

**INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
PACIFIC GAS AND ELECTRIC COMPANY
GAS LINE 021G REPLACEMENT PROJECT (L-021G/R-708)
ACROSS THE PETALUMA RIVER**

June 2023



Lead Agency:

California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825

Applicant:

Pacific Gas and Electric Company
6111 Bollinger Canyon Road, 3310H
San Ramon, CA 94583



MISSION STATEMENT

The California State Lands Commission provides the people of California with effective stewardship of the lands, waterways, and resources entrusted to its care based on the principles of equity, sustainability, and resiliency, through preservation, restoration, enhancement, responsible economic development, and the promotion of public access.

CEQA DOCUMENT WEBSITE

www.slc.ca.gov/ceqa/

Geographic Location (Approximate Centroid)

Latitude: 38°13.13' N

Longitude: 122°35.37' W

NAD83 Datum

Cover Photo: Petaluma River looking East
(Photo courtesy of M. Hensel, ESA)

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ACRONYMS AND OTHER ABBREVIATIONS

A	AB	Assembly Bill
	ABAG	Association of Bay Area Governments
	ADA	Americans with Disabilities Act
	Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
	APN	Assessor's Parcel Number
B	BAAQMD	Bay Area Air Quality Management District
	BCDC	San Francisco Bay Conservation and Development Commission
	bgs	below ground surface
	BioMaAS	Biological Monitoring and Assessment Specialists Inc.
	BMP	best management practice
C	CA2020	Climate Action 2020 and Beyond
	CAAQS	California ambient air quality standards
	CAL FIRE	California Department of Forestry and Fire Protection
	Cal/EPA	California Environmental Protection Agency
	Cal/OSHA	California Division of Occupational Safety and Health
	CalEEMod	California Emissions Estimator Model
	CalGEM	California Geologic Energy Management Division
	CALGreen Code	California Green Building Standards Code
	Caltrans	California Department of Transportation
	CARB	California Air Resources Board
	CBC	California Building Code
	CDFW	California Department of Fish and Wildlife
	CEC	California Energy Commission
	CEQ	Council on Environmental Quality
	CEQA	California Environmental Quality Act
	CESA	California Endangered Species Act
	CFR	Code of Federal Regulations
	CGS	California Geological Survey
	CMP	Congestion Management Program
	CNDDDB	California Natural Diversity Database
	CNPS	California Native Plant Society
	CO	carbon monoxide
	CO ₂	carbon dioxide
	CO ₂ e	carbon dioxide equivalent
	COLE	coefficient of linear extensibility
	CRS	Cultural Resources Specialist
	CSLC	California State Lands Commission
	CTP	Sonoma County Comprehensive Transportation Plan
	CUPA	Certified Unified Program Agency
	CWA	Clean Water Act

D	dB	Decibel(s)
	dBA	A-weighted decibels
	DNL	Day-night noise level
	DOT	U.S. Department of Transportation
	DPM	diesel particulate matter
	DTSC	California Department of Toxic Substances Control
E	EFZ	Earthquake Fault Zone
	EPA	U.S. Environmental Protection Agency
	ESL	Environmental Screening Level
	ESU	Evolutionarily Significant Unit
F	FAR	Floor-to-Area-Ratio
	FEMA	Federal Emergency Management Agency
	FESA	federal Endangered Species Act
	FIGR	Federated Indians of Graton Rancheria
	FIRM	Flood Insurance Rate Map
	FMP	Fishery Management Plan
	FTA	Federal Transit Administration
G	GANDA	Garcia and Associates
	GHG	greenhouse gas
	GWP	Global warming potential
	GPR	ground-penetrating radar
H	HCP	habitat conservation plan
	HDD	horizontal directional drilling
	HSC	California Health and Safety Code
	Hz	hertz
I	ICC	International Code Council
	In/sec	Inches per second
	IPCC	Intergovernmental Panel on Climate Change
	IS	initial study
	IS/MND	initial study/mitigated negative declaration
K	kWh	kilowatt-hours
L	L _{dn}	day-night average sound level
	L _{eq}	Equivalent sound level
	L _{max}	The instantaneous maximum noise level measured during the measurement period of interest
	LOS	level of service
	LRA	Local Responsibility Area
	L _x	the sound level that is equaled or exceeded x percent of a specified time.
M	MCE	Maximum Credible Earthquake
	MLD	most likely descendant
	MM	mitigation measure
	MMP	Mitigation Monitoring Plan
	MMRP	Mitigation Monitoring and Reporting Program

MND	mitigated negative declaration
mph	miles per hour
MRDS	Mineral Resources Data System
MRZ	Mineral Resources Zone
MSDS	Material Safety Data Sheet
MT	metric ton
N NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Protection Act
NMFS	National Marine Fisheries Service
NMOG	non-methane organic gases
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Natural Resources Conservation Service
NRHP	National Register of Historic Places
O O ₃	ozone
OES	Office of Emergency Services
OSHA	Occupational Safety and Health Administration
P PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM ₁₀	particulate matter less than 10 micrometers
PM _{2.5}	particulate matter less than 2.5 micrometers
PPV	Peak particle velocity
PRC	Public Resources Code
psi	pounds per square inch
R RC	Riparian Corridor zoning
RCRA	Resource Conservation and Recovery Act
RMS	Root mean square
ROG	reactive organic gases
RCPA	Regional Climate Protection Authority
RWQCB	Regional Water Quality Control Board
S SB	Senate Bill
SCTA	Sonoma County Transportation Authority
SIP	State Implementation Policy
SMART	Sonoma-Marin Area Rail Transit
SO ₂	sulfur dioxide
SR	State Route
SRA	State Responsibility Area
SWRCB	State Water Resources Control Board
STLC	Soluble Threshold Limit Concentration
SWPPP	storm water pollution prevention plan

T	TAC	toxic air contaminant
	TCLP	Toxic Characteristic Leaching Procedure
	TDR	transfer of development rights
	THPO	Tribal Historic Preservation Officer
	TMDL	total maximum daily load
	TTLC	Total Threshold Limit Concentration
U	UPS	United Parcel Service
	U.S. 101	U.S. Highway 101
	USA	Underground Surface Alert
	USACE	U.S. Army Corps of Engineers
	USEPA	U.S. Environmental Protection Agency
	USFWS	U.S. Fish and Wildlife Service
	USGS	U.S. Geological Survey
V	VdB	Vibration decibels
W	WEAP	Worker Environmental Awareness Program
	WGCEP	2014 Working Group on California Earthquake Probabilities

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EXECUTIVE SUMMARY

This Initial Study/Mitigated Negative Declaration (MND) has been prepared by the California State Lands Commission (CSLC), as Lead Agency under the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.), to analyze and disclose the environmental effects of the proposed Pacific Gas and Electric Company (PG&E) Gas Line 021G Replacement Project (L-021G/R-708) Across the Petaluma River (Project). The Project would authorize Pacific Gas and Electric Company (PG&E or Applicant) to use a CSLC right-of-way to install a 16-inch-diameter steel natural gas replacement pipeline (R-708) using horizontal directional drilling (HDD) methods under the Petaluma River and remove two parallel 368-foot subsurface sections of the existing 12-inch-diameter steel natural gas pipeline (021G) and driplines near the city of Petaluma in Sonoma County.

