other provisions of LU-6.1.P1 through P4; alteration of topography by grading, excavating, filling or any development activity shall be minimized.

Infrastructure and Public Services Element

Goal INF-4: Provide utilities in ways that are safe, environmentally acceptable, and financially sound.

P1: The City shall ensure that utilities, including electricity, natural gas, telecommunications, and cable, are available or can be provided to serve the projected population within the City in a manner which is fiscally and environmentally responsible, aesthetically acceptable to the community, and safe for residents. However, the ultimate responsibility for ensuring that the utilities are available to support new development rests on the sponsor of Proposed Projects.

3.10.3 Environmental Setting

Alameda County has designated the Project area as RMG and LPA in the Alameda County General Plan. Both the land use designations require a minimum parcel size of 100 acres and allow public and quasi-public uses and utility corridors. The Project area encompasses an approximately 5-mile-long corridor and traverses primarily grassland and dry farmland areas interspersed with seasonal drainage swales and ephemeral drainages. A segment of the R700 Project is routed around a rural residence located east of North Livermore Avenue and north of Hartford Avenue (Figure 2-5).

The southern approximately 1,700 feet of the R707 Project would be developed on County Assessor's Parcel Number 902-6-3-2, which is covered by a perpetual conservation easement for the Lin Livermore Mitigation Area consistent with the Dublin Ranch Lin Livermore Conservation Area Management Plan. The easement was granted to the private property owner by the Center for Natural Lands Management. This conservation easement is intended to retain the property in a natural and open space condition for the protection of the properties significant ecological and habitat values that benefit endangered, threatened, and other rare biological species. The easement allows for maintenance and repair of existing utility lines, including pipeline replacement, when the replacement allows for continued and safe operation of the existing gas system and upon obtaining any necessary permits from the USFWS, RWQCB, and CDFW (Alameda County 2010).

The City of Livermore Community General Plan designates the portion of the Project area within City boundaries as BCP/UH-4. A new residential development is currently under construction on the land adjacent to the R649 Project.

3.10.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary.

Impact LU-A	Physically divide an established community?
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No Impact

The proposed pipeline replaces an existing pipeline, is underground, and the permanent easement would be generally contiguous or adjacent to the existing permanent easement and would not physically divide any parcel. All construction areas and temporary and permanent easements would be restored to approximate pre-Project conditions. The Proposed Project would not divide any community and no impact would occur.

Impact LU-B	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
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No Impact

As stated previously, the Proposed Project is not subject to local discretionary regulations. However, the Proposed Project would be consistent with the policies of the Alameda County General Plan and the City of Livermore General Plan listed above.

The southern approximately 1,700 feet of the R707 Project would be located within the conservation easement for the Lin Livermore Mitigation Area. PG&E's existing easement allows for maintenance and repair of utility lines, including pipeline replacement, when the replacement allows for continued and safe operation of the existing gas system and with any necessary permits from the USFWS, RWQCB, and CDFW (Alameda County 2010). Within the conservation easement, PG&E is requesting an additional permanent easement for the new pipeline and temporary construction

easement for the construction work corridor and Staging Area 707.A. All disturbed areas within the conservation easement would be restored to approximate pre-Project conditions and existing use of the property would continue after construction activities are complete. PG&E is obtaining permits from USFWS, RWQCB, and CDFW for the Proposed Project, as identified in Section 2.9. Potential temporary impacts to sensitive biological resource from the Proposed Project, including within the conservation easement, are discussed in Section 3.4, Biological Resources. Therefore, the Proposed Project would not conflict with the Conservation Easement and there would be no impact.

Impact LU-C Conflict with any applicable Habitat Conservation Plan or Natural Communities' conservation plan?

No Impact

The Project area is within the EACCS Study Area Conservation Zone 4, but is not within an approved or in-progress Habitat Conservation Plan or Natural Community Conservation Plan. EACCS does not promulgate regulations for any participating local agency. Instead, it is a guidance tool to inform decisions during standard environmental permitting processes for projects that occur in the plan area. The EACCS addresses 19 listed and non-listed species, including California tiger salamander and California red-legged frog, and provides a framework for long-term conservation and management of these species and the habitats that support them. The USFWS issued a programmatic Biological Opinion for the EACCS on May 31, 2012 (USFWS 2012b), providing compliance with Section 7 of the Endangered Species Act for USACE permitted projects. It is anticipated the Proposed Project would be amended to the programmatic Biological Opinion by the USFWS. As discussed in Section 3.4, Biological Resources, the EACCS is not a regulatory document, but rather it provides guidance. Therefore, no impact would occur.

3.11 MINERAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.11.1 Introduction

Summary

This section discusses potential minerals found in Alameda County and the potential for minerals to be present and recoverable in the Project area. Due to the lack of mineral resources present in the Project area, the Proposed Project would have no impact on mineral resources.

Methodology

The following analysis is based on a review of available maps and documents published by the CDC Office of Mines Reclamation, Alameda County General Plan, City of Livermore General Plan, and Chapter 2.0, Project Description, of this ISMND.

3.11.2 Regulatory Setting

State

Surface Mining and Reclamation Act

The California Surface Mining and Reclamation Act of 1975 (SMARA) was enacted in response to land use conflicts between urban growth and essential mineral production. SMARA (Public Resources Code § 2710 et seq.; subsequently amended) is the primary regulation for onshore surface mining in the State. SMARA mandated that aggregate resources throughout the State be identified, mapped, and classified by the State geologist so that local governments could make land use decisions accordingly and with regard to preservation of access to those resources. Local jurisdictions are required to enact specific plan procedures to guide mineral conservation and extraction at particular sites, and to incorporate mineral resource management policies into their general plans. The Division of Mines and Geology has prepared Mineral Land Classification Maps for aggregate resources. The Mineral Land Classification Maps designate four different types of mineral resource zone (MRZ) sensitivities. The four classifications are:

- **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood for their presence exists.
- **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.
- **MRZ-3:** Areas containing mineral deposits the significance of which cannot be evaluated from available data.
- **MRZ-4:** Areas where available information is inadequate for assignment of any other MRZ zone.

3.11.3 Environmental Setting

Alameda County contains both metallic and non-metallic minerals including, sand and gravel, salt, stone, petroleum, and clays (Alameda County General Plan 1994). In addition, asbestos, bromine, chromite, coal, copper, gold, lead, lime, magnesite, magnesium compounds, manganese, potash, pyrite, silica, silver, soapstone, and travertine have been extracted and reported in the county (Alameda County General Plan 1994).

Areas within the vicinity of the City of Livermore are underlain by alluvial deposits, which contain significant reserves of sand and gravel deposits suitable for use as aggregate in the production of Portland Concrete Cement. In some areas of the City of Livermore, these deposits are experiencing development pressures as the City grows outward (City of Livermore General Plan 2004). These mineral resources are important to the economy of both Livermore and the State, and should be protected (City of Livermore General Plan 2004). In the City of Livermore, most areas south of Interstate-580 are classified as an area of significant mineral resources.

Based on CDC Division of Mines Mineral Resource Zones and Resource Sectors of Alameda County maps, the Project site is primarily located in MRZ-1, with the southwestern and northeastern portions of the Proposed Project located in MRZ-4.

3.11.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary.

Impact MIN-A Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state.

No Impact

The Project site is primarily located in MRZ-1, with the southwestern and northeastern portions of the Proposed Project located in MRZ-4; likely because of the steep topography. The Project site is underlain by Pleistocene Alluvium, early Pleistocene; and/or Pliocene Sediments, Pliocene Sedimentary rocks, and Miocene Sedimentary rocks, which are unlikely to be economically significant sources of mineral resources (USGS 2006). As such, the Proposed Project would not result in the loss of availability of a known mineral resources classified MRZ-2. Therefore, no impact would occur.

Impact MIN-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.
No Impact

The Project site is primarily located in MRZ-1, with the southwestern and northeastern portions of the Proposed Project located in MRZ-4. There are no known mineral resources within the Project area. Therefore, no impacts would occur to mineral resources because of the Proposed Project.

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3.12 NOISE

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project expose people residing or working in the Project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the Project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.12.1 Introduction

Summary

This section analyzes the potential noise sources associated with construction of the Proposed Project, including equipment used during construction activities. Based on the impact analysis, the Proposed Project would result in less than significant noise impacts.

Methodology

The following analysis is based on a review of documents pertaining to the Proposed Project, including the County and City of Livermore General Plans, and Chapter 2.0, Project Description, of this ISMND.

3.12.2 Regulatory Setting

Local

Because the CPUC has jurisdiction over the design, construction, and operation of gas pipelines and associated facilities, the Proposed Project is not subject to local discretionary regulations. This section includes a description of the local regulations addressing noise resources issues generally, and is provided for informational purposes to assist CEQA review.

County of Alameda Noise Control Ordinance

Alameda County has established noise limits in Chapter 6.60 (Noise) of Title 6 of its Code of Ordinances. Noise associated with construction is exempted from the provisions of the Noise Control chapter of the code as long as construction activities take place between 7:00 a.m. and 7:00 p.m. on weekdays and between 8:00 a.m. and 5:00 p.m. on weekends.

City of Livermore Municipal and Development Code

Noise Element

The City of Livermore regulates noise emissions through Chapter 9.36 of its Municipal and Development Code, which includes the following sections:

- **9.36.040 Blowers, Fans, and Combustion Engines.** The operation of any noise-creating blower, power fan, or internal combustion engine, the operation of which causes noise due to the explosion of operating gases or fluids, is prohibited, unless the noise from such blower or fan is muffled and such engine is equipped with a muffler device to deaden such noise in such a manner so as not to be plainly audible at a distance of either 75 feet from the source of the noise, or between the hours of 6:00 p.m. Saturday to 7:00 a.m. Monday; 8:00 p.m. to 7:00 a.m. on Monday, Tuesday, Wednesday and Thursdays; 8:00 p.m. Friday to 9:00 a.m. on Saturday or at all on city-observed holidays. (Ord. 1672 § 1, 2002; Ord. 1128 § 2, 1983; 1960 code § 13B.3(g)).
- **9.36.080 Hammers, Pile Drivers, Pneumatic Tools and Similar Equipment.** The operation between the hours of 6:00 p.m. Saturday to 7:00 a.m. Monday; 8:00 p.m. to 7:00 a.m. on Monday, Tuesday, Wednesday, and Thursdays; 8:00 p.m. Friday to 9:00 a.m. on Saturday or at all on city-observed holidays of any pile driver, pneumatic tools, derrick, electric hoist, sandblaster or other equipment used in construction, demolition or other repair work, the use of which is attended by loud or unusual noise, is prohibited. (Ord. 1672 § 2, 2002; Ord. 1128 § 2, 1983; 1960 code § 13B.3(f)).

3.12.3 Environmental Setting

Characteristics of Noise

Noise is defined as any sound that is unwanted and may cause adverse effects on human beings and fauna species. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. The zero point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness.

Sound intensity normally is measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for a number of various sound level metrics, including the day/night sound level and the Community Noise Equivalent Level (CNEL), both of which represent how humans are more sensitive to sound at night. In addition, the equivalent continuous sound level (Leq) is the average sound energy of time-varying noise over a sample period and the Lmax is the maximum instantaneous noise level occurring over a sample period.

Existing Noise Environment

The majority of the pipeline corridor is located in a relatively sparsely developed area of Alameda County, except the R649 Project that lies adjacent to a residential development. Some land uses are considered more sensitive to ambient noise levels than others due to the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, natural areas, parks, and outdoor recreation areas are generally more sensitive to noise than are commercial and industrial land uses, and are generally referred to as, noise sensitive receptors. The residential neighborhood located adjacent to the R649 Project, and a few rural residences located along the R700 and R707 Projects, are considered sensitive noise receptors. The nearest schools and medical facility are more than mile away from the Project site and are not anticipated to experience elevated noise levels during construction of the Proposed Project.

At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week. The variation is caused by different reasons, for example, changing weather conditions, the effects of seasonal vegetative cover, and human activities. While existing ambient noise levels in the Project vicinity were not measured as part of this project, typical principal noise generators within the project area are associated with transportation (e.g., airports, freeways, arterial roadways, and railroads).

Ambient noise levels in the area were measured as a part of the environmental documentation for the BART to Livermore Extension Project EIR (2017).⁵ The Proposed Project is primarily within a sparsely developed area and is relatively quiet, where the major source of noise is vehicle traffic on arterial roadways where existing traffic volumes are low. Along the rural Hartman Road, the daytime noise levels are a relatively low 50 dBA Leq at rural farmhouses (BART, 2017). However, most of the Project site would cross or be adjacent to several transportation and utility ROWs that have higher traffic volumes and, in consequence, higher noise levels. The southern portion of the R649 Project is adjacent to I-580 and is exposed to noise generated by the highway traffic with ambient noise levels between 62 and 65 CNEL (BART, 2017).

3.12.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APMs would be implemented as part of the Proposed Project to avoid/minimize potential impacts to noise. APMs are described in detail in Section 2.10.

- APM NOI-1: Notify Residents and Ranchers of Construction Activities.
- APM NOI-2: Noise Minimization with Quiet Equipment.

Impact NOI-A Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
Less than Significant Impact

Proposed Project construction activities would primarily occur in a sparsely populated rural area of unincorporated Alameda County, with exception of residential development, located adjacent to the R649 Project. The closest residence to the Proposed Project is within 50 feet of the R700 Project construction boundary, south of pipeline station 110+00 (Figure 2-5). No other residences are within 50 feet of the construction areas for the Proposed Project. The County exempts noise from construction activities that take place between 7:00 a.m. and 7:00 p.m. on weekdays and between 8:00 a.m. and 5:00 p.m. on weekends. Similarly, the City of Livermore prohibits noises from construction equipment between 6:00 p.m. and 7:00 a.m.

Construction noise would be created by equipment and vehicles as well as the purge of natural gas from the isolated portion of the existing pipeline. Crews typically would work from approximately 7:00 a.m. to 5:00 p.m., Monday through Saturday. Noise-related effects would be temporary and short-term, as work would move from one location to the next. No night work is planned for the Proposed Project. If nighttime work is deemed necessary during construction (i.e., local permit requirements, clearance work), night work would be limited in extent, duration, and equipment used. Purged gas would be safely released from points near either end of the Project site on L131, at the Vasco Station and/or the East Airway Blvd Station. The one-time purge would occur quickly from a line pressure of up to 125 psi, and PG&E does not propose to use a silencer or other noise

⁵ Draft Environmental Impact Report for the BART to Livermore Extension Project (J. Noise and Vibration), July 2017. Available at: <https://www.bart.gov/about/projects/liv/environment>.

control for the purge. Purging the pipeline of natural gas would create an increased noise level of approximately 110 dBA at the point of release. However, the purging activity would last only a few minutes. Quiet equipment used in the venting of gas would comply with the Livermore noise ordinance that requires blowers, fans or engines to be equipped with a muffler device. In accordance with APM NOI-1, PG&E would notify residents and ranchers of the construction schedule and would provide contact information for submitting complaints about noise (or other nuisances) from Project construction.

Typical construction equipment and the typical A-weighted noise levels associated with their use (as measured at 50 feet) are presented in Table 3.12-1. As shown in the table, the maximum noise generated from different types of equipment during construction activities would range between 80 dBA and 85 dBA at 50 feet. Implementation of APM NOI-2 would reduce temporary noise generation during construction by using equipment that generates less noise, where feasible and appropriate.

Noise levels experienced at the residence adjacent to pipeline station 110+00 are anticipated to be similar to levels shown in Table 3.12-1, and construction noise would only occur for a brief duration at this location. Because of the project's linear nature, construction noise at any one location would be of limited duration. Project construction noise during daytime hours would be exempt from the standards established in the County Noise Control Ordinance. Additionally, project-related construction noise would cease after construction is complete and would pose no potential conflict or incompatibility to existing or future land uses with noise levels in the area. Operational noise would not change from current practices, which are limited to vehicles conducting scheduled and emergency maintenance visits, if necessary. Therefore, implementation of the proposed project would not result in noise levels in excess of standards established in the local general plan or noise ordinance, and this impact would be less than significant.