CSLC has prepared an MND because it has determined that, although the Initial Study identifies potentially significant impacts of the Project, mitigation measures (MMs) incorporated into the Project proposal and agreed to by the Applicant would avoid or mitigate those impacts to a point where no significant impacts would occur.

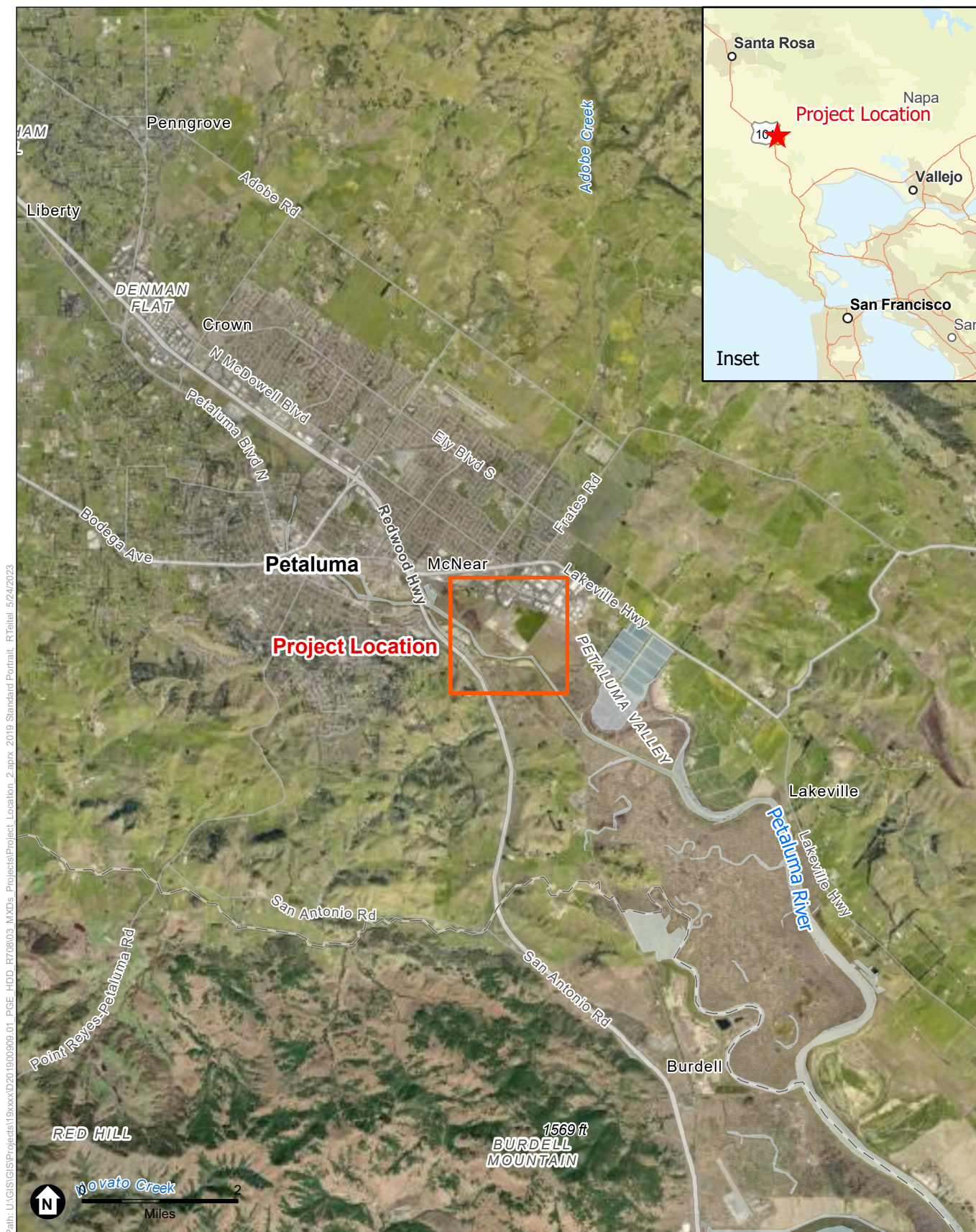
ES.1 PROPOSED PROJECT

PG&E proposes to install a replacement natural gas pipeline (R-708) in upland and subsurface riverine locations within and near the city of Petaluma (Figure ES-1) and remove two parallel sections of the existing pipeline (021G) from beneath the Petaluma River.

As proposed, the Project (Figure ES-2) consists of the following:

Phase 1

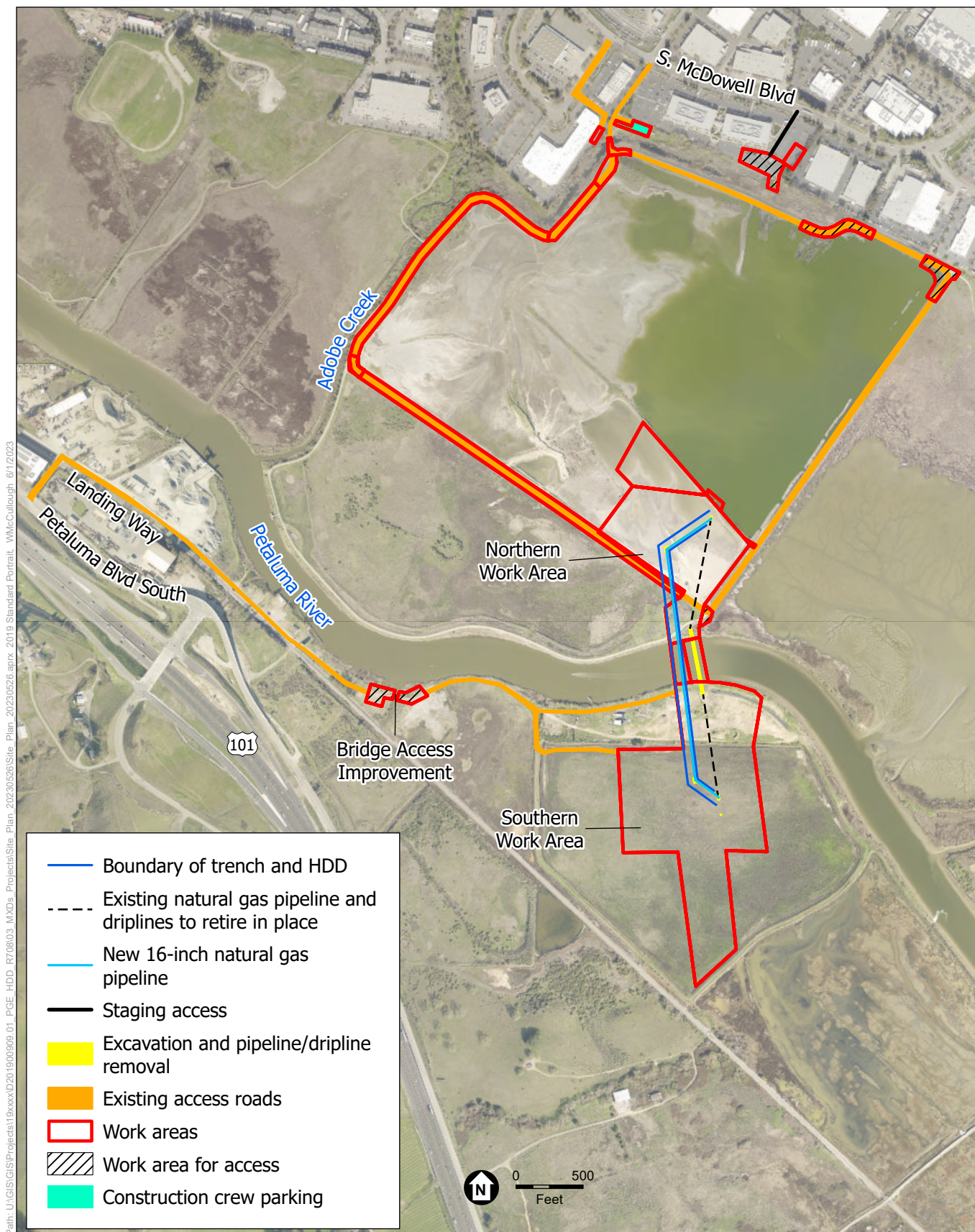
During Phase 1, approximately 1,852 feet of 16-inch-diameter steel natural gas replacement pipeline (492 feet in upland locations using open trench and backfill methods and 1,360 feet under the Petaluma River using HDD) would be installed. Additionally, minor alteration of levees would be made (to facilitate access) and new pipeline markers would be installed.



SOURCE: ESA, 2022; ESRI, 2022

PG&E Gas Line 021G/R-708 Replacement Project

Figure ES-1
Project Location



SOURCE: ESA, 2022

PG&E Gas Line 021G/R-708 Replacement Project

Figure ES-2
Project Overview

Phase 2

During Phase 2, two 368-foot parallel sections of the existing 12-inch-diameter steel natural gas pipeline and 0.75-inch driplines would be removed from beneath the Petaluma River using dredging and excavation. In addition, approximately 1,278 feet of the existing 16-inch-diameter steel natural gas pipeline and 2,690 feet of 0.75-inch dripline would be retired (decommissioned) in upland locations between the north valve lot and South McDowell Boulevard. Existing pipeline fittings, condensate traps, natural gas isolation valve lots at V-2.54 and V-2.6, and existing pipeline markers are also proposed for removal.

ES.2 ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

The resources noted below have the potential to be affected by this Project and have at least one impact that would be a “potentially significant impact.” The Applicant has agreed to the implementation of mitigation measures (MMs) that would reduce the potential impacts to “less than significant with mitigation,” as detailed in Chapter 3, *Environmental Checklist and Analysis*, of this MND. Table ES-1 lists the proposed MMs designed to reduce or avoid potentially significant impacts. With implementation of the proposed MMs, all Project-related impacts would be reduced to less than significant levels.

ES.3 ENVIRONMENTAL ISSUES WITH POTENTIALLY SIGNIFICANT IMPACTS:

- Air Quality
- Biological Resources
- Cultural Resources
- Cultural Resources – Tribal
- Geology, Soils, and Paleontological Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Recreation
- Transportation
- Wildfire
- Mandatory Findings of Significance

Table ES-1. Summary of Project Mitigation Measures

Air Quality
MM AQ-1: Air Quality Construction Measures
Biological Resources
MM BIO-1: Environmental Training Program
MM BIO-2: Biological Monitoring
MM BIO-3: Special-Status Fish Protection
MM BIO-4: Turbidity Monitoring Plan
MM BIO-5: Nesting Bird Season Pre-Construction Surveys
MM BIO-6: Western Pond Turtle Pre-Construction Surveys
MM BIO-7: Protection of Terrestrial Marsh Species
MM BIO-8: Avoidance and Minimization of Impacts on Wetlands
MM HAZ-2: Inadvertent Release Contingency Plan
MM HYD-1: Stormwater Pollution Prevention Plan
Cultural Resources and Tribal
MM CUL-1/TCR-1: Cultural Resources Awareness Training
MM CUL-2/TCR-2: Cultural and Tribal Cultural Resources Management and Treatment Plan
MM CUL-3/TCR-3: Cultural Resources Construction Monitoring
MM CUL-4/TCR-4: Discovery of Previously Unknown Cultural Resources or Tribal Cultural Resources
MM CUL-5/TCR-5: Unanticipated Discovery of Human Remains
Geology, Soils, and Paleontological Resources
MM HYD-1: Stormwater Pollution Prevention Program
Hazards and Hazardous Materials
MM HAZ-1: Project Work and Safety Plan
MM HAZ-2: Inadvertent Release Contingency Plan
MM HAZ-3: Pre- and Post-Project Bathymetric and Surficial Features Multi-Beam Debris Survey
MM HAZ-4: Asbestos Handling Procedures
Hydrology and Water Quality
MM HYD-1: Stormwater Pollution Prevention Program
MM HAZ-2: Inadvertent Release Contingency Plan
MM BIO-4: Turbidity Monitoring Plan