Table 3.12-1: Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Pickup Truck	55
Pumps	77
Air Compressors	80
Backhoe	80
Front-End Loaders	80
Portable Generators	82
Dump Truck	84
Tractors	84
Auger Drill Rig	85
Concrete Mixer Truck	85
Cranes	85
Dozers	85
Excavators	85
Graders	85

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Jackhammers	85
Man Lift	85
Scrapers	85

Source: FHWA 2006.

Impact NOI-B Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

Less than Significant Impact

The proposed construction activities could create ground-borne vibration levels that are perceptible to receptors in the immediate vicinity of the work or staging areas. The activities that would be most likely to cause ground-borne vibration would be trenching/boring and the passing of heavy trucks on uneven surfaces. The impact from construction-related ground-borne vibration would be short-term and confined to only the immediate area around activities (within about 25 feet). The activities are not expected to result in excessive ground-borne vibration to the residences located near the Project area. No pile driving or similar activities that would result in excessive ground-borne vibration or ground-borne noise would occur, and this impact would be less than significant.

Impact NOI-C A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No Impact

The Proposed Project would replace an existing subsurface gas pipeline. No permanent increases in ambient noise levels would occur as a result of Project operations. No impact would occur.

Impact NOI-D A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact

Construction activities associated with the Proposed Project would require earth-moving equipment, trucks, and other equipment that would result in temporary increases in noise levels. Peak noise levels up to 110 dBA would likely occur during the brief one-time purge of pressurized natural gas from the line. Construction generally would occur in the daytime, and a range of project-related construction noise would be audible to those living in nearby residences or working on adjacent ranches. Noise impacts would be temporary, occurring between 7:00 a.m. and 5:00 p.m., during the 7-month construction period with limited potential for night work. In accordance with APM NOI-1, PG&E would notify residents and ranchers of the construction schedule and would provide contact information for submitting complaints about noise (or other nuisances) from construction of the Proposed Project. Implementation of APM NOI-2 would reduce temporary noise generation during construction by using equipment that generates less noise, where feasible and appropriate. As discussed in Impact NOI-A, the daytime construction noise levels for the residence adjacent to pipeline station 110+00 would be typical of those generated by equipment shown in Table 3.12-1 and temporary for the brief duration of construction activities at this location.

This construction noise would cause an increase in ambient noise levels above the levels existing without the project. The potential for surrounding land uses to be disrupted would be minimized by the short-term and temporary nature of the construction noise at any location, and construction would be limited to the daytime hours. The incremental noise from construction would not represent a substantial increase in the ambient noise levels, in the context of the project surroundings. As such, the construction impact would not be significant. Operational noise would be limited to vehicle activity entering and leaving the site during scheduled and emergency maintenance visits, if necessary. Occasional operations and maintenance activities would not cause a substantial temporary or periodic increase in noise levels. As such, this impact would not be significant.

Impact NOI-E **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project expose people residing or working in the Project area to excessive noise levels?**

No Impact

A portion of the R649 Project and a segment of the R700 Project are located within 2 miles northeast of the Livermore Municipal Airport. The airport is located on the opposite side of I-580 from the Project site. Because the project would require no permanent staffing, the project would not expose people to noise from the airport. Construction and operation of the Proposed Project would not expose construction or maintenance workers to excessive noise levels. Therefore, no impact would occur.

Impact NOI-F **For a project within the vicinity of a private airstrip, would the project expose people residing or working in the Project area to excessive noise levels?**

No Impact

The Proposed Project is not located within the vicinity of a private airstrip. As such, no impact would occur under this criterion.

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3.13 POPULATION AND HOUSING

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.13.1 Introduction

Summary

This section describes the existing conditions and potential impacts to population and housing. Based on the impact analysis, the Proposed Project would not impact population and housing.

Methodology

The following analysis is based on general descriptions in the Alameda County General Plan, City of Livermore General Plan, and Chapter 2.0, Project Description, of this ISMND. Evaluation of potential population, housing, and employment impacts of the Proposed Project was based on data obtained from the California Department of Finance, U.S. 2016 Census. The following impact discussions consider the effect of the Proposed Project related to employment, population, and housing in the City and County.

3.13.2 Regulatory Setting

There are no federal, state, or local regulations pertaining to population and housing that apply to the Proposed Project.

3.13.3 Environmental Setting

The Project site is in a sparsely developed area of Alameda County, just north of the City of Livermore. The areas surrounding the existing pipeline alignment are primarily used for grazing pastures and agriculture, except for the R649 Project, which is adjacent to a multi-family residential

development, in the City. The Proposed Project does not include new housing, businesses, or land use changes.

Based on the 2011-2015 American Community Survey 5-Year Estimates, Alameda County has over 39,000 construction workers (U.S. Census 2016). Operation of the Proposed Project would not require any additional workers.

3.13.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary.

Impact POP-A Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact

The Proposed Project would result in the replacement of an existing pipeline. No increase in utility or infrastructure capacity is being proposed as part of the Proposed Project. No new permanent jobs are anticipated to be generated by the Proposed Project. The existing workforce is sufficient for the Proposed Project, which is expected to require up to 60 workers per day during the 7-month construction period. Therefore, the Proposed Project would not require workers to relocate to the area. The Proposed Project would not alter the location, distribution, density, or growth rate of the population and would result in no direct or indirect impacts to population growth. Most construction workers for the Proposed Project are expected to come from the local area or commute from neighboring counties and cities. Since the Proposed Project would not facilitate population growth, no impact to population and housing would occur.

Impact POP-B Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact

The proposed pipeline alignment is primarily within PG&E's existing easement for L131 on private properties. As stated above, the R700 Project also would include a deviation in route around the existing residence located adjacent to pipeline station 110+00, whereby the new pipeline alignment would run north of the residence, as shown on Figure 2-5. Therefore, the Proposed Project has been designed to accommodate existing housing and would not result in any adverse housing impacts.

Impact POP-C Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?

No Impact

The Proposed Project would not displace the existing population and no impacts would occur.

3.14 PUBLIC SERVICES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.14.1 Introduction

Summary

This section describes the existing conditions and potential impacts to public services. Public services include fire and police protection and maintenance of public facilities, such as schools and hospitals. Based on the impact analysis, the Proposed Project would result in less than significant impacts to public services.

Methodology

The following analysis is based on a review of documents pertaining to the Project site, including the County and City of Livermore General Plans, and Chapter 2.0, Project Description, of this ISMND.

3.14.2 Regulatory Setting

There are no federal, state, or local regulations pertaining to public services that apply to the Proposed Project.

3.14.3 Environmental Setting

Fire Protection

The ACFD is responsible for providing emergency fire and medical response, as well as fire prevention services to residents of the unincorporated areas of Alameda County, including the Project area. The ACFD service area is approximately 508 square miles and provides services to a daytime population of approximately 394,000 individuals (ACFD 2016). The ACFD has 30 fire stations, the closest of which is Station 8, located at 1617 College Avenue in Livermore. Station 8 is located approximately 2 miles southeast of the southwest portion of the R649 Project, and approximately 6.25 miles from the northeast portion of the R707 Project. The ACFD strives to respond to 81% of its calls for fire and medical emergencies in 5 minutes or less; however, response times of 30 minutes or more are not uncommon because of the unincorporated areas, which Station 8 responds to (ACFD 2016).

The portion of the R649 Project is located within the City of Livermore; therefore, within the LPFD service area. The LPFD is an all-risk emergency response and community service organization that provides services to the cities of Livermore and Pleasanton. The nearest LPFD station to the R649 Project is Station 10, located at 330 Airway Boulevard in Livermore, and approximately 1.01 miles southwest of the R649 Project. The LPFD utilizes a total reflex time standard response time of 7 minutes from the time of call received to the arrival of the first responder on scene (LPFD 2015). As of 2015, LPFD responded to all emergency calls within 7 minutes 81.5% of the time (LPFD 2015).

CAL FIRE protects over 31 million acres of California's privately owned wildlands and provides varied emergency services. The Proposed Project is located in an unincorporated area of Alameda County; therefore, located within a LRA. According to the CAL FIRE 2007 DRAFT Fire Hazard Severity Zones in LRAs, the Proposed Project crosses moderate and high fire hazard severity zones, and also includes portions crossing Unincorporated LRAs (CAL FIRE 2007). The fire hazard severity is measured using three criteria: fuel loading (vegetation); fire weather (winds, temperatures, humidity levels and fuel moisture contents); and topography (degree of slope) (Alameda County 2014).

The nearest hospital is Valley Care Medical Center, located in the City of Pleasanton approximately 4.75 miles from the southern portion of the R649 Project.

Police Protection

The Project site is served by the Alameda County Sheriff's Office and the Livermore Police Department (LPD). The Alameda County Sheriff's Office is a full-service law enforcement agency. The Sheriff's Office has 1,500 authorized positions, including 1,000 sworn personnel distributed across its five divisions (Alameda County Sheriff's Office 2016). The nearest Sheriff's Office is located at 5672 Stoneridge Drive in Pleasanton, approximately 5.23 miles southwest of the R649 Project southwestern terminus, and approximately 9.65 miles southwest of the R700 northeastern terminus.

A portion of the R649 Project is located within the City of Livermore; therefore, within the jurisdiction of the LPD. The LPD only operates one station, located at 1110 South Livermore Avenue, approximately 2.78 miles southeast of the Project site. The LPD divides Livermore into five areas, or beats, which are regularly patrolled by officers. The R649 Project is located within Beat A, Neighborhood A5 (LPD 2016). The LPD does not respond to calls outside of the City limits unless requested to do so by another agency (City of Livermore General Plan 2004). Response times within the City limits vary depending on the priority of the call, with Priority 1 calls being the most urgent, and Priority 3 calls being the least urgent (City of Livermore General Plan 2004).

Schools

The nearest schools to the Project site are located within the City of Livermore. The City of Livermore is served by the Livermore Valley Joint Unified School District (LVJUSD). The LVJUSD consists of 12 elementary schools, 4 middle schools, and 2 comprehensive high schools (City of Livermore General Plan 2004). In addition, the Las Positas Community College is located within the City of Livermore, and approximately 0.35 mile northwest of the nearest access road associated with the Proposed Project. The Las Positas Elementary School is located approximately 0.9 mile south of the R649 Project.

Parks

The East Bay Regional Park District (EBRPD) and the Livermore Area Recreation and Park District (LARPDP) administer the regional and local parks within the Project vicinity. Nearby recreational uses include Cayetano Park, which is approximately 0.08 mile west of the R649 Project; Christensen Park, located approximately 1.78 miles southeast of R700.D staging area; Livermore Downs Park, located approximately 0.77 mile southeast of the R649 Project; Marlin Pound Neighborhood Park, located approximately 1.38 miles east of R700.B staging area; Livermore/Pleasanton Rod and Gun Facility, located approximately 0.79 mile east of R700.D staging area; and the Brushy Peak Regional Preserve, approximately 1.20 miles to the east of the R700 Project.

Other Public Facilities

The Las Positas College Library is located approximately 0.66 mile west of the R700.A staging area. In addition, the Las Positas turf field and track is located approximately 0.50 mile west of the R700.A staging area. There is a solar facility located on the Las Positas campus and approximately 0.40 mile west of the R700.A staging area. All other facilities are located within the City of Livermore and located over 2 miles south of the Project site.

3.14.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APMs would be implemented as part of the Proposed Project to avoid/minimize potential impacts to public services. APMs are described in detail in Section 2.10.

- APM T&T-1: Traffic Coordination.

Impact PUB-A **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:**

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

Less than Significant Impact

Fire Protection

The Proposed Project would involve the replacement and retirement of the existing pipeline, and would not change the existing capacity of natural gas in the pipeline. The ACFD and LPFD would provide fire protection services to the Proposed Project. The ACFD strives to respond to emergency calls within 5 minutes or less 81% of the time, while the LPFD strives to respond to calls within 7 minutes or less 81.5% of the time. The Proposed Project does not involve any residential uses, and no people would reside on the Project site. During the construction phase of the Proposed Project, it is anticipated that up to approximately 60 workers each would be on-site for a 7-month period. This increase in people could incrementally increase the need for fire or medical response services; however, this need would be for a temporary period, and would not result in the need for additional fire protection facilities.

The Proposed Project is primarily located outside of the city limits of Livermore, where the area is rural with a minimal population. Therefore, the Proposed Project would not adversely affect service ratios, response times, or other performance objectives related to fire protection, or require new fire protection services. During construction PG&E would implement APM T&T-1, which requires PG&E to notify emergency service providers regarding the timing and location of construction activities to avoid any potential delay in response times in the construction area. Furthermore, traffic control devices and signage would be used as needed to mitigate any potential impacts. As such, impacts related to fire protection would be less than significant with implementation of APM T&T-1.

Police protection

A 6- to 8-foot-high chain-link fence would be installed around the perimeter of active staging areas. In addition, each work space separated by an existing roadway or access route would be fenced separately, and would have its own entrance. Temporary project signs would be placed on the perimeter fences and at all entry points, including a no trespassing statement. Signage would identify the project operator, owner, and emergency contact information. The Alameda County Sheriff's Office and LPD would provide police protection services to the Project site. Response times vary depending on the type of call, with Priority 1 calls being the most urgent, and Priority 3 calls being the least urgent (Alameda County Sheriff's Office 2016). Response times would depend on traffic, distance from the site of the call, and the availability of officers.

Since there are no permanent residences occupying the Project site, the number of emergency law enforcement calls originating from the Project site is anticipated to be minimal; therefore, construction of the Proposed Project would not result in the need for the expansion of police protection services.

During construction, PG&E would implement APM T&T-1, which requires PG&E to notify emergency service providers regarding the timing and location of construction activities to avoid any potential delay in response times in the construction area. Furthermore, during construction in public roadways, traffic control devices and signage would be used as needed to mitigate any potential impacts. As such, impacts related to police protection would be less than significant with implementation of APM T&T-1.

Schools

The Proposed Project does not include any residential uses that would induce the population and subsequently generate a new student enrollment in local schools. Therefore, construction of the Proposed Project would not require the construction of new or the expansion of existing school facilities. No impacts to school facilities would occur as a result of the Proposed Project.

Parks

Construction of the Proposed Project would not result in an increase in population or visitors to the Project area. It is anticipated that up to approximately 60 workers would be on-site for a period of 7 months, and are expected to come from the local area. Operation of the Proposed Project would be limited to scheduled and emergency maintenance visits. Scheduled maintenance would occur as needed and emergency maintenance would occur at any time. Therefore, construction of the Proposed Project would not require the need for additional park facilities, and no impacts related to park facilities would occur.

Other Public Facilities

The Proposed Project would not result in an increase in population or visitors to the Project area. It is anticipated that a maximum of 60 construction workers would be on site for a period of 7 months, and are expected to come from the local area. Construction workers could increase the use of other public facilities; however, this would be for a temporary period. There would be no permanent workers on-site during operation of the Proposed Project. Operation activities would be limited to scheduled maintenance and emergency maintenance. Therefore, construction of the Proposed Project would not result in the construction of new or the expansion of other public facilities, and no impact would occur.

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3.15 RECREATION

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Would the project conflict with established, designated, or planned recreation areas or activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.15.1 Introduction

Summary

This section evaluates existing recreational opportunities in the Project area and the Proposed Project's potential to cause an increase in use or the need for construction and expansion of recreational facilities. Based on the impact analysis, the Proposed Project would not impact recreation.

Methodology

The following analysis is based on a review of the Alameda County General Plan, and Chapter 2.0, Project Description, of this ISMND. Additional information was obtained during the field review of the Project site and surrounding area. The following impact discussions consider the effect of the Proposed Project as it relates to recreation.

3.15.2 Regulatory Setting

There are no federal, state, or local regulations pertaining to recreation that apply to the Proposed Project.

3.15.3 Environmental Setting

The EBRPD and the LARPD administer the regional and local parks within the Project vicinity. Nearby recreational uses include Cayetano Community Park, which is approximately 0.08 mile west of the R649 Project; Christensen Park, located approximately 1.78 miles southeast of R700.D staging area; Livermore Downs Park, located approximately 0.77 mile southeast of the R649 Project; Marlin Pound Neighborhood Park, located approximately 1.38 miles east of R700.B staging area; the Livermore/Pleasanton Rod and Gun Facility, located approximately 0.79 mile east of R700.D staging area; the Brushy Peak Regional Preserve, approximately 1.20 miles to the east of the R700 Project; and Los Positas Golf Course located approximately 1.5 miles to the southwest.. No parks, trails, or other recreational facilities are located within the Project site.

3.15.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary.

Impact REC-A Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact

The Proposed Project would involve the replacement and retirement of the existing pipeline, and there would be no increase in the system capacity. The estimated peak workforce is anticipated to come from the existing regional workforce and the Proposed Project does not involve additional housing or population increases. Construction of the Proposed Project would not create a new or increased demand for existing public parks or recreational facilities; therefore, no impact would occur.

Impact REC-B Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact

The Proposed Project does not include recreational facilities or involve the construction or expansion of existing recreational facilities. No impact would occur.

Impact REC-C Would the project conflict with established, designated, or planned recreation areas or activities?

Less than significant.

Cayetano Community Park is approximately 0.08 mile west of the R649 Project and is accessed by Portola Avenue. The Proposed Project will also use Portola Avenue to access the work area at the southern end of the project. With the implementation of APM T&T-1, traffic control devices and signage will be used as needed; therefore, impacts to recreational areas will be less than significant.

3.16 TRANSPORTATION AND TRAFFIC

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.16.1 Introduction

Summary

This section describes existing traffic and transportation conditions in the Project area as a result of the construction activities. Based on the impact analysis, the Proposed Project would result in less than significant impacts to transportation and traffic.

Methodology

Traffic data and other transportation system information was obtained from maps, literature searches, and aerial photos. Traffic volumes for regional roadways in the study area were obtained from the Alameda County Transportation Commission (ACTC) website. Transit data was obtained from various transit agency websites. The thresholds in the Alameda County General Plan were taken into consideration in the evaluation of impacts.

3.16.2 Regulatory Setting

Federal

Aviation Regulations

The DOT and the Federal Aviation Administration (FAA) are the administering agencies for the following regulations:

- **14 CFR 77.13(2)(i).** Requires an Applicant to notify the FAA of the construction of structures within 20,000 feet of the nearest point of the nearest runway of an airport with at least one runway longer than 3,200 feet. This applies to any construction that would form an imaginary surface with slope of 100 to 1 (or steeper) in this area.
- **14 CFR 77.17.** Requires an Applicant to submit a Notice of Proposed Construction or Alteration (FAA Form No. 7460-1) to the FAA for construction within 20,000 feet of the nearest runway of an airport with at least one runway longer than 3,200 feet.
- **14 CFR 77.21, 77.23, and 77.25.** Outline the criteria used by the FAA to determine whether an obstruction would create an air navigation conflict.

Local

Because the CPUC has jurisdiction over the design, construction, and operation of gas pipelines and associated facilities, the Proposed Project is not subject to local discretionary regulations. This section includes a description of the local regulations addressing transportation and traffic issues generally, and is provided for informational purposes to assist CEQA review.

Alameda County General Plan

The Alameda County General Plan identifies level of service (LOS) standards for the roadway network. In unincorporated areas, the minimum level of service is LOS D on major arterials, and the minimum level of service is LOS E on Congestion Management Program (CMP) roadways. I-

580 and State Highway 84 are both categorized as CMP roadways that are monitored for conformity. If LOS were to drop below LOS E on these roadways, steps would need to be taken to improve performance. Vasco Road is monitored for informational purposes only (ACTC 2013).

City of Livermore General Plan

Within the City of Livermore, a project's impact also is measured using the LOS framework. In general, the threshold for acceptable operation is mid-LOS D or better. There are a few exceptions to this standard due to city policies, environmental constraints, etc. (City of Livermore General Plan 2014).

3.16.3 Environmental Setting

This section includes a description of the roadways that would be used by workers and delivery trucks during construction. Access routes would vary depending on the origin of the worker or truck and the type of activity that day. Therefore, the roads that are most likely to be affected are described. The highest-volume roadways are described first.

Regional Roadways

The backbone of the regional transportation system in the project vicinity is I-580. I-580 is a major east-west route of the Federal Interstate System that travels approximately 60 miles through central California, connecting Oakland at the intersection of Interstate 80 and the Central Valley. It ends at its intersection with Interstate 5, south of the City of Tracy. In the Project vicinity, I-580 is located south of the Project area. This roadway would be the primary roadway used to deliver equipment, materials, and personnel to the Proposed Project during construction and operation.

State Route 84 (SR-84) is another regional roadway in the Project area. SR-84 is a major east-west roadway with a length of approximately 60 miles. Its westernmost point is the terminus at Highway 1 in San Gregorio on the west coast. It crosses the Coast Range and San Francisco Bay, goes through Livermore and terminates at I-580. SR-84 is titled Isabel Avenue in the Project vicinity, located 0.25 mile west of the staging area for the R649 project and 0.3 mile west of the southwest boundary of the R700 project. This roadway would be used to access the Project area during construction and operation.

In the project vicinity, I-580 has an Annual Average Daily Traffic (AADT) of 180,000 vehicles per day (at North Livermore Avenue). SR-84 in the Project vicinity has an AADT of 41,000 vehicles per day (at Airway Boulevard) (Caltrans 2015).

Local Roadways

Vasco Road is a north-south roadway located immediately east of the R707 project. North Livermore Road is a north-south roadway that is located east of and adjacent to Staging Areas R700.C and R700.B. Construction related traffic also would use other local roads, including Portola Avenue, Hartman Road, May School Road, and Dagnino Road.

Existing Level of Service

Table 3.16-1 defines the LOS thresholds used for the Alameda County CMP network. The ACTC uses the Highway Capacity Manual's (1985 and 2000) values for LOS A through LOS F, using both speed and volume to capacity ratio metrics. Roadway Segments in the CMP network are required to operate at LOS E or better unless they are grandfathered in at LOS F from the 1991 base monitoring year.

Table 3.16-1: Freeway Level of Service Definitions

LOS	Volume to Capacity Ratio	Speed (mph)	Traffic Flow Characteristics
A	0.35	>60	Free flow
B	0.58	≥55	Reasonable free flow
C	0.75	≥49	Stable flow
D	0.90	≥41	Unstable flow
E	1.00	≥30	Capacity flow
F	Variable	<30	Forced flow

Currently, no segments of I-580 or SR-84 within the Project area are operating at an unacceptable LOS during the afternoon peak period. SR-84 is operating at LOS C or above in the Project vicinity; Vasco Road is operating at LOS E northbound between I-580 and Scenic Avenue and LOS D north of Scenic Avenue. Vasco Road southbound currently operates at LOS B or better. I-580 in the immediate Project vicinity lies within the Express Lanes Ramp Up Period and has no current data for LOS operation. However, west of I-680 the I-580 freeway operates at LOS E in the eastbound direction and LOS B or better in the westbound direction (ACTC 2016).

Bicycle Facilities

Bicycle facilities or bikeways typically are classified as Class I, Class II, or Class III facilities. Class I bikeways are bike paths with exclusive ROW for use by bicyclists. Class II bikeways are bike lanes striped within the paved areas of roadways and established for the preferential use of bicycles, while Class III bikeways are signed bike routes that allow bicycles to share travel lanes with vehicles.

Alameda County Bicycle and Pedestrian Master Plan

The Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas (2016) describes the bikeways in Alameda County. There is one bicycle facility in the project vicinity, a Class III bikeway along Livermore Avenue from the Livermore city limit to Manning Road.

City of Livermore Bikeways and Trails Master Plan

The City of Livermore Bikeways and Trails Master Plan (City of Livermore 2012) describes the existing bikeways in the City of Livermore. Several bikeways are in the project vicinity.

Air Traffic

Only one airport, Livermore Municipal Airport, is located in the project vicinity approximately 1 mile southwest of the Project site.

Transit and Rail Services

The Project site is served by both local and regional public transit. WHEELS, operated by the Livermore Amador Valley Transit Authority, provides fixed-route bus and paratransit services near the Project area. Line 30R (Dublin-Livermore via College) provides service to Las Positas Community College and runs along Portola Avenue in the project vicinity, immediately south of the Proposed Project.

The Bay Area Rapid Transit (BART) rail system station closest to the project is the Dublin/Pleasanton Station approximately 6 miles to the west. The station is near the intersection of Raymond Road and Ames Street, which has a bike lane that serves bicyclists.

3.16.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APM would be implemented as part of the Proposed Project to avoid/minimize potential impacts to noise. APMs are described in detail in Section 2.10.

- APM T&T-1: Traffic Coordination.

Impact TRANS-A **Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?**

Less than Significant Impact

Impacts from traffic operations mostly would be a function of construction workers temporarily traveling to and from the Project site and construction deliveries. An estimated average of 60 construction workers would drive to/from the Project site on a daily basis for approximately 7 months. Additionally, there would be an average of 3 truck deliveries per day to the Project site, with an estimated maximum of 17 trucks per day for a brief 4-day period. During the busiest 4 days, the Proposed Project is expected to generate approximately 154 daily trips on the surrounding transportation network. These construction trips would not necessarily occur at the same time, or during the peak period for general traffic. Construction-related traffic on surface streets (i.e., Dagnino Road and North Livermore Avenue) would not result in a degradation of LOS, as existing traffic volumes are minimal.

As part of the Proposed Project, boring or trenching would be used to install the pipe beneath three other roadways—North Livermore Road, Dagnino Road, and Hartman Road. At these locations, it is expected trenching would be done on one side of the road at a time to allow traffic to pass and/or at night, as required by the County encroachment permit. In case the road would need to be closed, it is anticipated the encroachment permit would require detour routes to prevent a significant impact on traffic and bicycle travel on the Class III bikeway along North Livermore Avenue.

Construction of the Proposed Project does not conflict with any applicable plans or policies regarding traffic or transportation. The Proposed Project would not impact pedestrian facilities or mass transit as the closest BART station is 6 miles from the Project site; nor would it have a significant impact on I-580 or SR-84. As stated above, there would be a minimal impact on bicycle travel on Livermore Avenue. Operation of the Proposed Project would occasionally generate trips for inspecting and maintaining the pipeline but these would be the same as the current maintenance of the existing pipeline. The Proposed Project does not conflict with any applicable plans or policies regarding traffic or transportation. Therefore, impacts under this criterion would be less than significant.

Impact TRANS-B Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less than Significant Impact

Impacts from traffic operations mostly would be a function of construction workers temporarily traveling to and from the Project site and construction deliveries. An estimated average of 60 construction workers would drive to/from the Project site on a daily basis for approximately up to 7 months per year. Additionally, there would be an average of 3 truck deliveries per day to the Project site, with an estimated maximum of 17 trucks per day for a brief 4-day period. During the busiest 4 days, the Proposed Project is expected to generate approximately 154 daily trips on the surrounding transportation network on a temporary basis. These construction trips would not necessarily occur at the same time, or during the peak period for general traffic. Construction-related traffic on surface streets (i.e., Dagnino Road and North Livermore Avenue) would not significantly impact traffic as existing traffic volumes are minimal.

The ACTC classifies both I-580 and SR-84 as CMP roadways that are monitored for conformity. If LOS were to drop below LOS E on these roadways, steps would need to be taken to improve performance (ACTC 2013). Currently, no segments of I-580 or SR-84 within the Project area are operating at an unacceptable LOS during the afternoon peak period. SR-84 is operating at LOS C or above in the Project vicinity. I-580 in the immediate Project vicinity lies within the Express Lanes Ramp Up Period and has no current data for LOS operation. However, west of I-680, the I-580 freeway operates at LOS E in the eastbound direction and LOS B or better in the westbound direction (ACTC 2016).

The Proposed Project would generate a maximum of 154 daily trips for 4 days. This small and temporary increase to daily traffic volumes is not anticipated to change the existing LOS of

roadways including CMP roadways. For example, in the Project area I-580 has an AADT of 180,000 vehicles per day and the maximum daily trips from the Proposed Project over four days would contribute less than 0.001% to the existing daily traffic. Operation of the Proposed Project would occasionally generate trips for inspecting and maintaining the pipeline, as currently occurs. These infrequent trips would not result in a detectable change to local traffic conditions. The Proposed Project does not conflict with any CMP or existing LOS standards. Therefore, impacts would be less than significant under this criterion.

Impact TRANS-C Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

No Impact

The R649 Project and the southern segment of the R700 Project are located within 20,000 feet of the Livermore Municipal Airport, which has a runway about 1 mile in length. Based on the FAA guidelines discussed in the Regulatory Setting of this section, any construction greater than approximately 50 feet at this distance would trigger a need to notify the FAA of the Proposed Project. The Proposed Project would not involve construction of any structures. Pipeline markers, the tallest Project component, would be approximately 12 feet above-ground surface. No cranes or other equipment greater than 50 feet tall would be used during construction. Therefore, the Proposed Project does not require notification of the FAA. The Proposed Project would not involve use of air transit, nor is it expected to cause any change in air traffic patterns. The Proposed Project would not result in any changes to air traffic patterns and would not result in any associated safety risks. Therefore, no impact would occur.

Impact TRANS-D Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant Impact

The Proposed Project involves temporary construction staging at specified locations in the Project vicinity for approximately up to 7 months. As part of the Proposed Project, boring under North Livermore Avenue currently is planned for installation of the new pipeline, and boring or trenching would be used to install the pipe beneath three other roadways – North Livermore Road, Dagnino Road, and Hartman Road. In the case that trenching occurs, it is expected that trenching would be done on one side of the road at a time to allow traffic to pass and/or at night as required by the County encroachment permit. In accordance with the encroachment permit, roadway pavement would be satisfactorily restored or, during ongoing work, the construction site would be plated prior to re-opening the roadway to public use. Construction of the Proposed Project would not substantially increase hazards on roadways, or near the staging areas and impacts would be less than significant.

Impact TRANS-E Result in inadequate emergency access?

Less than Significant Impact

As part of the Proposed Project, boring under North Livermore Avenue currently is planned for installation of the new pipeline, and boring or trenching would be used to install the pipe beneath three other roadways—North Livermore Road, Dagnino Road, and Hartman Road. In the case

that trenching occurs, it is expected that trenching would be done on one side of the road at a time to allow traffic to pass and/or at night as required by the County encroachment permit. In case the road would need to be closed, it is anticipated that the encroachment permit would require detour routes. Road closures could have an impact on emergency access to the Project site and to areas accessed by affected roadways. APM T&T-1 would be implemented to notify emergency service providers of the timing, location, and duration of construction activities. This measure allows emergency service providers to proactively route vehicles away from the construction as necessary. Therefore, this impact would be less than significant.

Impact TRANS-F Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No Impact

The Proposed Project involves construction worker travel to and from the Project site and materials deliveries for approximately up to 7 months. Construction of the Proposed Project does not conflict with any policies, plans, or programs concerning alternative transportation. Therefore, no impact would occur with construction of the Proposed Project.

3.17 TRIBAL CULTURAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined by Public Resources Code section 21047 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) 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), or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.17.1 Introduction

Summary

CEQA was amended in 2015 by the passage of AB 52 to include Tribal Cultural Resources (TCRs). TCRs are resources that include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a California Native American tribe. Tribal representatives are considered experts appropriate for providing substantial evidence regarding the locations, types, and significance of TCRs within their traditional and culturally affiliated geographic areas (Public Resources Code [PRC] §21080.3.1(a)). Therefore, the identification and analysis of TCRs should involve government-to-government tribal consultation between the CEQA lead agency and interested tribal groups and/or tribal persons. As the CEQA lead agency, CDFW is responsible for completing formal consultation with the appropriate tribes and tribal representatives for the Proposed Project under AB 52.

Additionally, best practices show that a lead agency should make a good faith effort to identify TCRs that may be impacted by a project even if a Native American tribe does not identify any during consultation, or if there are no consulting tribes. This includes requesting a search of the Native American Heritage Commission's (NAHC) Sacred Lands file, conducting ethnographic research, and using information that has been previously provided during tribal consultation for other projects in the area (Owsowitz, 2015).

Pursuant to PRC Section 21084.2, "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." This section describes tribal cultural resources that may be present in the Project area and provides a preliminary analysis of potential impacts to these resources resulting from proposed construction and operation of project facilities.

3.17.2 Regulatory Setting

State

California Environmental Quality Act

CEQA requires that impacts to TCRs be identified and, if impacts will be significant, that mitigation measures be implemented to reduce those impacts to the extent feasible (PRC §21081). In the protection and management of the cultural environment, both the statute and the CEQA Guidelines (14 California Code of Regulations §15000 et seq.) provide definitions and standards for management of TCRs.