Table ES-1. Summary of Project Mitigation Measures

Recreation
MM REC-1: Increased Services to Area Parks
MM REC-2: Advance Notice to Mariners
Transportation
MM T-1: Traffic Control Plan
MM REC-2: Advance Notice to Mariners
Wildfire
MM WF-1: Site-Specific Wildfire Safety Plan

1.0 PROJECT AND AGENCY INFORMATION

1.1 PROJECT TITLE

Pacific Gas and Electric Company Gas Line 021G Replacement Project
(L 021G/R-708) Across the Petaluma River (Project)

1.2 LEAD AGENCY AND PROJECT SPONSOR

Lead Agency:

California State Lands Commission
100 Howe Avenue, Suite 100-South
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Applicant:

Pacific Gas and Electric Company
6111 Bollinger Canyon Road, 3310H
San Ramon, CA 94583

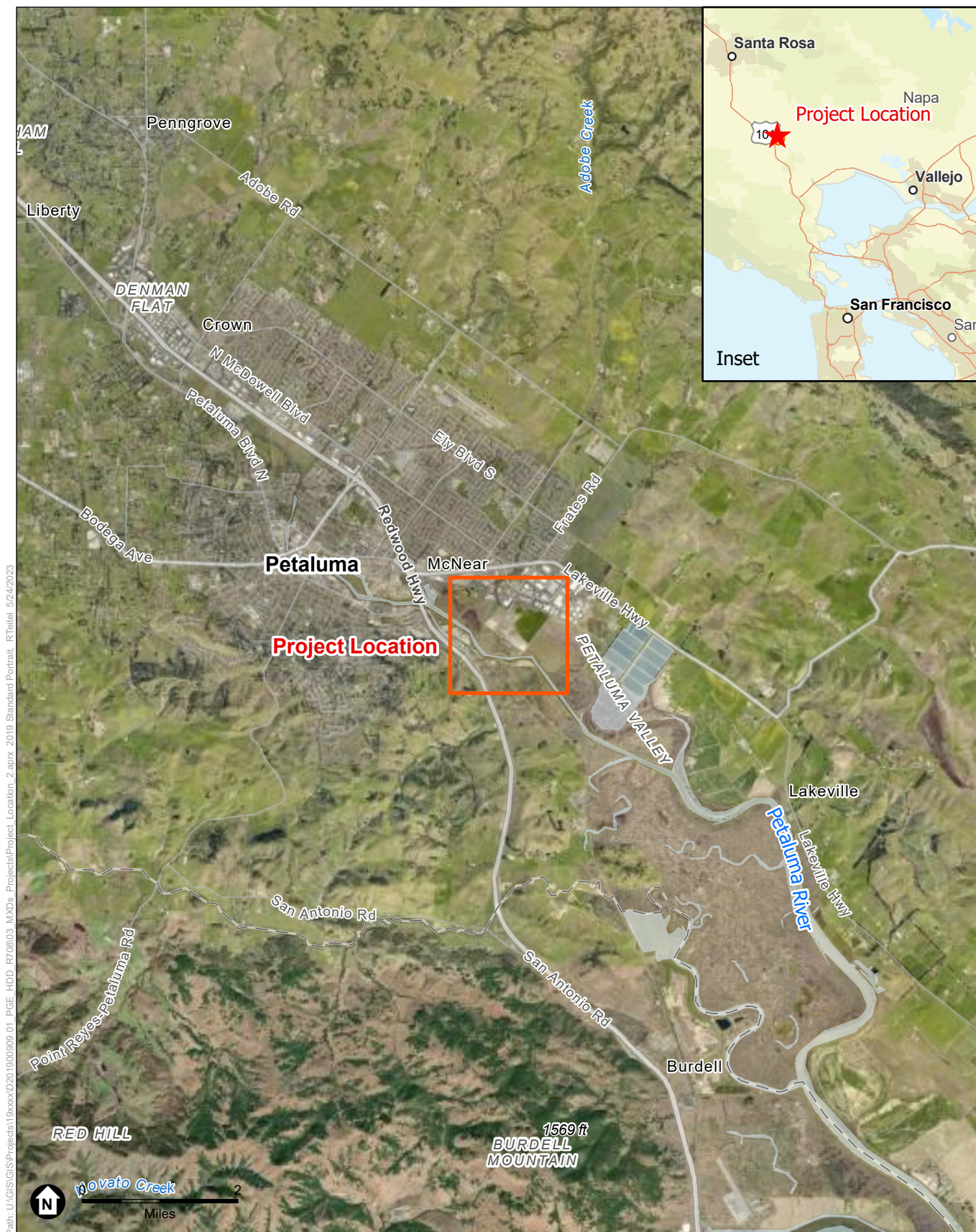
Contact: Craig Geldard, Manager, PG&E

craig.geldard@pge.com

925.286.9590

1.3 PROJECT LOCATION

The proposed Project crosses the Petaluma River from 1400 Cader Lane (Shollenberger Park) (north) to 3393 Petaluma Boulevard South (south) in Petaluma, California. The Project is located on Assessor's Parcel Numbers (APNs) 017-170-001-000 (north of the Petaluma River) and 019-320-007-000 (south of the Petaluma River). See Figure 1-1, *Project Location*. See Chapter 2, *Project Description*, for further details regarding the Project's location.



SOURCE: ESA, 2022; ESRI, 2022

PG&E Gas Line 021G/R-708 Replacement Project

Figure 1-1
Project Location

1.4 PROJECT BACKGROUND AND OBJECTIVES

The existing PG&E-owned steel natural gas pipeline (021G) provides natural gas to commercial and residential customers in the city of Petaluma and the surrounding region. Pacific Gas and Electric Company (PG&E or Applicant) has determined, based on routine inspection of the existing pipeline (installed in 1960), that replacement of the pipeline and associated infrastructure is necessary to ensure reliable service and the health and safety of the public and the surrounding environment. Replacement of the existing pipeline would meet objectives by preventing future natural gas leaks. In addition, PG&E inspections determined that portions of the original subsurface pipeline and/or associated infrastructure beneath the Petaluma River could become damaged during periodic navigational dredging activities conducted by the U.S. Army Corps of Engineers to improve conditions for navigability of the Petaluma River.