PRC Section 21074 defines a TCR as "a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe." TCRs also include "non-unique archaeological resources" that may not be scientifically significant, but still hold sacred or cultural value to a consulting tribe.

A resource shall be considered significant if it is: (1) listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in PRC Section 5020.1(k) (discussed in detail above); or (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying these criteria, the lead agency must consider the significance of the resource to a California Native American tribe.

Therefore, a project may have substantial adverse change in the significance of a TCR if:

- The adverse change is identified through consultation with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project (PRC §21084.2).
- The resource is listed, or eligible for listing, in the CRHR or in a local register of historical resources, and it is demolished as described in detail above (State CEQA Guidelines §15064.5(b)).

The fact that a TCR is not listed in the CRHR, determined to be ineligible for listing in the CRHR, not included in a local register of historical resources, or is not identified in a historical resources survey does not preclude a lead agency from determining that the resource may be a historical resource. Refer to CEQA Guidelines Section 15064.5(a) for a detailed discussion of the term "historical resource."

CEQA Guidelines Section 15064.5(b)(1) explains that effects on historical resources (or TCRs, if so determined by the lead agency) would be considered adverse if it involves physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. Adverse effects on historical resources may result in a project having a significant effect on the environment. CEQA Guidelines Section 15064.5(c)(3) requires that TCRs receive treatment under PRC Section 21083.2, which requires that these resources be preserved in place or left in an undisturbed state. If these treatments are not possible, then mitigation for significant effects is required, as outlined in PRC Section 21082.2(c).

The statutes and guidelines cited above specify how TCRs are to be analyzed for projects subject to CEQA.

California Department of Fish and Wildlife Tribal Communication and Consultation Policy

In 2014 CDFW adopted its Tribal Communication and Consultation Policy to govern and ensure effective communication and government-to-government consultation between Tribes and CDFW. While the primary purpose of this Policy is to establish effective tools for communicating with Tribes and a formal process for engaging in government-to-government consultations with Tribes, CDFW seeks and encourages collaborative relationships with Tribes, including for the co-management of resources, where appropriate. This Policy established guiding principles for consultation with federally recognized tribes and tribes listed by the NAHC. The Policy and CEQA consultation requirements are complementary.

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030). Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered. Furthermore, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment. PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological and Historical Sites, defines any unauthorized disturbance or removal of remains on public land as a misdemeanor.

3.17.3 Environmental Setting

For regional and local environmental settings, please refer to the environmental setting included in Section 3.5, Cultural Resources.

Ethnographic Setting

The ethnographic populations living in and around the Livermore Valley were members of the Costanoan (Ohlone) language family. There are six known Costanoan language dialects, of which the Project area falls within the San Francisco Bay Costanoan, Chocheño group. At the time of Spanish mission settlement, many Chocheño families were moved to the San Francisco Mission Dolores and Santa Clara Mission de Asis, and beginning in 1797 new recruits were sent to Mission San Jose (Golla 2017:126). It is the latter where the most abundant mission register data is available in collections of Chocheño language excerpts. However, the most abundant sources of ethnographic recordings were created by John P. Harrington during interviews with Angela Colós and José Guzman from 1921 to 1929.

The Costanoan language family occupied territories stretching from San Francisco and the Carquinez Straits south to the interior of Salinas Valley and to the Big Sur area on the coast (Kroeber 1925; Levy 1978). The Chocheño territory was bordered to the north by the Bay Miwok tribal group, and to the east by the Northern Valley Yokuts, whose territory extended as far west as the Diablo Range, and as far east as the entrance of the San Joaquin River into the Sierra Nevada Mountains. The closest recorded ethnohistoric village is *sewnen*, an Ohlone village, located near what is now the modern city of Livermore (Levy 1978).

The reduced population and displacement of the native people caused by missionization and Anglo-American occupation of their land substantially altered their traditional way of life (Milliken 2006). Despite having had previous federal recognition from 1887 and 1933, to date, none of the Costanoan tribes have successfully regained federal recognition. However, several tribes are recognized by the State (Muwekma.org). The Muwekma Ohlone Tribe, a conglomerate of various linguistic Costanoan groups with over 400 registered members, has established a language school in San Francisco to teach the Chocheño language. The Muwekma Ohlone Tribe is organized under an 11-person Tribal Council and retains its own ethnohistorian.

3.17.4 Tribal Notification and Consultation

The actions described in this section were conducted in accordance with CDFW's Tribal Communication and Consultation Policy and CEQA requirements.

The passage of AB 52 (PRC §21080.3.1(c)) also requires that a formal notice and invitation to consult about a proposed project be sent to all tribal representatives who have requested, in writing, to be notified of projects that may have a significant effect on TCRs located within a proposed project area (PRC §21080.3.1(d)).

The proposed Project's effects on TCRs was evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines and with consideration to AB 52 and the Governor's Office

of Planning and Research's, "Revised Technical Advisory: AB 52 and Tribal Cultural Resources in CEQA" (OPR, 2017).

NAHC Sacred Lands File Search and Tribal Representatives Contact List

On behalf of PG&E, the Stantec consulting firm requested a search of the NAHC's Sacred Lands File and an updated tribal representative contact list on November 3, 2016. The NAHC responded on November 14, 2016 that the search did not indicate the presence of sacred lands within the proposed Project site (Lienert 2016).

The NAHC advises that negative findings in the Sacred Lands File should not be taken as a final determination regarding the presence of tribal cultural resources in a proposed Project site. Rather, the NAHC encourages lead agencies to consult with tribes to make this determination since "a tribe may be the only source of information regarding the existence of tribal cultural resources" (2016:1).

The NAHC's response to PG&E included a list of tribal representatives who may have interest in consulting about the Project. This list included six tribal groups: Costanoan Rumsen Carmel Tribe, Indian Canyon Mutsun Band of Costanoan, Amah Mutsun Tribal Band of Mission San Juan Bautista, North Valley Yokuts Tribe, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, and the Ohlone Indian Tribe.

PG&E Tribal Outreach

On November 22, 2016, Ms. Cuevas of PG&E mailed project description letters to each of the tribes identified by the NAHC above. Written letters included a brief description of the proposed Project, a summary of background research efforts in progress, instructions on how to contact PG&E, visual aids (an aerial and topographic maps showing Project components). On November 23, Stantec staff sent an email to each of the tribal contacts, which also included a digital version of the Project notification letter.

Two responses were received from the following tribes:

- The Northern Valley Yokuts/Ohlone/Bay Miwuk Tribe identified the Livermore Valley and the Vasco areas as highly sensitive to the tribe and requested that a tribal monitor be present for ground disturbing activities.
- The Amah Mutsun Tribal Band of Mission San Juan Bautista recommended sensitivity training (e.g., a Cultural Resources Tailboard) for the construction crew prior to construction and that a Native American monitor and Archaeologist be contacted if there are any inadvertent discoveries during construction.

PG&E responded to the Amah Mutsun Tribal Band of Mission San Juan Bautista that the existing pipeline would be replaced and an established inadvertent discovery protocol would be implemented should any previously undiscovered subsurface resources be discovered during construction, and a cultural resources awareness tailboard presentation would be presented to

the crew prior to any ground disturbing work. As of August 25, 2017, no other tribes listed on the NAHC SLS response list had responded.

Project Notification by CDFW

AB 52 states that once California Native American tribes have received the project notification letter, the tribe then has 30 days to submit a written request to consult pursuant to PRC Section 21080.3.1 (d). Upon receiving a tribe's written request to consult, the lead agency then has 30 days to begin government-to-government consultation. Consultation must include discussion of specific topics or concerns identified by tribes. Any information shared between the tribes and the lead agency representatives is protected under confidentiality laws and subject to public disclosure only with the written approval of the tribes who shared the information (Government Code (GC) §6254(r); GC §6254.10; PRC §21082.3(c)(1-2)).

Consultation as defined in AB 52 consists of the good faith effort to seek, discuss, and carefully consider the views of others. Consultation between the lead agency and a consulting Tribe concludes when either of the following occurs: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists on a TCR; or (2) a consulting party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC §21080.3.2(b)).

On February 7, 2018, CDFW sent written letters notifying the tribes about the project and inviting them to consult. Letters were sent to:

- Federated Indians of Graton Rancheria,
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area,
- Costanoan Rumsen Carmel Tribe,
- Ohlone Indian Tribe,
- North Valley Yokuts Tribe,
- Indian Canyon Mutsun Band of Costanoan, and
- Amah Mutsun Tribal Band of Mission San Juan Bautista.

Written letters included a brief description of the proposed Project, instructions on how to contact the lead agency Project Manager, a map showing Project components, and a statement that responses must be received within 30 days of the date of receipt of the letter. On the same day, an email was sent to the tribal contacts, which also included a digital version of the Project notification letter and map.

Native American Tribal Responses

The CDFW received one email response from Ms. Katheryn Perez of Nototmne Cultural Preservation, of the Northern Valley Yokut/Ohlone/Bay Miwuk Tribe(North Valley Yokuts) to the Project notification letter. CDFW followed up with a response via email and by phone but did not receive any further response. Appendix D2 includes a copy of CDFW's initial Project notification letter and all subsequent email exchanges.

3.17.5 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary. The following APMs would be implemented as part of the Proposed Project to avoid/minimize potential impacts to tribal cultural resources. APMs are described in detail in Section 2.10.

- APM CUL-1: Prehistoric or Historic-Period Materials Discovered during Construction.
- APM CUL-2: Human Burials Encountered during Construction.
- APM CUL-3: Workers Awareness Training.
- APM CUL-4: Archaeological Construction Monitoring.
- APM TCR-1: Management of Unanticipated Tribal Cultural Resources

Impact TRIB-A **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined by Public Resources Code Section 21047 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**

- i) **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), 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?**

Less than Significant Impact

The archival records and NAHC Sacred Lands File searches completed for the Project did not identify any known tribal cultural resources in the Project area, or surrounding quarter mile radius. However, during PG&E's tribal outreach efforts, the Livermore Valley and the Vasco areas were identified as highly sensitive areas for containing tribal cultural resources. In addition, due to the presence of Holocene-age sediments in the Project area, there is potential for construction activities such as grading, trenching, boring, and excavation to cause adverse impacts to previously unrecorded tribal cultural resources, which may also qualify as historical resources under the CEQA. With APM CUL-1 through CUL-4, and APM TCR-1 potential impacts on tribal cultural resources would be less than significant.

APM TCR-1 Management of Unanticipated Tribal Cultural Resources. In the event that sub-surface construction activities inadvertently discover tribal cultural resources, all activity in the vicinity of the find shall stop and a qualified archaeologist and an authorized tribal representative designated by a consulting tribe shall be contacted to assess the significance of the find according to CEQA Guidelines Section

15064.5 and Section 21074. If any find is determined to be significant, the archaeologist shall determine, in consultation with the implementing agency and any local Native American groups expressing interest, appropriate avoidance measures or other appropriate mitigation. Per CEQA Guidelines Section 15126.4(b)(3), preservation in place shall be the preferred means to avoid impacts to tribal cultural 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 Native American representatives expressing interest in the tribal cultural resource.

3.18 UTILITIES AND SERVICE SYSTEMS

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the Proposed Project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that serves or may serve the Proposed Project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.18.1 Introduction

Summary

This section evaluates the potential impacts of the Proposed Project on utilities and service systems including wastewater, solid waste, stormwater drainage facilities, and water supplies. Based on the impact analysis, the Proposed Project would result in less than significant impacts to utilities and service systems.

Methodology

The following analysis is based on a review of documents pertaining to the Project site, including the Alameda County and City of Livermore General Plans, Zone 7 Water Agency Urban Water Management Plan (UWMP), and Chapter 2.0, Project Description, of this ISMND.

3.18.2 Regulatory Setting

There are no federal, state, or local regulations pertaining to utilities that apply to the Proposed Project.

3.18.3 Environmental Setting

Water Supply

Water is provided by several agencies in the Project area. Zone 7 Water Agency is the water wholesaler for the City of Livermore and Alameda County. The California Water Service Company and Livermore Municipal Water provide retail service. Zone 7 Water Agency provides water for municipal, industrial use, as well as supplies non-potable water to non-municipal users such as agricultural operations (City of Livermore General Plan 2004).

Approximately 70% of Zone 7's water supply comes from the State Water Project, a statewide system of reservoirs, canals, pipelines, and pump stations that transport surface water drawn from rivers, lakes, and reservoirs, such as the Del Valle Reservoir (City of Livermore General Plan 2004). Zone 7 has a long-term average sustainable water supply of 84,100 acre-feet/year (City of Livermore General Plan 2004). In the City of Livermore, the long-term water demand is estimated to be approximately 22,000 acre-feet/year (City of Livermore General Plan 2004). Zone 7 projects that it can supply sufficient water supplies to meet the City's future treated water needs, assuming Zone 7 continues to receive its contractual allocation from its supply sources (City of Livermore General Plan 2004).

Wastewater

Zone 7 does not currently handle wastewater (Zone 7 Water Agency 2016). Three local agencies (City of Livermore, City of Pleasanton, and Dublin-San Ramon Services District) are all involved in the collection of wastewater, treatment and discharge of wastewater, production of recycled water, and distribution of recycled water. The Dublin-San Ramon Services District and Livermore treat all wastewater collected within the city limits of Pleasanton, Livermore, Dublin, and portions

of San Ramon. Wastewater transport outside of the area is handled by the Livermore-Amador Valley Water Management Agency (Zone 7 Urban Water Management Plan 2016). The Livermore Wastewater Reclamation Plant has a design capacity of 8.5 million gallons per day (mgd), and processes over 6 mgd (City of Livermore 2016). Therefore, the Livermore Wastewater Reclamation Plant has a remaining capacity of approximately 2.5 mgd.

Solid Waste

There are three landfills located within Alameda County: Altamont Landfill and Resource Recovery Facility, Tri-Cities Landfill, and Vasco Road Landfill. Altamont Landfill and Resource Recovery Facility and Tri-Cities Landfill are operated by Waste Management, while Vasco Road Landfill is operated by Republic Services, Inc. The Vasco Road Landfill is located at 4001 N. Vasco Road in Livermore, and approximately 1.34 miles east of the R707 Project. The Vasco Road landfill receives waste directly hauled by collection trucks from the City of Livermore.

Electricity, Natural Gas, Telecommunication

PG&E provides electricity within Alameda County and the Livermore area. The Las Positas Substation serves customers in the City of Livermore and surrounding unincorporated areas of Alameda County (City of Livermore General Plan 2004). The Vasco Substation serves customers in the area east of Vasco Road (City of Livermore General Plan 2004). PG&E has several natural gas pipelines that traverse the east Alameda County area (City of Livermore General Plan 2004). The City of Livermore is supplied natural gas via three main pipelines. SBC Pacific Bell provides residential and commercial telephone service within the Livermore area.

3.18.4 Environmental Impact Analysis

This section discusses potential impacts associated with the Proposed Project and provides mitigation measures where necessary.

Impact UTIL-A	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
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No Impact

Project construction activities would include hydrostatic testing and pipeline cleaning that would result in up to 250,000 gallons of residual water requiring disposal. Water will be repurposed for dust control where it is feasible. In addition, while not anticipated, groundwater could be encountered in excavations that also would require disposal. Water or fluids generated during construction activities would be collected in temporary storage tanks and hauled off-site to an appropriate disposal site, such as discharge to a sewer drain connecting to a publicly owned treatment network. Hydrostatic testing water also may be used for on-site dust control. All water generated during construction activities would be tested and discharged appropriately in accordance with applicable state and federal laws. Such discharges would be limited to the construction phase, and would not result in long-term discharge impacts that would exceed wastewater treatment requirements. Wastewater also would be generated from portable restroom facilities during construction and would be disposed of at a local wastewater treatment plant by the service

provider. Operation and maintenance of the new pipeline would be similar to the existing pipeline and would not require normal disposal of wastewater. Because the amount of wastewater generated over the entire Proposed Project is well within the available capacity at the Livermore Wastewater Reclamation Plant, there would be no impact.

Impact UTIL-B Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?

No Impact

The Proposed Project would not result in the development of any structure requiring the permanent use of water or wastewater treatment facilities. Hydrostatic testing, pipeline cleaning, and dust control would require approximately 1,812,500 gallons of water. While not anticipated, groundwater could be encountered in excavations that also would require disposal. Water or fluids generated during construction activities would be collected in temporary storage tanks and either hauled off-site to an appropriate disposal site; or tested and discharged to a sewer drain connecting to a publicly owned treatment network, or used for on-site dust control. All water generated during construction activities would be tested and discharged appropriately in accordance with applicable state and federal laws. Such water discharges would be limited to the construction phase. Wastewater generated from portable restroom facilities during construction would be disposed of at a local wastewater treatment plant by the service provider. As such, impacts would be temporary and not result in long-term impacts that would require the need for the construction or expansion of new water or wastewater treatment facilities. Operation and maintenance of the new pipeline would be similar to the existing pipeline and would not require normal use of water supplies. Therefore, there would be no impact.

Impact UTIL-C Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?

No Impact

Water or fluids generated during construction activities would be collected in temporary storage tanks and either hauled off-site to an appropriate disposal site; or tested and discharged to a sewer drain connecting to a publicly owned treatment network, or used for on-site dust control. All water generated during construction activities would be tested and discharged appropriately in accordance with applicable state and federal laws. As such, construction of the Proposed Project would not result in an increased volume of runoff that would require the construction of new stormwater drainage facilities, or the expansion of existing stormwater drainage facilities. Therefore, no impact would occur from construction of the Proposed Project.

Impact UTIL-D Have sufficient water supplies available to serve the Proposed Project from existing entitlements and resources, or are new or expanded entitlements needed?

Less than Significant Impact

Hydrostatic testing, pipeline cleaning, and dust control would require approximately 1,812,500 gallons of water. Water would be trucked to the Project site from the local water supply municipality (e.g. City of Livermore), which has sufficient water to spare for the limited quantities required for this project. Water usage for the Proposed Project would be temporary and only occur during construction activities. Operation and maintenance of the new pipeline would be similar to the existing pipeline and would not require normal use of water supplies. The Proposed Project would not require new or the expansion of existing water supply entitlements. Therefore, impacts on water supplies would be less than significant.

Impact UTIL-E Result in a determination by the wastewater treatment provider that serves or may serve the Proposed Project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
Less than Significant Impact

Portable restroom facilities, in quantities that meet all labor code requirements, would be placed near active construction work sites. The restroom facilities would be regularly cleaned and maintained to meet health and safety codes. Waste would be disposed of at a local wastewater treatment plant by the service provider.

Cleaning of the existing pipeline may be necessary if mercury is present in samples collected during pipeline retirement activities. PIG launchers and receivers would be temporarily installed on the deactivated pipe segments to insert liquids (water or cleaning fluids) into the pipeline. After completion of each PIG run, the liquids would be removed from the pipeline and collected in temporary storage tanks. The liquid would be sampled and hauled off-site to an appropriate disposal site, in accordance with all environmental regulations.

In addition, water would be used to hydrostatically pressure test the new pipe. At the end of the test, the piping would be emptied of water and the water would be collected in temporary storage tanks and hauled off-site to an appropriate disposal site, such as discharge to a sewer drain connecting to a publicly owned treatment network. No water would be discharged to a wastewater treatment system unless it met the RWQCB requirements. Operation and maintenance of the new pipeline would be similar to the existing pipeline and would not require normal disposal of wastewater. The Proposed Project is expected to use about 1,812,500 gallons during the construction process and the wastewater system currently has the capacity to process an additional 2.5 mgd. Therefore, water used during the construction process would not exceed capacity of the wastewater treatment provider and impacts would be less than significant.

Impact UTIL-F Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?
Less than Significant Impact

During pipeline retirement activities, several small 2- to 4-foot segments of the existing pipe and an approximately 100-foot above-ground pipeline span over Cayetano Creek (W-4) would be removed and require disposal. The disposal method for the removed pipeline sections and features would be determined according to contamination test sample results. Decontaminated pipe and pipe with undetectable levels of contaminants might be recycled into scrap metal,

disposed of as trash, or sold. Disposal of pipe deemed hazardous waste would be conducted in accordance with all applicable state and federal regulations. In addition, construction materials would be removed from all work areas and debris would be removed and disposed of at the appropriate landfill. Debris would be hauled off-site for reuse or disposed as appropriate and would not affect permitted capacity at landfills. Operation and maintenance of the new pipeline would be similar to the existing pipeline and would not require normal disposal of solid waste. Therefore, impacts would be less than significant.

Impact UTIL-G Comply with Federal, State, and local statutes and regulations related to solid waste?

No Impact

During construction, general types of solid nonhazardous waste would be produced such as food scraps, glass, paper, plastic, and other materials. All solid waste would be recycled and/or disposed of appropriately. Waste containers would be distributed throughout the work areas to ensure all waste is disposed of and to ensure workers utilize containers. In addition, workers would make regular sweeps to ensure the worksite is clean and safe. Disposal of all solid waste would comply with applicable federal, state, and local regulations, and no impact would occur.

3.19 MANDATORY FINDINGS OF SIGNIFICANCE

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulative considerable? ("Cumulative considerable" means that the incremental impacts of a project are considerable when viewed in connection with the impacts of past projects, the impacts of other current projects, and the effects of probable future Projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental impacts which will cause substantial adverse impacts on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MFS-A Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact with Mitigation

Section 3.4, Biological Resources, and Section 3.5, Cultural Resources, discuss the existing resources in the Project area and conclude that the Proposed Project would result in less than significant impacts to all biological and cultural resources with implementation of APMs and mitigation measures (for biological resources). Based on the discussions in Sections 3.4 and 3.5, the Proposed

Project does not have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of a rare or endangered plant or animal; or eliminate important examples of the major periods of California history or prehistory.

MFS-B Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulative considerable” means that the incremental impacts of a project are considerable when viewed in connection with the effects of past projects, the impacts of other current projects, and the impacts of probable future projects)?

Less than Significant Impact with Mitigation

The Project area primarily consists of rural areas and grasslands designated for grazing and agricultural uses, and the Lin Livermore Preserve, a biological mitigation site, located east of the Project site. Development is located along the I-580 corridor and has expanded in the past including a residential development near the south end of the Project site, which began construction in approximately 2015 and continues within the development of the parcel. Future development is identified in the Isabel Neighborhood Plan, a Specific Plan that guides development of the area surrounding the proposed Isabel San Francisco Bay Area Rapid Transit District (BART) extension to Isabel Avenue in Livermore. The City Council of Livermore adopted the Plan on May 14, 2018. On May 24, 2018, the BART Board voted to certify the BART to Livermore Extension Project Final Environmental Impact Report, but to not advance the Proposed Conventional BART Extension to Livermore. Continued planning for a rail connection between BART, the Altamont Corridor Express and the San Joaquin Valley Regional Rail Authority is ongoing (BART, 2018). Because the BART extension was not approved, the timing of development in the Isabel Neighborhood Plan is uncertain; however, the Specific Plan EIR did identify some existing or ongoing cumulative projects in the Livermore area but all were south of the I-580 or west of the project so would be unlikely to result in a cumulative impact with the project construction (Isabel Neighborhood Plan Draft EIR, 2018). PG&E is planning a project to replace the segment of L131 crossing beneath I-580 in the future.

Section 3.3, Air Quality, discusses nonattainment pollutants—ozone, PM10, and PM2.5—which are existing significant cumulative impacts, and concludes the Proposed Project's contribution to emissions of these pollutants would not exceed BAAQMD thresholds, and impacts would be less than significant. There are a number of potential cumulative projects in Livermore; however, none are within 1,000 feet of the Project other than the residential development near the south end of the Project site, which began construction in approximately 2015 and continues within the development of the parcel. This residential development is on already disturbed land and separated from the majority of the Project by Portola Avenue. As such, impacts from the construction of the development would not combine with impacts of the Project except potentially Air Quality (addressed above). Because existing traffic volumes on surface streets (i.e., Dagnino Road and North Livermore Avenue) are minimal and the construction related traffic is also minimal and of short duration, there would not be a significant cumulative traffic impact. Therefore, the Proposed Project would not result in cumulatively considerably contributions, or significant cumulative impacts.

MFS-C Does the project have environmental impacts which will cause substantial adverse impacts on human beings, either directly or indirectly?

Less than Significant Impact with Mitigation

All impacts identified in this ISMND, including cumulative impacts, are either less than significant with the implementation of APMs and mitigation measures, or less than significant or no impact and do not require mitigation. Therefore, the Proposed Project would not result in environmental impacts that would cause substantial adverse impacts on human beings, either directly or indirectly. Impacts would be less than significant with implementation of APMs and mitigation measures.

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Section 3.16: Transportation and Traffic

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Section 3.17: Tribal Cultural Resources

Refer to Section 3.5: Cultural Resources references.

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Section 3.18: Utilities and Service Systems

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Section 3.19: Mandatory Findings of Significance

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5.0 PREPARERS

Prepared by Stantec, Inc and reviewed by Aspen Environmental Group.

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6.0 MITIGATION MONITORING PLAN

PG&E proposes to replace approximately 5 miles of their Natural Gas Transmission Pipeline 131 (L131) north of the City of Livermore in Alameda County, California. An Initial Study was prepared to assess the proposed project's potential environmental effects. PG&E included Applicant-Proposed Measures (APMs) to reduce potentially significant adverse impacts related to project construction and operation. Additional mitigation measures were developed by CDFW (see Table 6-1).

The purpose of this Mitigation Monitoring Plan is to ensure effective implementation of each APM, as well as the Mitigation Measures identified by the Initial Study and imposed by CDFW as part of project approval. This Mitigation Monitoring Plan includes:

- The Applicant Proposed Measures and Mitigation Measures that PG&E shall implement as part of the proposed project;
- The actions required to implement these measures;
- The monitoring requirements; and
- The timing of implementation for each measure.

CDFW will use this MMP as the framework for a Mitigation Monitoring, Compliance, and Reporting Program (MMCRP). The MMCRP will be created by CDFW to formalize protocols to be followed prior to and during construction by PG&E project staff (including CDFW-approved monitors) and by CDFW staff during construction phase site visits. The MMCRP will include, but will not be limited to, the following topics:

- Agency Jurisdiction
- Roles/Responsibilities
- Communication
- Compliance Verification and Reporting
- Project Changes

A CDFW-approved monitor will carry out construction field monitoring to ensure full implementation of all measures. In all instances where non-compliance occurs, PG&E's CDFW-approved environmental monitor will issue a notice to the construction foreman and PG&E's project manager. Continued non-compliance shall be reported to CDFW's designated project manager. PG&E's CDFW-approved environmental monitor shall have authority to stop work if sensitive resources are threatened and will keep a record of any incidents of non-compliance with mitigation measures, APM, or other conditions of project approval. Copies of these documents shall be supplied to PG&E and CDFW. During site visits, CDFW staff shall also have the authority to stop work if necessary and shall issue non-compliance notices as appropriate.

Final language of the MMCRP will be developed in consultation with PG&E. Drafted language for the project variance and dispute resolution protocols are provided below.

6.1 MINOR PROJECT CHANGES OR VARIANCES

CDFW Project Manager will ensure that any process to consider minor project changes that may be necessary due to final engineering or variances or deviations from the procedures identified under the monitoring program are consistent with CEQA requirements. No minor project changes or variances will be approved by CDFW if they are located outside of the geographic boundary of the project study area or create new or substantially more severe significant impacts. A variance should be strictly limited to minor project changes that will not trigger other permit requirements unless the appropriate agency has approved the change, that does not increase the severity of an impact or create a new impact without appropriate agency approval, and that clearly and strictly complies with the intent of the mitigation measure or applicable law or policy. PG&E shall seek any other project refinements by a petition to modify.

A proposed project change that has the potential for creating significant environmental effects will be evaluated to determine whether a petition to modify and/or supplemental California Environmental Quality Act (CEQA) review is required. Any proposed deviation from the approved project, adopted mitigation measures, APMs, and correction of such deviation, will be reported immediately to CDFW Project Manager for review. The CDFW Project Manager will review the variance request to ensure that all of the information required to process the minor project change is included. The CDFW Project Manager may request a site visit or may need additional information to process the variance. In some cases, project refinements may also require approval by jurisdictional agencies. In general, a minor project change request must include the information listed below.

- Detailed description of the location, including maps, photos, and/or other supporting documents;
- How the variance request deviates from a project requirement;
- Biological resource surveys or verification that no biological resources would be significantly impacted;
- Cultural resource surveys or verification that no cultural resources would be significantly impacted; and
- Agency approval (if necessary).