The proposed depth of the Project's replacement pipeline (R-708) by horizontal directional drilling (HDD) method, would be approximately 72 feet below the grade of the riverbed. HDD was selected as the preferred installation method for the Petaluma River pipeline replacement. HDD is a trenchless construction method that is used to install pipelines underground without disturbing the ground surface. The drill is launched from one or both ends of a path and retrieved at the other end, and except for the entry and exit spaces above ground, the entire process takes place underground. The HDD installation method would eliminate potential temporary construction impacts associated with traditional underwater trenching methods, such as turbidity and disturbance to sensitive shoreline biological resources, and would ensure the new pipeline crossing maintains sufficient depth under the river bottom even with future changes to the river bottom elevation.

1.5 ORGANIZATION OF THE MITIGATED NEGATIVE DECLARATION

This Initial Study/Mitigated Negative Declaration (MND) is intended to provide the California State Lands Commission (CSLC), as Lead Agency under the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.), and other responsible agencies with the information required to exercise their discretionary responsibilities for the proposed Project. The MND also provides the public with information about the proposed Project, an analysis of potential environmental impacts from the Project, and identification of mitigation measures (MMs) that will be implemented to reduce those environmental impacts as much as possible. The MND is organized as follows:

- **Section 1** presents the Project background and Project location, agency and Applicant information, Project objectives, and anticipated agency approvals, and summarizes the public review and comment process.
- **Section 2** describes the Project—its layout, equipment, and facilities—and provides an overview of the Project’s operations and schedule.
- **Section 3**, the IS, presents the environmental setting, identification and analysis of potential impacts, and discussion of Project changes and other measures that, if incorporated into the Project, would mitigate or avoid those impacts, such that no significant effect on the environment would occur. CSLC prepared this IS pursuant to State CEQA Guidelines Section 15063.¹
- **Section 4** discusses other CSLC considerations relevant to the Project, such as climate change and sea level rise, commercial fishing, and environmental justice, that supplement the environmental review required pursuant to CEQA.
- **Section 5** presents information on report preparation and references.
- **Appendices** include specifications, technical data, and other information supporting the analysis presented in this MND:
 - Appendix A Abridged List of Major Federal and State Laws, Regulations, and Policies
 - Appendix B HDD Execution Plan
 - Appendix C Air Quality and Greenhouse Gases
 - Appendix D Biological Resources
 - Appendix E Mitigation Monitoring Program

1.6 PUBLIC REVIEW AND COMMENT

Pursuant to State CEQA Guidelines Sections 15072 and 15073, a Lead Agency must issue a proposed MND for a minimum 30-day public review period. Agencies and the public will have the opportunity to review and comment on the document. Responses to written comments received by CSLC during the 30-day public review period will be incorporated into the MND, if necessary, and provided in CSLC’s staff report. In accordance with State CEQA Guidelines Section 15074, subdivision (b), the Commission will review and consider the MND,

¹ The CEQA Guidelines are found in California Code of Regulations Title 14, Section 15000 et seq.

together with any comments received during the public review process, before taking action on the MND and Project at a noticed public hearing.

1.7 APPROVALS AND REGULATORY REQUIREMENTS

1.7.1 California State Lands Commission

The State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space.

On tidal waterways and navigable rivers, the State's sovereign fee ownership extends landward to the ordinary high-water mark, which is generally reflected by the mean high-tide line, except for areas of fill or artificial accretion. The Petaluma River is tidally influenced at the location of the proposed Project, and the State's sovereign fee ownership includes the bed of the River, extending landward to the mean high tide line. The CSLC's authority is set forth in division 6 of the Public Resources Code; CSLC's regulations are codified in California Code of Regulations, title 2, sections 1900 through 2970. The CSLC has authority to issue leases or permits for the use of sovereign lands held in the Public Trust, including all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways, and retains certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, Sections 6009, subd. (c); 6009.1; 6301; 6306).

The CSLC must comply with CEQA when it undertakes an activity defined by CEQA as a "project" that must receive discretionary approval (i.e., the CSLC has the authority to approve or deny the requested lease, permit, or other approval) and that may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment. CEQA requires the CSLC to identify the potentially significant environmental impacts of its actions and to avoid or mitigate those impacts, to the extent feasible.

The Applicant submitted an application to CSLC to amend the existing lease (Lease No. 5438-B) to replace the existing 021G natural gas pipeline crossing under the Petaluma River in Sonoma County.

1.7.2 Other Agencies

The Project is subject to review and approval by other federal, state, and local entities, in addition to CSLC, that have statutory and/or regulatory jurisdiction over various aspects of the Project (Table 1-1).

Table 1-1. Anticipated Agencies with Review or Approval over Project Activities

Permitting Agency	Anticipated Approvals or Regulatory Requirements
State	
California State Lands Commission (CSLC)	CEQA Lead Agency General Lease Approval
California Department of Fish and Wildlife (CDFW)	California Endangered Species Act Fish and Game Code Sections 1600–1616 Streambed Alteration Agreement
California Department of Transportation (Caltrans)	California Streets and Highways Code Sections 660–734 Encroachment Permit Transportation Permit (tentative)
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Clean Water Act Section 401 Water Quality Certification
Native American Heritage Commission (NAHC)	Tribal Consultation
State Historic Preservation Officer	Section 106 of the National Historic Preservation Act
Regional	
San Francisco Bay Conservation and Development Commission (BCDC)	Administrative Permit (Minor Permit) and Federal Consistency
Federal	
U.S. Army Corps of Engineers – San Francisco District (USACE)	Section 404 (Clean Water Act) (Anticipated Nationwide Permit No. 12) Section 408 (Rivers and Harbors Act) authorization for levee alteration
U.S. Coast Guard (USCG)	Notice to Mariners
U.S. Fish and Wildlife Service (USFWS)	Section 7 Consultation (Federal Endangered Species Act [FESA])
NOAA Fisheries	Section 7 Consultation (FESA) Essential Fish Habitat

Table 1-1. Anticipated Agencies with Review or Approval over Project Activities

Permitting Agency	Anticipated Approvals or Regulatory Requirements
Local	
City of Petaluma	Agreement for temporary closure and use of Shollenberger Park to facilitate construction
Sonoma County	Zoning permit for work in Riparian Corridor Combining District

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2.0 PROJECT DESCRIPTION

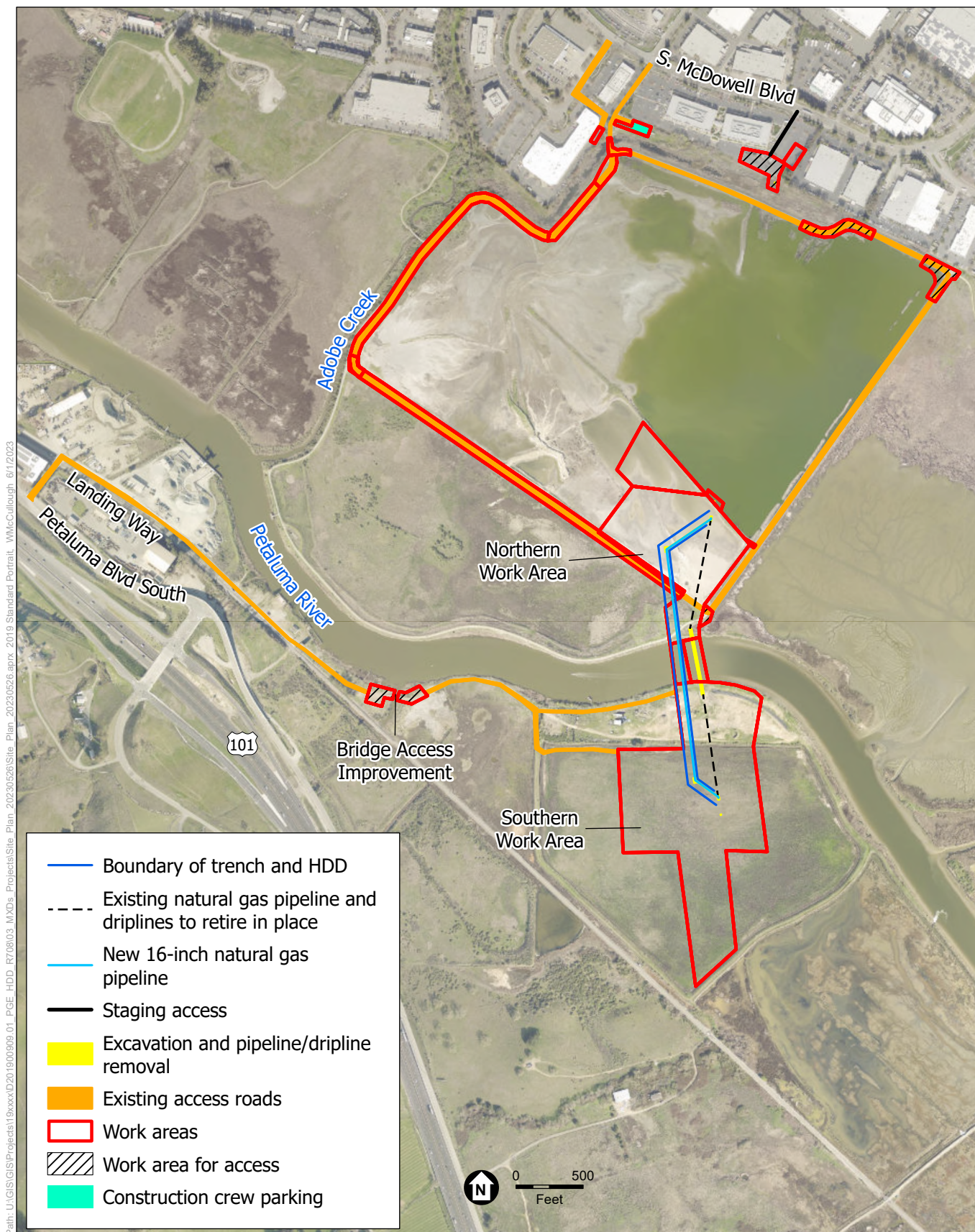
Pacific Gas and Electric Company (PG&E or Applicant) is proposing to replace the existing steel natural gas pipeline (021G), which crosses the Petaluma River at Shollenberger Park in the city of Petaluma and extends south into unincorporated Sonoma County. The proposed PG&E Gas Line 021G Replacement Project (L 021G/R-708) Across the Petaluma River (Project) consists of the replacement of the existing 021G pipeline with a 16-inch-diameter steel natural gas pipeline, which would be installed using a combination of open trench and horizontal directional drilling (HDD) methods (Phase 1). To allow for the ongoing navigability of the Petaluma River, the proposed replacement pipeline would be installed in a deeper alignment (at depths extending to 72 feet) beneath the riverbed, and new markers would be installed to depict the proposed realignment. Minor alterations to existing levees and access routes are also proposed to facilitate signage and equipment access.

In addition, the Project includes the removal of two parallel sections of the existing 021G pipeline located approximately 6 to 8 feet below the bed of the Petaluma River (Phase 2). Existing upland segments of pipeline and driplines would be capped and retired in-place. The Project would also include the retirement and removal of existing isolation valve lots and existing condensate trap and dripline valves, as well as the removal of existing pipeline markers.

2.1 PROJECT COMPONENTS AND WORK AREAS

2.1.1 Summary of Upland Project Components

An overview of the Project and proposed work areas is depicted in Figure 2-1, *Project Overview*. The terrestrial (upland) components of the Project include the installation of 492 feet of 16-inch-diameter steel natural gas transmission pipeline using open trench and backfill installation. Approximately 1,280 feet of existing 16-inch-diameter pipeline and 2,540 feet of existing 0.75-inch driplines (used to direct condensation away from the pipeline) in the upland portion of the Project site are proposed to be decommissioned, capped, slurry sealed, and retired in place. Two isolation valve lots (at V-2.54 and V-2.61) and condensate trap and dripline valves would be retired and removed, and the existing pipeline markers would be replaced with new pipeline markers to mark the location of new pipeline. To accommodate large equipment access during construction, the Project would improve (widen) existing levee roads north and south of the river and conduct minor bridge modifications at Landing Way (described in further detail in Section 2.2.2.1).



SOURCE: ESA, 2022

PG&E Gas Line 021G/R-708 Replacement Project

Figure 2-1
Project Overview

Upland construction would also involve pre-testing, welding, strength testing, pipeline coating, and equipment fitting.

The two main Project work areas would be adjacent to the Petaluma River. The main work areas are referred to in this document as *northern and southern work areas* with respect to the adjacent Petaluma River and are described in greater detail below. Staging of construction materials and equipment would be concentrated mainly in these larger northern and southern work areas. Smaller work areas are also proposed north of Shollenberger Park to facilitate site access along the levees and for crew parking (in the existing parking lot at Shollenberger Park) as depicted in Figure 2-2A, *Project Site Plan (North)*. An additional small work area is proposed on the south side of the river along Landing Way, which would include a temporary upgrade to an existing bridge, as depicted on Figure 2-2B, *Project Site Plan (South)*.