Table 6-1: Mitigation Monitoring Plan for the IS/MND

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Air Quality			
Construction phase fugitive dust	<p>APM AIR-1: BAAQMD Basic Control Measures. The following Bay Area Air Quality Management District (BAAQMD) basic control measures will be implemented with the Proposed Project:</p> <ul style="list-style-type: none"> ▪ All exposed surfaces (i.e., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or more if necessary. Watering shall be done in such a manner that no puddles are formed and impacts to wetlands and waters are avoided. Chemical additives used for dust suppression must be reviewed and approved by CDFW and shall not cause harm to sensitive species or habitats. ▪ All haul trucks transporting soil, sand, or other loose material off-site shall be covered. ▪ All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ▪ All vehicle speeds on unpaved roads shall be limited to 15 mph. ▪ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. ▪ Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. ▪ All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. ▪ A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations. 	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase exhaust emissions	APM AIR-2: Minimize Exhaust Emissions. Exhaust emissions shall be minimized during construction activities with the use of off-road equipment engines that meet or exceed CARB's Tier 3 or Tier 4 engine emissions standards for large (greater than 120 HP) off-road equipment. At a minimum, all welding rigs, dozers, and graders shall be certified as compliant with the Tier 4 engine emissions standards, as provided in the California Code of Regulations, title 13, section 2423(b)(1)(B). Engines can achieve these standards through the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Aesthetics			
Construction phase aesthetics impacts	APM AES-1: Construction Area Cleanup. Construction and staging areas shall be maintained in a clean condition with regular cleanup after construction activities to minimize clutter. Construction waste and debris would not be left in the open visible places and will be disposed of as soon as possible or contained in bins. All staging areas shall be reclaimed to approximate pre-Project conditions immediately following completion of their use, unless otherwise requested by landowners.	PG&E to ensure implementation of measure. CDFW to confirm.	During and post-construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Biological Resources			
Construction phase biological resources impacts	<p>APM BIO-1: Worker Education and Training. PG&E will develop a construction employee education program which covers all sensitive environmental resources potentially onsite and the measures and regulations associated with their protection (i.e., from APMs, MMs, statute and regulation). The training will be a component of weekly Project meetings and will be provided to everyone working onsite. At minimum, the training program will include:</p> <ul style="list-style-type: none"> ▪ A sign-in sheet to document the attendance for all employees who attend. ▪ A brief presentation, to be conducted by persons knowledgeable in the sensitive environmental resources described in the Proposed Project IS/MND or protected by statute or regulation, to explain necessary protections to contractors, their employees, and agency personnel involved in the Proposed Project. ▪ For biological resources, the program will include: <ul style="list-style-type: none"> – A description of local and special-status species and their habitat needs; – An explanation of the status of each special-status species and their protection under ESA and CESA and a list of measures being taken to reduce effects during construction and implementation and penalties for non-compliance. – Fact sheets conveying this information and an educational brochure containing color photographs of all special-status species in the Project site will be prepared for distribution to the training attendees and anyone else who may enter the Project site. 	<p>PG&E to submit worker education and training materials to CDFW for review and approval prior to start of construction.</p> <p>PG&E to submit documentation of worker education and training (sign in sheets).</p> <p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	Prior to and during construction.
Construction phase biological resources impacts	<p>APM BIO-2: Pipe Storage and Inspection. Pipes, culverts and similar materials shall be stored so as to prevent wildlife from using these as temporary refuges (i.e., securely capped where possible). These materials will be inspected each morning for the presence of animals prior to being moved, buried or capped.</p>	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase biological resources impacts	<p>APM BIO-3: Prohibited Activities. The following shall not be allowed in or near the Project site for Project activities: trash dumping, firearms, open fires (such as barbecues), hunting, and pets.</p>	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase biological resources impacts	<p>APM BIO-4: Debris Abatement. All trash and debris within the Project site shall be placed in containers with secure lids before the end of each work day to reduce the likelihood of wildlife being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. Containers will be emptied as necessary to prevent overflow. All trash would be disposed of at an appropriate off-site location.</p>	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase biological resources and special-status species impacts	APM BIO-5: Vehicle Parking. Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas or areas approved by the biological monitor after determining wildlife or habitat resources will not be adversely affected.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase biological resources impacts	APM BIO-6: Off-Road Travel. Off-road vehicle travel shall be minimized. If off-road vehicle travel is necessary, it will be confined to the PG&E-designated overland access routes, as shown in Figures 2-0 through 2-9.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase biological resources impacts	APM BIO-7: Speed Limits. Vehicles shall not exceed a speed limit of 15 mph in undeveloped portions of the workspaces (i.e., unpaved access roads).	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase biological resources impacts	APM BIO-8: Vehicle Cleaning. Vehicles shall arrive in sensitive vegetation habitats (i.e., sensitive natural communities and areas with special status plant populations) clean of muddy debris. If work occurs in Project areas with heavy weed infestation, vehicles will be cleaned before moving to a sensitive habitat if that area does not contain a substantial weed component. Degree of infestation by noxious weeds (defined as those that are listed on the Cal-IPC high or moderate lists) across the entirety of the Project alignment shall be determined by a biologist prior to construction (see Mitigation Measure BIO-1). Cleaning will occur by brushing, washing, or other means of manual or mechanical removal and shall be confirmed clean by a biological monitor before entering sensitive habitats.	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase biological resources impacts	APM BIO-9: Night Work Restriction. All construction activities shall cease 30 minutes before sunset and will not begin prior to 30 minutes after sunrise. If construction cannot be avoided because of safety or emergency reasons, it shall proceed only for the minimum time necessary to abate the risk to safety or emergency. If standard nighttime construction cannot be avoided, night work will be limited to a maximum of a total of 7 nights at each individual grassland or riparian Work Area. Night work shall be limited in extent, duration, and brightness. Prior to commencing night work, PG&E will provide CDFW with notice of where and when work will occur and measures implemented to protect sensitive biological resources. If more than 7 total nights of work are necessary at any Work Area with habitats that support nesting birds or sensitive species, due to requirements in local permits or unforeseen circumstances, additional nights of work will only occur if approved by CDFW. Lighting shall be faced downward and will only be used in the immediate workspace to achieve a safe working environment. A CDFW- and USFWS-approved biologist will be present during all construction activities in areas with sensitive species habitat including all night work, and will ensure that lighting is used to the minimum extent feasible.	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.
Construction phase biological resources impacts	APM BIO-10: Refueling and Equipment Maintenance. Vehicle and equipment fueling and maintenance operations shall be conducted in designated areas only; these will be equipped with appropriate spill control materials and containment. Vehicles or equipment shall not be refueled within 150 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase biological resources and special-status species impacts	APM BIO-11: Erosion Control Materials. Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the Proposed Project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds that are non-toxic and approved by CDFW.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase biological resources impacts	APM BIO-12: Stockpiling. Stockpiling of material shall occur outside of seasonal swales and ephemeral drainages.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase biological resources impacts	APM BIO-13: Access Across Jurisdictional Features. Seasonal swales W-5, W-7, and W-8 are located within overland access routes. If access routes are wet or rutting is possible, matting or other protective plates shall be placed across these swales prior to use. Matting/plates will be removed immediately after use of the access road is complete. Access across ephemeral drainages W-1 and W-4 will occur using temporary bridges. Equipment will be operated from on top of the channel bank to install/remove bridges. Matting/platting/bridges shall not be installed within 24 hours of significant rain events (defined as ¼ of inch of rain or more within a 24-hour period).	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase biological resources impacts	APM BIO-14: Work Area Delineation. The Project site shall be delineated with high visibility temporary flagging or other barriers, such as T-post and rope (where cattle are not present), to prevent encroachment of construction personnel and equipment outside of the Project site. Flagging or other materials will be inspected and maintained daily until completion of the Proposed Project. The materials will be removed only when all construction equipment is removed from the site.	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.
Construction phase biological resources and special-status species impacts	APM BIO-15: Seasonal Work Restriction. Grading and construction activities shall be conducted during the dry season, between April 15 and October 15, to the extent possible. Should work need to occur outside of this period, PG&E will request authorization from the and CDFW at least 10 days prior of the date of the proposed extension, for intervals of up to 1 week. Work will only be conducted in accordance with CDFW and approval, and shall be subject to weather conditions.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action							
Construction phase biological resources and special-status species impacts	MM BIO-1: Prepare and Implement Vegetation Restoration Plan. PG&E shall prepare and implement a Vegetation Restoration Plan (VRP) prepared by a qualified restoration specialist, which shall be submitted to CDFW for review and approval within 30 days of start of construction. PG&E shall restore on-site all of the native vegetation, and ground cover, that shall be disturbed during construction to as close to pre-project conditions as possible. The table below describes the proposed restoration success criteria for grassland habitat beginning in “Year 1,” the first year upon completion of construction.	PG&E shall submit VRP to CDFW for review and approval within 30 days of start of construction. Labeled digital copies of pre- and post-project photographs shall be sent to CDFW within forty-five (45) days of completion of the project.	Prior to and during construction.							
	Restoration Success Criteria and Reporting for Grassland Habitat									
	<table><tr><th>Overall Success Criteria</th><th>Year 1*</th><th>Year 2 and Year 3, if applicable</th></tr><tr><td><ul style="list-style-type: none">A minimum of 70% vegetation cover relative to baseline conditions, and less than 5% absolute cover of invasive plants listed as high or moderate in the Cal-IPC database and mapped in the work area during the baseline conditions assessment.</td><td><p>Take photos from designated photo stations</p><p>In Year 1, an annual restoration monitoring report shall be submitted to CDFW with a qualitative assessment of vegetation cover and a comparison to the baseline conditions assessment for the work areas. Annual monitoring report shall document restoration success and shall be submitted to the permitting agencies by September 1. The first report shall provide a species list of the seed mix used at each restoration area. If success criteria, are met in Year 1, no additional monitoring or reporting is required and restoration is considered complete.</p></td><td><p>Take photos from designated photo stations</p><p>If success criteria are not met in Year 1, a Year 2 annual restoration monitoring report shall be submitted to CDFW by September 1, containing the same information as the Year 1 report.</p><p>If success criteria are not met in Year 2, a final report shall be submitted to CDFW by September 1, containing the same information as the Year 1 and 2 reports.</p></td></tr></table>	Overall Success Criteria		Year 1*	Year 2 and Year 3, if applicable	<ul style="list-style-type: none">A minimum of 70% vegetation cover relative to baseline conditions, and less than 5% absolute cover of invasive plants listed as high or moderate in the Cal-IPC database and mapped in the work area during the baseline conditions assessment.	<p>Take photos from designated photo stations</p> <p>In Year 1, an annual restoration monitoring report shall be submitted to CDFW with a qualitative assessment of vegetation cover and a comparison to the baseline conditions assessment for the work areas. Annual monitoring report shall document restoration success and shall be submitted to the permitting agencies by September 1. The first report shall provide a species list of the seed mix used at each restoration area. If success criteria, are met in Year 1, no additional monitoring or reporting is required and restoration is considered complete.</p>	<p>Take photos from designated photo stations</p> <p>If success criteria are not met in Year 1, a Year 2 annual restoration monitoring report shall be submitted to CDFW by September 1, containing the same information as the Year 1 report.</p> <p>If success criteria are not met in Year 2, a final report shall be submitted to CDFW by September 1, containing the same information as the Year 1 and 2 reports.</p>		
	Overall Success Criteria	Year 1*		Year 2 and Year 3, if applicable						
<ul style="list-style-type: none">A minimum of 70% vegetation cover relative to baseline conditions, and less than 5% absolute cover of invasive plants listed as high or moderate in the Cal-IPC database and mapped in the work area during the baseline conditions assessment.	<p>Take photos from designated photo stations</p> <p>In Year 1, an annual restoration monitoring report shall be submitted to CDFW with a qualitative assessment of vegetation cover and a comparison to the baseline conditions assessment for the work areas. Annual monitoring report shall document restoration success and shall be submitted to the permitting agencies by September 1. The first report shall provide a species list of the seed mix used at each restoration area. If success criteria, are met in Year 1, no additional monitoring or reporting is required and restoration is considered complete.</p>	<p>Take photos from designated photo stations</p> <p>If success criteria are not met in Year 1, a Year 2 annual restoration monitoring report shall be submitted to CDFW by September 1, containing the same information as the Year 1 report.</p> <p>If success criteria are not met in Year 2, a final report shall be submitted to CDFW by September 1, containing the same information as the Year 1 and 2 reports.</p>								
<p>* Year 1 is first year of post-construction operation.</p>										

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
	<p>The success criteria may be adjusted annually based on reference site plant counts observed outside of the area impacted by the Project to account for drought, herbivory, fire, and unanticipated landowner impacts to the property, among other factors.</p> <p>The VRP shall include specifications for restoring all temporarily disturbed areas, such as seed mixes, timing, and application methods. Non-native invasive species shall not account for the absolute cover for restoration success. The California Invasive Plant Council (Cal-IPC) database (http://www.cal-ipc.org/paf/) shall be consulted when determining noxious and invasive plants. The Vegetation Restoration Plan shall contain the following components:</p> <p><i>Disturbed Annual Grassland</i></p> <ul style="list-style-type: none"> ▪ Topsoil and Seed Salvage The top 6 to 12 inches of shall be scraped prior to excavation. Scraped topsoil will be stored separately from other spoils piles and restored to its original location over backfilled material. The stockpiles shall be protected from non-native plant propagules and protected with weed-free straw mulch, jute netting, or other suitable cover such as hydroseed/hydromulch without fertilizer added. ▪ Baseline Conditions Assessment. Prior to initiating ground disturbance, PG&E shall identify baseline vegetation conditions in any project area within suitable habitat for California tiger salamander or California red-legged frog or any sensitive natural community. Documentation shall identify: (1) the vegetation species; (2) an estimate of average ground cover density; (3) an overall estimate of the density of native and non-native species compositions; and (4) weed mapping of all Cal-IPC's California Invasive Plants listed as high or moderate. ▪ Seeding. Seed shall be applied after completion of construction in the late fall and early winter when rainfall and temperatures are sufficient to trigger germination and growth. This will avoid the need for irrigation in most cases. If the timing of construction activities precludes seeding during the late fall or early winter during a given year, the site will be temporarily stabilized and the site will be seeded in the following fall. ▪ Seed Mix. A seed mix shall be identified considering species found in the baseline conditions assessment and include only native species, with an emphasis on native bunchgrasses and other grassland species. ▪ Invasive Plants. In the baseline conditions assessment, PG&E shall perform preconstruction weed mapping of all Cal-IPC's California Invasive Plants listed as high or moderate to document baseline Cal-IPC invasive plants present in the project area prior to construction. The restored project area shall consist of no more than 5 percent of the existing baseline Cal-IPC invasive plants observed in the same project area. If the presence of invasive 		

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
	<p>species exceeds this threshold, PG&E is responsible for conducting appropriate control activities during monitoring, up to three years after implementation of restoration.</p> <ul style="list-style-type: none"> ▪ Monitoring. To ensure that site restoration and erosion control measures are successful, PG&E shall be required to monitor site conditions for up to three years following project completion or until success criteria are satisfied prior to the end of three years. Site visits shall be conducted at least once after the first significant rain event after project completion to evaluate site stability and during the spring and summer to evaluate revegetation efforts. If PG&E or CDFW determines there is an increase in erosion or bank instability, PG&E shall consult with CDFW on corrective actions. ▪ Photographs from Flagged Points. Prior to commencement of work, PG&E shall identify representative views of the project area that will be identified in the CDFW Streambed Alteration Agreement and Incidental Take Permit for this project, would impact California tiger salamander or California red-legged frog upland habitat, or would impact special-status plant species or sensitive natural communities (i.e., alkali grassland, native grassland, and wildflower fields). PG&E shall photograph the project area from each of the flagged points, noting the direction and magnification of each photo. Upon completion of construction, PG&E shall photograph post-project conditions from the flagged photo points using the same direction and magnification as pre-project photos. Labeled digital copies of pre- and post-project photographs shall be sent to CDFW within forty-five (45) days of completion of the project. ▪ Additional Revegetation. Regrowth will be evaluated on an annual basis. If success criteria (see Table) are not met during annual monitoring, weeding and/or further seeding shall be conducted as determined necessary by a qualified botanist to attain regrowth targets of local ground cover. ▪ Regrowth will be evaluated on an annual basis. If success criteria are not met during annual monitoring, weeding will be conducted as determined necessary by a qualified botanist to attain regrowth targets of local ground cover. <p><i>Restoration of Special Status Plants and Sensitive Natural Communities</i></p> <p>The VRP shall address the following components for onsite restoration of special status plants (Congdon's tarplant and hogwallow starfish) and sensitive natural communities (alkali grassland, native grassland, and wildflower fields) that will be disturbed during construction:</p> <ul style="list-style-type: none"> ▪ Seed Collection and Replanting. Seed from the special status plants (Congdon's tarplant and hogwallow starfish) and sensitive natural communities to be impacted will be collected, stored, and replanted onsite after construction. If construction of the Proposed Project 		