2.1.1.1 Northern Work Area

The northern work area would occupy approximately 14 acres in the southeast corner of Shollenberger Park and would be accessed via South McDowell Boulevard at Shollenberger Park Road. The northern work area, which would be located on the exit side of the HDD crossing, would be used to set up and install the drill rig (noted in Table 2-1) for the pullback operation.

2.1.1.2 Southern Work Area

The southern work area would occupy approximately 11.2 acres south of the Petaluma River and would be accessed via Petaluma Boulevard South and Landing Way. The southern work area would be the primary staging area and would be used for stringing, welding, and coating of the pipeline before the pullback activities occur. The primary staging area would be located near the entry side of the HDD crossing and would be contained within the existing rights-of-way. The drill rig would be initially set up at this location to complete the pilot drill and reaming process and would then be moved to the northern work area for the pullback operation. Additionally, segmenting of the existing pipeline sections removed from the Petaluma River (see Section 2.1.2) would take place in this work area.

2.1.2 Summary of Riverine Project Components

In Phase 1, the riverine components of the Project consist of the installation of approximately 1,360 feet of 16-inch-diameter steel natural gas transmission pipeline, using HDD methods, to cross beneath the Petaluma River (Phase 1). In

Phase 2, approximately 736 feet of existing 12-inch-diameter pipeline (in two parallel 368-foot sections) and 150 feet of existing 0.75-inch dripline would be removed from subsurface locations below the river. The existing sections of pipeline and driplines would be cut at the riverbank on either side of the Petaluma River. Mechanical dredging of the river bottom would then be used to uncover the pipeline sections within the existing PG&E right-of-way, which would allow for pipeline removal. Further segmenting of the removed pipeline sections would take place in the southern work area, as noted in Section 2.1.1.2. Removed components would be transported off-site to be disposed of or otherwise recycled at an appropriate approved facility.

2.2 PROJECT SCHEDULE AND WORK PLAN

2.2.1 Schedule

Construction is anticipated to occur over a 5-month period. Phase 1 and Phase 2 may overlap during Project implementation. The first activities, consisting of mobilization and access improvements (road and bridge upgrades), would begin in late summer or early fall, to make use of the most efficient dry-weather window possible. HDD drilling and reaming (Phase 1) would be performed with a target pullback date of September. Removal of the existing pipeline sections from the Petaluma River (Phase 2) would be scheduled in a manner consistent with agency requirements (between August 1 and October 15). Clearance and tie-in activities (described below) would occur in early October, and construction of the Project would be finished by November. Construction would occur generally within daytime hours, and no nighttime construction is planned. However, if unforeseen circumstances or delays were to occur during the tie-in process, construction could extend into evening hours to allow for an uninterrupted process and continuity of gas transmission service (PG&E 2022a).

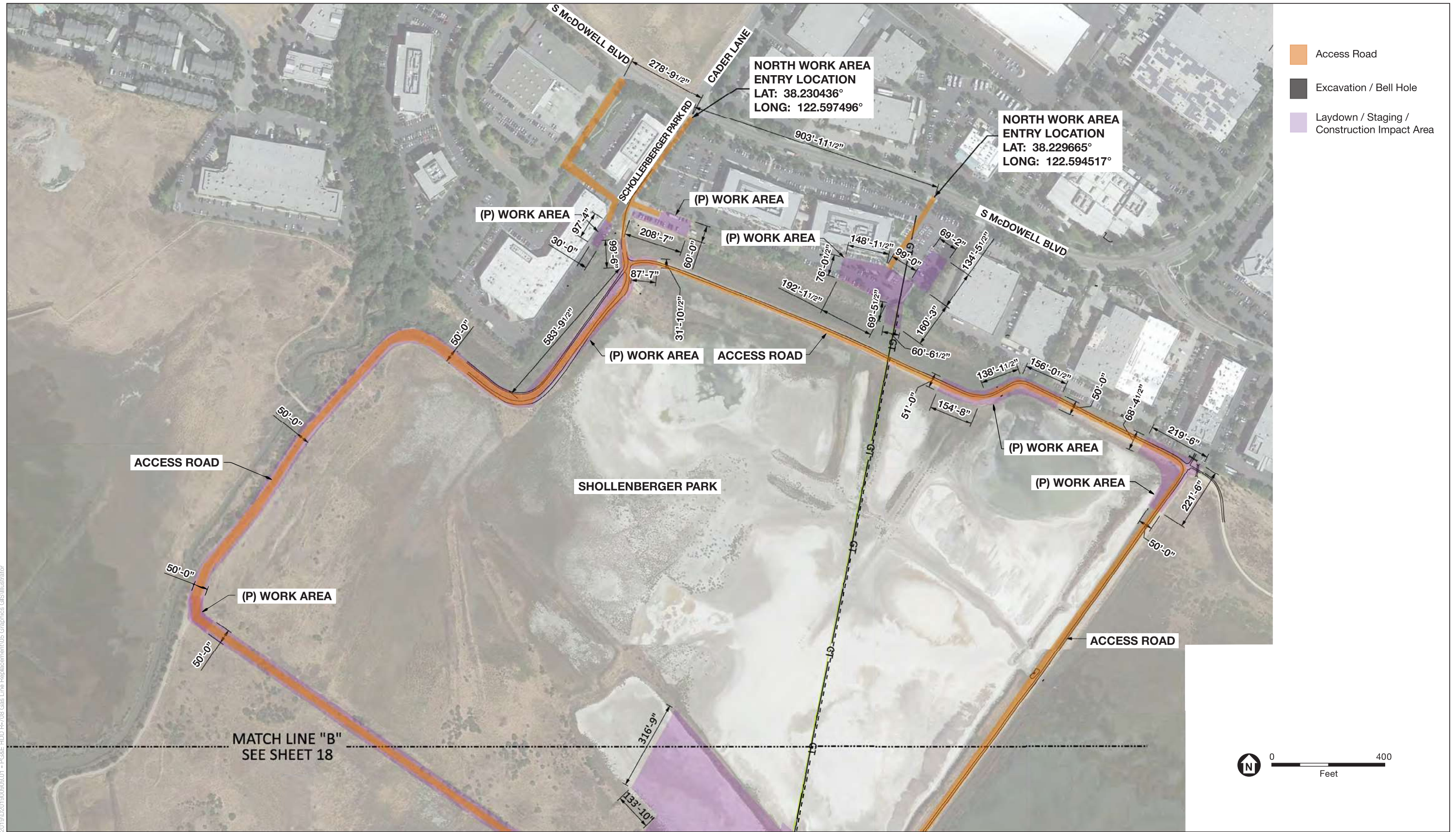
2.2.2 Construction Phases

2.2.2.1 Phase 1

Mobilization and Access Improvements

The initial construction phase would consist of mobilization, access road construction, and preparation for site work. In this phase, the contractor would prepare the staging and laydown yard and office locations in accordance with the Project overview and site plan (Figures 2-1, 2-2A, and 2-2B). Concurrently with staging, safety training would take place along with Project-specific orientation.