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
	<p>begins prior to the availability of seed, collection of seed for special status plant species and sensitive communities shall be from populations in the vicinity of the Proposed Project site.</p> <ul style="list-style-type: none"> ▪ Seed Collection: Timing.. Areas of special status plants and sensitive natural communities mapped during surveys shall be revegetated with seed collected prior to construction (or during construction from adjacent sites), and other native species found in the Project region, if necessary. ▪ Restoration Site Selection The restoration site assessment for special-status plants shall support the VRP selection of restoration sites. Reseeding should be done at the exact site where individuals were removed if at all possible. If it is known that a location will be subject to tilling before 2021, an alternate suitable location as close as possible to the impact, shall be identified. If this is not possible, the VRP shall either: 1) propose an offsite location in Alameda or Contra Costa County (offsite locations must be secured within a conservation easement that will be in effect in perpetuity) or 2) outline how the seed harvested from two annual CRPR-listed plants (Congdon's tarplant and hogwallow starfish) shall be grown out and amplified at a licensed native plant nursery. The bulk of the amplified seed shall be provided to one or more nature preserves (or similar) within Alameda or Contra Costa County for use in restoration or habitat enhancement projects, and some seed shall remain with the nursery to enable future propagation. ▪ A statement of number of trees proposed for removal and proposed restoration locations shall be included in the VRP. 		
Construction phase oak tree impacts	MM BIO-2: Oak Tree Replanting. Any oak trees removed will be replaced onsite or offsite, including through purchase at a bank, at a 3:1 ratio.	PG&E to ensure implementation of measure. CDFW to confirm.	During and post-construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase biological resources and special-status species impacts	MM BIO-3: Pre-Activity Surveys. Within 14 days prior to any construction or staging activities, a qualified USFWS- and CDFW-approved biologist shall conduct a preconstruction survey for special-status wildlife species (except California tiger salamander and California red legged frog, covered by MM BIO-9 below) in the active construction work areas. Survey results may be documented in a brief memo or monitoring form and shall note the occurrence, location, or indication (e.g. active nest, occupied burrow of any special-status species or If a special-status wildlife species is observed, work shall not begin until the species departs the construction area or is moved, if necessary permits have been obtained, out of the construction area to a CDFW-approved relocation site. If at any point construction activities cease for more than 7 days, additional surveys shall be conducted prior to the resumption of these actions.	PG&E to submit names and credentials of qualified biologist for CDFW review and approval as well as contact information. PG&E to submit survey results to CDFW for review and approval prior to start of construction. PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.
Construction phase biological resources and special-status species impacts	MM BIO-4: Work in Dry Weather. During the dry season (April 15 – October 14), Permittee shall limit Covered Activities to periods of low rainfall (less than 0.10 inch per 24-hour period). Ground disturbing activities may resume 48 hours after the rain ceases when there is a less than 40% chance of precipitation in the 24-hour forecast.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase special-status species impacts	<p>MM BIO-5: Biological Monitoring. A qualified USFWS- and CDFW-approved biological monitor ("approved biologist") shall be present onsite during vegetation removal and initial ground disturbing activities within habitat for special status wildlife and plant species. Once ground is disturbed, including scraping of soil and excavation by construction equipment, an approved biologist will inspect and clear sites for wildlife prior to beginning of construction each day and may move between construction sites. An approved biologist must be within the overall Project area at all times when construction is occurring. The approved biologist shall:</p> <ul style="list-style-type: none"> ▪ Observe ground disturbing activities and make sure all appropriate protections are in place and permit conditions are followed ▪ Have experience with the species being surveyed for ▪ Have the authority to stop any work that may impact wildlife species ▪ Have the authority to suggest alternative work practices after consultation with construction personnel, as appropriate, if construction activities are likely to impact sensitive biological resources, and to make those suggestions known to CDFW. If the approved biologist exercises this authority, the PG&E project biologist shall be notified immediately and PG&E shall notify, by telephone or electronic mail, USFWS and CDFW within 1 working day ▪ Be the contact for any employee or contractor who might inadvertently kill or injure a special status species or anyone who finds a dead, injured, or entrapped special status species ▪ In active construction areas, inspect the area beneath equipment and vehicles for wildlife at the beginning of every work day and prior to beginning of ground disturbing activities ▪ Possess a working wireless/mobile phone. This phone number, in addition to the PG&E project biologist's phone number, shall be provided to CDFW and USFWS. ▪ Document all APM, MM, and permit condition compliance and any corrective actions and include these records in regular reporting to CDFW. 	<p>CDFW to review credentials and approve biological monitors. PG&E to provide contact information of biological monitors.</p> <p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase special-status species impacts	MM BIO-6: Entrapment Avoidance. To prevent the accidental entrapment of wildlife during construction, all excavated holes or trenches deeper than 6 inches shall be covered at the end of each work day with plywood or similar materials and completely buried or otherwise sealed around the perimeters. Larger excavations that cannot easily be covered shall be ramped at the end of the work day to allow trapped animals to escape and must be checked at intervals of no less than 24 hours. Ramps for open excavations shall be soil and/or rough plank ramps with a maximum 45-degree angle, and shall be installed at intervals of no less than 30'-45" apart unless otherwise authorized by CDFW. Trenches shall be backfilled as soon as possible. Construction personnel shall inspect open holes and trenches for wildlife prior to backfilling for trapped wildlife. If a special-status species is discovered in a trench or excavation, work in the area shall be redirected, and the animal shall be allowed to leave the trench and the area of its own accord, or be relocated by the approved biologist in accordance with agency approvals. In the event a California tiger salamander is trapped in a trench or an excavation and unable to leave on its own accord, it shall be relocated according to Mitigation Measure (MM) BIO-10.	CDFW to review credentials and approve monitors. PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.
Construction phase special-status species impacts.	MM BIO-7: Amphibian Capture Best Practices. CDFW/USFWS approved biologists shall use their bare hands to capture California tiger salamander and California red-legged frog, CDFW/USFWS-approved biologists shall not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within 2 hours before and during periods when they are capturing and relocating individual California tiger salamander/California red-legged frog. To avoid transferring disease or pathogens from handling of the amphibians, CDFW/USFWS-approved biologists shall follow the Declining Amphibian Populations Task Force's Code of Practice. Captured California tiger salamanders shall be placed individually into a dark, clean plastic container of suitable size with enough room so the animal can move freely and shall keep the container moist with damp paper towels, soft foam rubber, or natural or synthetic sponge free of soaps and anti-bacterial/antifungal treatments. Containers used for holding or transporting shall not contain any standing water. The lids of the containers shall have small air holes for ventilation. Sponges shall not be reused and all other housing materials shall be disinfected between occupants according to the Task Force's Code of Practice.	CDFW to review credentials and approve biological monitors. PG&E to provide contact information of biological monitors. PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase special-status species impacts.	<p>MM BIO-8: Restraint and Handling of Live Amphibians. California tiger salamander and California red-legged frog shall be handled and assessed according to the Restraint and Handling of Live Amphibians USGS, National Wildlife Health Center (D. Earl Creene, ARMI SOP No. 100; 16 February 2001). CDFW/USFWS-approved biologist shall move special-status species to appropriate locations within 300 feet of the project boundary pursuant to the Relocation Plan (MM BIO-10). If an injured California tiger salamander or California red-legged frog is found during the project term, the individual shall be evaluated by the approved biologist who shall then immediately contact the PG&E project biologist who shall then contact the CDFW and USFWS, via email and telephone, to discuss the next steps. If the representatives cannot be contacted immediately, the injured amphibian shall be placed in a shaded container and kept moist. If the representatives are not available or do not respond within 2 hours of initial attempts, then the following steps shall be taken:</p> <p>a. If the injury is minor or healing and the amphibian is likely to survive, the amphibian shall be released immediately as follows. The approved biologist shall relocate any California tiger salamander and California red-legged frog found within the work area to an active rodent burrow or burrow system located no more than 300 feet outside of the work area. California tiger salamander and California red-legged frog shall be monitored until it is determined that it is not imperiled by predators or other dangers. Relocation areas shall be identified by the approved biologist based on best suitable habitat available and approved by the agencies prior to the start of project activities. The approved biologist shall document both locations by photographs and GPS positions. The California tiger salamander and California red-legged frog shall be photographed and measured (snout-vent and total length) for identification purposes prior to relocation. All documentation shall be provided by PG&E to CDFW and the USFWS within 24 hours of relocation.</p> <p>b. If it is determined that the California tiger salamander or California red-legged frog has major or serious injuries as a result of project-related activities, the CDFW/USFWS-approved biologist shall immediately take it to the Lindsay Wildlife Museum or another agency-approved facility. If taken into captivity, the individual shall remain in captivity and not be released into the wild unless it has been kept in quarantine and the release is authorized by the agencies. The circumstances of the injury, procedure followed, and final disposition of the injured animal shall be documented in a written incident report, as described above.</p>	<p>CDFW to review credentials and approve biological monitors. PG&E to provide contact information of biological monitors.</p> <p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase special-status species impacts	MM BIO-9: Conduct Preconstruction Surveys for Special-Status Amphibians and Avoid Impacts to Burrows. A CDFW- and USFWS-approved biologist shall survey the project area with potential habitat for California tiger salamander and California red-legged frog immediately prior to ground-disturbing activities. Surveys shall include all potentially suitable upland habitat such as rodent burrows, cracks, ruts, holes near root structures, foundations, abutments, and leaf litter within the project area that contain potential habitat for these species. If any California tiger salamander or California red-legged frog are found, the approved biologist shall contact CDFW and the USFWS to determine if moving any of these life stages is appropriate. In making this determination, CDFW and USFWS shall consider if an appropriate relocation site exists as provided in the Relocation Plan (MM BIO-10). If CDFW and the USFWS approve moving animals, the CDFW- and USFWS- approved biologist would be allowed sufficient time to move California tiger salamander and California red-legged frog from the project area before work activities begin. Only CDFW- and USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frog and California tiger salamander.	CDFW to review credentials and approve biological monitors. PG&E to provide contact information of biological monitors. PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase special-status species impacts	<p>MM BIO-10: California tiger salamander / California red-legged frog Relocation. A Relocation Plan for California tiger salamander and California red-legged frog shall be submitted to CDFW for approval five days prior to the start of construction in any area with suitable breeding or estivation habitat for those two species. The Relocation Plan shall include relocation site selection criteria. When either species is observed within work areas, the qualified biologist approved by USFWS and CDFW to handle and relocate them, shall do so. The approved biologist shall relocate any individual to an active rodent burrow system no greater than 300 feet from work area boundaries unless no suitable burrow systems are present within the area. If no suitable burrows are available within 300 feet of the work area, then the California tiger salamander/California red-legged frog will be released at the nearest suitable burrow system. If burrow density allows, the designated biologist shall only release one animal per burrow. Relocation burrows will be chosen based on the presence of similar characteristics to the burrows inside the work area to the extent possible. A suitable burrow should be at least 3 inches in depth and have moist and cool conditions. All relocation burrows will be away from roads and pavement/graveled areas to the extent possible. The biologist shall capture, handle, and assess Covered Species according to the Restraint and Handling of Live Amphibians Protocol, USGS, National Wildlife Health Center (D. Earl Greene, ARMI SOP NO. 100; 16 February 2001; Attachment 2). California tiger salamander shall be released as soon as possible. If the animal repeatedly walks away from the burrow, or partially enters it and then turns around, the qualified biologist shall remove it and find another burrow. A qualified and approved biologist will be identified who is within 30 minutes of the project site to ensure prompt relocation.</p> <p>The qualified biologist shall document occurrence and relocation sites by photographs and GPS positions. When handled, California tiger salamander and California red-legged frog shall be photographed and measured (snout-vent and total length) for identification purposes prior to relocation. The individual shall be monitored until it is determined that it is not imperiled by predators or other dangers. The qualified biologist shall release individuals one at a time rather than as a group. All documentation shall be provided to CDFW and USFWS within 48 hours of relocation.</p>	<p>CDFW to review credentials and approve monitors.</p> <p>A Relocation Plan for California tiger salamander and California red-legged frog shall be submitted to CDFW for approval five days prior to the start of construction in any area with suitable breeding or estivation habitat (see MM B-2).</p> <p>All documentation shall be provided to CDFW and USFWS within 48 hours of relocation.</p> <p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
<p>Construction phase special-status species impacts</p>	<p>MM BIO-11: Implement Wildlife Barriers. At least 15 days prior to commencing any ground disturbing Project activities, PG&E shall submit to CDFW a barrier proposal that shall address the level of need for wildlife exclusion fencing at all project areas within suitable California tiger salamander/California red-legged frog habitat for CDFW approval. The Qualified Biologist shall evaluate site and planned work activities to determine the wildlife exclusion barrier proposal and consider season of work, special-status species occurrence to date, time duration of site activity, and implications for wildlife movement in the proposal. A recommendation not to install fencing may be made if the effects of fencing installation could be greater in extent or duration than those associated with planned work activities. 15.</p> <p>Fencing will be installed prior to ground disturbing activities (mowing is not considered ground disturbance). Fencing will be installed using a trencher or hand digging. Fences will be made from silt fence, geotextile fabric, plastic mesh, or other similar materials and will not use plastic monofilament netting. The fencing shall include multiple escape funnels, ramp, or another method if approved by CDFW to allow wildlife to leave the project area. Fencing will be at least 3 feet in height, with the lower edge buried 6 inches underground. The remaining 2.5 feet will be left above ground to serve as a barrier for animals moving on the ground surface.</p> <p>Gates will be installed within exclusion fencing where necessary for access. Gates will not be buried but will include a flexible rubber strip extending from its lower edge so that it lies flat against the ground when the gate is closed. Materials such as gravel bags will be placed on the edge of the gate when closed to form a seal with the ground.</p> <p>PG&E shall maintain the barrier, and repair openings as soon as possible to ensure that it is functional and without defects. Any California tiger salamander and California red-legged frog found along the barrier shall be relocated in accordance with the Relocation Plan. Location and design of the barriers shall be included within the proposal. The barrier shall be installed under the supervision of a qualified biologist. Following fence installation, the qualified biologist(s) shall block holes or burrows entrances within project area, of burrows avoided by construction activities, if any, that appear to extend under the barrier to minimize California tiger salamander and California red-legged frog movement into the project area. The barrier shall be checked regularly (not less than three times per week) to look for animals and to ensure barrier integrity. Inspection intervals shall be based upon the planned construction activities at each site, recent and forecasted weather events, and the results of preconstruction surveys and previous inspections. The barriers shall be continuously maintained until all construction activities are completed, and then removed as soon as possible, but no later than 7 days after activities have ceased, unless required to remain longer to ensure SWPPP compliance. The barrier shall continue to be checked regularly until it is removed.</p>	<p>CDFW to review credentials and approve monitors.</p> <p>At least 15 days prior to commencing any ground disturbing Project activities, PG&E shall submit to CDFW a barrier proposal for review and approval.</p> <p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	<p>Prior to and during construction.</p>

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase special-status species impacts	MM BIO-12: California tiger salamander & California red-legged frog Habitat Compensation. Prior to construction, or no later than 18 months from issuance of an Incidental Take Permit by CDFW, assuming financial assurance is provided to CDFW (see MM BIO-13), PG&E shall purchase credits at a USFWS/CDFW-approved Conservation Bank to compensate for unavoidable temporary impacts to upland California tiger salamander and California red-legged frog habitat at a ratio approved by the CDFW and USFWS during the permitting processes for this project. It is estimated approximately 57 acres of California tiger salamander upland habitat credits and approximately 19 acres of California red-legged frog upland habitat need to be mitigated as compensation for temporary impacts; however, the final area of temporary impacts and compensatory mitigation may differ.	PG&E shall purchase credits at a USFWS/CDFW-approved Conservation Bank. PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.
Construction phase biological resources and special-status species impacts	MM BIO-13: Financial Security. Prior to initiating project activities, and if proof of payment has not been submitted to CDFW and USFWS, PG&E shall provide CDFW with a form of performance security, approved in advance in writing, in an amount comprised of funds necessary for: a) onsite restoration, and 2) offsite mitigation credits. Alternatively, PG&E may provide, prior to initiating project activities, habitat compensation through the acquisition and commitment for management in perpetuity of suitable habitat, approved by CDFW. Such a purchase would then be subject to a Fee Title/Conservation Easement transfer to CDFW pursuant to terms approved in writing by CDFW.	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to construction.
Construction phase biological resources impacts	MM BIO-14: Invasive Plant and Plant Pathogen Abatement. A CDFW/USFWS-approved biologist shall ensure that the spread or introduction of invasive exotic plant species shall be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project area shall be removed. Prior to entry to any project area for the first time, equipment must be free of soil and debris on tires, wheel wells, vehicle undercarriages, and other surfaces (a high pressure washer and/or compressed air may be used to ensure that soil and debris are completely removed).	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase nesting bird impacts	MM BIO-15: Conduct Preconstruction Surveys for Nesting Birds. If construction activities are scheduled to occur between February 1 and August 31, preconstruction nesting bird surveys shall be conducted by a qualified biologist no more than 7 days prior to the start of construction activities at any location, covering a radius from the work area boundary of 0.5 mile for golden eagles, 500 feet for raptors and 250 feet for passerines. If any active nests containing eggs or young are found, an appropriate nest exclusion zone shall be established by the qualified biologist in accordance with PG&E Draft Avian Conservation Strategy: Guidelines for Bird Protection and Mitigation (ICF International 2013 and in coordination with CDFW. No project vehicles or heavy equipment shall be operated in this exclusion zone until the biologist has determined that the nest is no longer active and or the young have fledged.	CDFW to review credentials and approve monitors. PG&E to submit preconstruction nesting bird surveys to CDFW for review and approval prior to start of construction.	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase special-status species impacts	<p>MM BIO-16: Conduct Preconstruction Surveys for Burrowing Owl and Implement Impact Avoidance, Minimization and Mitigation. Prior to construction at any time of the year, a qualified biologist shall conduct a survey consistent with CDFW's Staff Report on Burrowing Owl Mitigation (Mitigation Guidelines; CDFW, 2012) in areas with suitable habitat for burrowing owl to determine the presence/absence of active burrowing owl nesting or wintering burrows within 250 feet of any ground disturbance. Results of nest surveys and planned no-disturbance set-backs shall be submitted to CDFW.</p> <ul style="list-style-type: none"> ▪ If burrowing owls are present within 250 feet of the project area, work shall not commence or resume in this zone until one of the following occurs: <ol style="list-style-type: none"> 1. An Avoidance Plan shall be approved by CDFW and implemented by PG&E. The objective of the PG&E-prepared Avoidance Plan shall be to identify what, if any, level of work can begin or resume without disruption of nesting activity or burrow occupancy. The Avoidance Plan shall consider the type and extent of the proposed activity, the duration and timing of the activity, the nesting status of the owls, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities, significant aspects of site such as topography or prevailing wind direction etc. to minimize the potential to affect the reproductive success of the owls. Further steps shall be coordinated with CDFW. The Plan shall include monitoring to be conducted prior to, during, and after initiation or re-initiation of project activity sufficient to ensure take is avoided. The biologist shall monitor all work activities in these zones daily when construction is occurring and assess their effect on the nesting birds. If the biologist observes any indication that behaviors are changing relative to baseline behaviors observed prior to project activity (e.g. female flapping of wings in an agitated manner, extended concentrated staring at project activities, distress calls, continuous circling over the area of disturbance), or otherwise determines that particular activities pose a risk of disturbing an active nest, project activity shall cease immediately. Permittee efforts to minimize nest abandonment does not eliminate or reduce the risk of prosecution in case nest abandonment occurs. The biologist may then recommend additional measures to minimize the risk of nest disturbance and those measures shall be implemented. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work shall be halted or redirected to other areas until the nesting is completed. 2. A PG&E Biologist submits a Burrowing Owl Exclusion Plan (see Appendix E of the Staff Report on Burrowing Owl Mitigation, Department of Fish and Game, March 2012) and a Burrowing Owl Impact Mitigation Plan based on Appendix F of the Staff Report on Burrowing Owl Mitigation (Department of Fish and Game, March 2012) to CDFW and the plans are approved by CDFW prior to project commencement or re-initiation. Exclusion of nesting burrowing owls is not allowed. 	<p>PG&E shall submit burrowing owl surveys to CDFW for review and approval prior to start of construction.</p> <p>PG&E to submit Avoidance Plan (if owls are present) to CDFW for review and approval.</p> <p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	<p>Prior to and during construction.</p>

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase special-status species impacts	MM BIO-17: American Badger Impact Avoidance, Minimization and Mitigation. If potential American badger dens are located within the Project site and cannot be avoided during construction, a biologist shall determine if the dens are active. If active, a 250-foot no-activity buffer (or smaller, if approved by CDFW) shall be observed around the den, if possible. If the den cannot be avoided, the entrances of the dens will be blocked with soil, sticks, and debris for 3 to 5 days to discourage the use of these dens prior to project disturbance activities. The den entrances will be blocked to an incrementally greater degree over the 3 to 5-day period. No disturbance of active dens will take place when cubs may be present and dependent on parental care, as determined by the qualified biologist.	PG&E to submit preconstruction surveys to CDFW for review and approval prior to start of construction. PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.
Cultural Resources			
Construction phase cultural resources impacts	APM CUL-1: Prehistoric or Historic-Period Materials Discovered During Construction. If concentrations of prehistoric or historic-period materials are encountered during ground-disturbing work, all work within a 50-ft. radius of the discovery shall be halted until a qualified archaeologist can evaluate the significance of the resource. If the resource is determined to be significant and the landowner consents, PG&E will determine the appropriate avoidance measures or other appropriate mitigation in consultation with a qualified archaeologist, landowner, and CDFW. Consultation shall include the lead tribal monitor if the discovery involves a prehistoric resource. With the permission of the landowner, significant cultural materials will be curated according to current professional standards.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase cultural resources impacts	<p>APM CUL-2: Human Burials Encountered During Construction. Section 7050.5(a) of the California Health and Safety Code (HSC) states that it is a misdemeanor to knowingly disturb a human burial. If human remains are encountered during any activity related to the Proposed Project:</p> <ul style="list-style-type: none"> ▪ Stop all work within 100 feet; ▪ Immediately contact a PG&E Cultural Resource Specialist, who will then notify the County Coroner (the Coroner typically makes a determination regarding the origins of the remains within two working days following notification). ▪ Immediately upon discovery, secure the location by closing access to the area, and covering the discovery with tarp; do not touch or remove remains and associated artifacts during this process. ▪ While awaiting the County Coroner's arrival, do not remove associated cultural materials, artifacts, or objects, or pick through them. ▪ Record the location and keep notes of all calls and events. ▪ Treat the find as confidential and do not publicly disclose the location or details of the burial. ▪ If the human remains are of Native American origin, the County Coroner must notify the Native American Heritage Commission (NAHC) within 24 hours of such identification (HSC Section 7050.5[c]). Standard protocol is for the most likely descendant (MLD) to visit the discovery site, with permission of the land owner, within 48 hours of notification by the NAHC (PRC Section 5097.98[a]). The PG&E Cultural Resource Specialist will work with the MLD to develop a treatment plan for re-burial in situ, re-interment in a new location, or other disposition of the human remains and any associated artifacts. ▪ No additional work shall take place within 50-ft. of the burial(s) until the appropriate actions have been implemented. 	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase cultural resources impacts	<p>APM CUL-3: Workers Awareness Training. Prior to the start of construction, all field personnel shall receive a worker's environmental awareness training module on cultural, paleontological, and tribal cultural resources utilizing PG&E's Cultural Resources Awareness and Response Brochure. The training will provide a description of cultural, paleontological, and tribal cultural resources that may be encountered in the Project area, outline steps to follow in the event that an inadvertent discovery is made, and provide contact information for the Proposed Project Archaeologist, Proposed Project Paleontologist, on-site cultural resources monitor(s) and tribal cultural monitor(s). The training may be conducted concurrent with other environmental training (natural resources awareness training, safety training, etc.).</p>	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
<p>Construction phase cultural resources impacts</p>	<p>APM CUL-4: Archaeological and Tribal Cultural Resources Construction Monitoring. Archaeological and tribal cultural resources construction monitoring will be conducted within portions of the Project site designated as having moderate to high archaeological buried site sensitivity, as follows: Cayetano Creek and approximately 1,500 feet to the southwest and 4,450 feet to the northeast of the creek. An archaeological monitor qualified under the Secretary of the Interior's professional standards for archaeology, as well as a tribal monitor, will be present during ground disturbing activities within 500 feet of the creek. The archaeological and tribal monitors will conduct spot-check monitoring along the alignment from 3,500 feet north of the sensitive area near Cayetano Creek and 1,000 feet southwest of the sensitive area around the creek. The duration and frequency of the spot-check archaeological and tribal monitoring will be based on the nature of the subsurface soils, and the potential for encountering cultural or tribal cultural resources.</p> <p>Archaeological and tribal monitors will observe all ground disturbing activities where monitoring is required and will identify the depth of excavation, type of ground disturbance, soils and stratigraphy, and any subsurface cultural resources that are encountered. All areas of ground disturbance, will be inspected by the archaeological and tribal monitors, including checks of excavated areas and refuse piles and material.</p> <p>If an archaeological resource is found, all work within a 50-ft. radius of the discovery will be stopped until a qualified archaeologist can evaluate the significance of the find. The significance of the resource will be determined by PG&E in consultation with SHPO. If the resource is prehistoric resource, consultation shall also be with appointed representatives of the consulting tribe. If the find is determined to be significant and the landowner consents, PG&E would determine the appropriate measures to avoid or minimize impacts on the resource in consultation with a qualified archaeologist, and with the consulting tribe if the resource is prehistoric, as well as with the landowner. PG&E would notify CDFW of decisions made during consultation. With the permission of the landowner, significant cultural or tribal cultural materials would be curated according to current professional standards.</p>	<p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	<p>During construction.</p>

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Construction phase paleontological resources impacts	APM CUL-5: Paleontological Resources Discovered During Construction. If paleontological fossils or geologic units containing evidence of paleontological resources are encountered during ground-disturbing work, all work within 50-ft. of the discovery shall be halted until a paleontologist who meets the minimum qualification standards established by the Society for Vertebrate Paleontology can evaluate the significance of the find. If the find is determined to be significant and the landowner consents, PG&E will determine the appropriate avoidance measures or other appropriate mitigation in consultation with a qualified paleontologist, landowner, and shall inform CDFW. With the permission of the landowner, significant fossil resources will be curated according to current professional standards.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Geology and Soils			
Construction phase geology and soils impacts	APM GEO-1: Backfill Operations. All backfill above the pipe shall be mechanically compacted to at least 95% relative compaction. On-site soils will be acceptable for use as backfill in non-structural areas only. All imported fill shall consist of granular, non-expansive soil with an Expansion Index of 20 or less. Soil will not contain any contaminated soil, expansive soil, debris, organic matter, or other materials unsuited as backfill.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase geology and soils impacts	APM GEO-2: Geotechnical Report Recommendations. PG&E shall incorporate site-specific recommendations identified in the Geotechnical Study dated September 6, 2016, into the pipeline design. Specifically, the replacement pipeline would be constructed at a 90-degree angle where the northeastern section of the Proposed R707 Project crosses the Greenville fault. The geotechnical recommendations and pipeline design shall be reviewed and approved by a structural engineer to ensure all seismic related impacts are reduced to a less than significant level.	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to construction.

Impact	Applicant Proposed Measure or Mitigation Measure	Monitoring Requirement	Timing of Action
Hazards and Hazardous Materials			
Construction phase hazards impacts	<p>APM HAZ-1: Hazardous Substance Control and Emergency Response. PG&E will implement its hazardous substance control and emergency response procedures as needed. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they will be managed in accordance with all applicable regulations. Material safety data sheets shall be maintained and kept available on-site, as applicable.</p> <p>In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil will be tested and, if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.</p> <p>All hazardous materials and hazardous wastes shall be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:</p> <ul style="list-style-type: none"> ▪ Proper disposal of potentially contaminated soils. ▪ Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources. ▪ Emergency response and reporting procedures to address hazardous material spills. ▪ Stopping work and contacting the Alameda County Fire Department (ACFD) immediately if visual contamination or chemical odors are detected. CDFW shall be informed of the occurrence. Work would be resumed after any necessary consultation and approval by ACFD. ▪ PG&E shall complete its Emergency Action Plan Form as part of the pre-construction meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and other relevant information. 	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.

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Construction phase fire hazard impacts	APM HAZ-2: Fire Avoidance and Suppression. California Department of Forestry and Fire Protection (CAL FIRE) requires that PG&E select a welding site that is void of native combustible material and/or clearing such material for 10 feet around the area where the work is to be performed. PG&E will follow its standard practice for clearing in wildland areas. Proposed Project personnel shall be directed to drive on areas that have been cleared of vegetation; park away from dry vegetation; and carry water, shovels, and fire extinguishers in times of high fire hazard. PG&E also will prohibit trash burning. Additionally, fire-suppression materials and equipment shall be kept adjacent to work areas and would be clearly marked as required by the Hot Work permit that would be obtained for the Proposed Project. Where Hot Work is occurring in undeveloped and dry areas, PG&E shall use a water truck to provide additional fire protection, as deemed necessary.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Hydrology and Water Quality			
Construction phase hydrology and water quality impacts	<p>APM HWQ-1: SWPPP Development and Implementation, Erosion, and Sedimentation. Following approval of the Proposed Project, PG&E shall obtain a National Pollutant Discharge Elimination System (NPDES) General Construction permit for the Proposed Project and prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP will help stabilize disturbed areas and reduce erosion and sedimentation.</p> <p>The plan shall designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, will be installed before the onset of winter rains or any anticipated storm events. Suitable stabilization measures will be used to protect exposed areas during construction activities, as necessary. During construction activities, measures shall be in place to prevent contaminant discharge from vehicles and equipment. A monitoring program shall be established to ensure that the BMPs prescribed in the SWPPP are followed throughout construction.</p> <p>The Proposed Project SWPPP shall include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, shall be designed by using specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following:</p> <ul style="list-style-type: none"> ▪ Defining ingress and egress within the Project site. ▪ Implementing a dust control program during construction. ▪ Properly containing stockpiled soils. <p>Erosion control measures identified shall be installed in an area before construction begins. Temporary measures such as silt fences or wattles, intended to minimize sediment transport</p>	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to, during, and post-construction.

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	from temporarily disturbed areas, shall remain in place until disturbed areas have stabilized. The plan will be updated during construction as required by the State Water Resources Control Board (SWRCB).		
Construction phase hydrology and water quality impacts	APM HWQ-2: Worker Environmental Awareness Program Development and Implementation. The worker environmental awareness program shall communicate environmental issues and appropriate work practices specific to the Proposed Project. This shall include spill prevention and response measures and proper BMP implementation. The training will emphasize site-specific physical conditions to improve hazard prevention (such as identification of flow paths to nearest water bodies) and will include a review of all site-specific water quality requirements, including applicable portions of erosion control and sediment transport BMPs, health and safety plan, and hazardous substance control and emergency response plan.	PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.
Construction phase hydrology and water quality impacts	APM HWQ-3: Secondary Containment. Secondary containment, such as rubber berms with lips, larger layflat hose, or other suitable materials, shall be provided for water piping/hoses, frac tanks, and other equipment used to convey and temporarily store water and cleaning fluids.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.
Construction phase hydrology and water quality impacts	MM HWQ-1: Prepare and Implement a Water Diversion and Dewatering Plan. Although flowing water is generally not expected at any work areas, there is some possibility for water to be present at W-1 and W-4. A Water Diversion and Dewatering Plan shall be prepared and provided to CDFW for review and approval 15 days prior to the start of construction near any drainage that may have water during the work period. The Plan shall include specific provisions for each site where dewatering or diversion could possibly be necessary and measures to maintain natural flows to the greatest extent feasible and minimize erosion. Water diversions (e.g., coffer dam, sand bags) around channel bank work areas would be installed if there is a 30 percent or greater chance of precipitation forecasted as shown in the National Oceanic and Atmospheric Administration (NOAA) website at www.NOAA.gov .	PG&E to submit Water Diversion and Dewatering Plan to CDFW for review and approval 15 days prior to the start of construction near any drainage that may have water during the work period. PG&E to ensure implementation of measure. CDFW to confirm.	Prior to and during construction.
Construction phase hydrology and water quality impacts	MM HWQ-2: Restore Swale and Channel Contours. Upon completion of excavation burial, and prior to October 15 in any construction year, swale and channel contours shall be restored to previous contours.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.

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Noise			
Construction phase noise impacts	<p>APM NOI-1: Notify Residents and Ranchers of Construction Activities. Notification and coordination shall include the following: Prior to construction, PG&E shall give at least a 7-day advance notice of the start of construction-related activities. Notification shall be provided by mailing notices to all properties within 500 feet of the Project area. The announcement shall:</p> <ul style="list-style-type: none"> Describe where and when construction is planned. Describe the dates and type of any planned nighttime work. Provide contact information for a point of contact for complaints related to construction activities. <p>Prior to commencing ground disturbing or noise generating activities, PG&E will submit a copy of the template used for the notification letter and a list of the landowners notified to CDFW. Reporting of Complaints. PG&E will document all complaints and strategies for resolving complaints in monthly reports to CDFW during construction activities.</p>	<p>PG&E to submit to CDFW prior to start of construction, a copy of template used for the notification letter and a list of the landowners notified.</p> <p>PG&E to submit monthly complaint summary reports to CDFW during construction activities.</p> <p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	Prior to and during construction.
Construction phase noise impacts	<p>APM NOI-2: Noise Minimization with Quiet Equipment. Quiet equipment (e.g., noisy equipment that incorporates noise-control elements into the design) shall be used during construction whenever feasible. This means that engine exhaust points will be equipped with a muffler, and quiet model air-compressors or generators will be used, if available. Use of equipment such as hammers, pile drivers, pneumatic tools, or other impact device that may create loud or unusual noise shall be avoided at night or will be shrouded or provided with barriers to achieve a 5-decibel (dB) reduction during night work.</p>	<p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	During construction.
Transportation and Traffic			
Construction phase traffic impacts	<p>APM T&T-1: Traffic Coordination. Emergency service providers shall be notified of the timing, location, and duration of construction activities that will impact traffic. Traffic control devices and signage will be used as required by encroachment permits and as needed.</p>	<p>PG&E to submit to CDFW, prior to start of construction, documentation of coordination with emergency service providers.</p> <p>PG&E to ensure implementation of measure. CDFW to confirm.</p>	Prior to and during construction.

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Tribal Cultural Resources			
Construction phase tribal cultural resources impacts	APM TCR-1: Management of Unanticipated Tribal Cultural Resources. In the event that subsurface construction activities inadvertently discover tribal cultural resources, all activity in the vicinity of the find shall stop and a qualified archaeologist and an authorized tribal representative designated by a consulting tribe shall be contacted to assess the significance of the find according to CEQA Guidelines Section 15064.5 and Section 21074. If any find is determined to be significant, the archaeologist shall determine, in consultation with the implementing agency and any local Native American groups expressing interest, appropriate avoidance measures or other appropriate mitigation. Per CEQA Guidelines Section 15126.4(b)(3), preservation in place shall be the preferred means to avoid impacts to tribal cultural resources. Methods of avoidance may include, but shall not be limited to, Project reroute or redesign, Project cancellation, 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 Native American representatives expressing interest in the tribal cultural resource.	PG&E to ensure implementation of measure. CDFW to confirm.	During construction.