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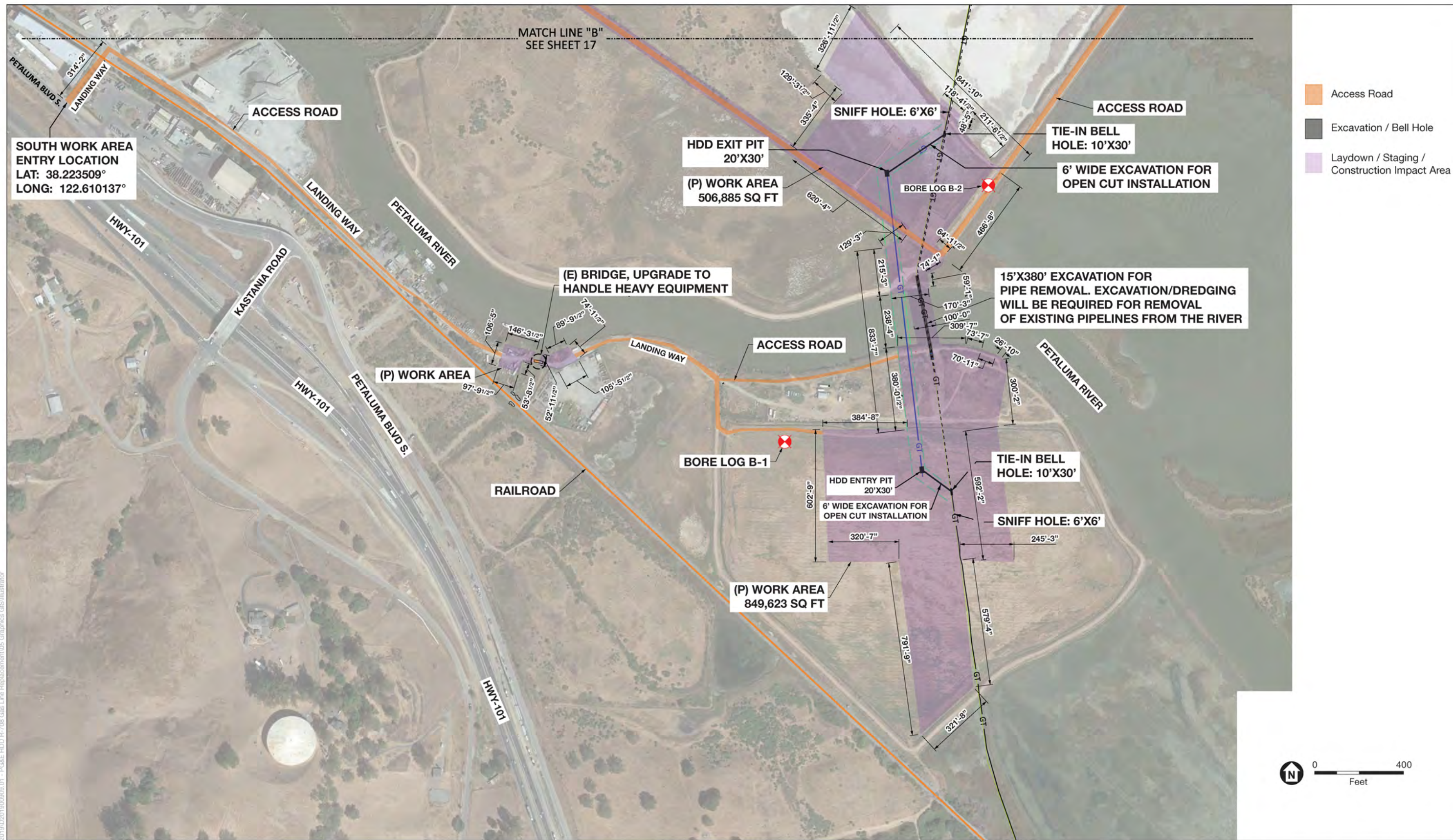


SOURCE: PG&E, 2021

PG&E Gas Line 021G/R-708 Replacement Project

Figure 2-2A
Project Site Plan (North)

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SOURCE: PG&E, 2021

PG&E Gas Line 021G/R-708 Replacement Project

Figure 2-2B
Project Site Plan (South)

Once the site management is mobilized and erosion control best management practices (BMPs) have been installed at the primary northern and southern work areas, preliminary construction activities would occur in preparation for excavation, fabrication, and HDD activities, as outlined in the Project's Work Plan (Barnard 2023).

An onshore preconstruction survey would be completed to confirm entry and exit points for the HDD process before mobilization, consistent with construction drawings and as staked in the field. The design profile developed through survey results would be verified and confirmed before construction.

Ground-Penetrating Radar and Potholing

Before soil disturbance, all underground utilities must be located and verified in a manner consistent with PG&E's standard policies. In accordance with the Gold Shovel Standard, Utility Damage Procedure, and Dig-In Prevention Policy, the selected contractor would contact Underground Service Alert (USA) to mark known utilities before ground disturbance. USA representatives would be mobilized to the work areas and mark and locate all known facilities. Ground penetrating radar (GPR) is also used as an additional method to locate unidentified subsurface utilities or obstructions. The GPR subcontractor would proceed ahead of the potholing² and excavation crew, exploring the excavation footprint for unmarked utilities. All utilities discovered by GPR would be marked in pink paint for further investigation (PG&E 2014).

All utility crossings located by USA and GPR would be potholed. Utilities that run parallel (within 5 feet of construction) would be noted, marked, and backfilled. The ground under the entire circumference of the utility would be excavated where required to locate the utility.

During the potholing effort, soil samples would be collected for characterization so that appropriate handling methods and disposal locations are identified and approved before the work. In almost all locations, native material would be used for backfilling. If needed, additional material would comply with engineering requirements. Construction debris, concrete, asphalt, and other wastes would be transported off-site to an approved disposal location.

² Utility potholing is used to locate known utilities below surface level by excavating holes. Workers start with a simple pothole of around 8 to 12 inches in diameter and use a vacuum excavator to dig straight down until the utility is found.

Access Road Improvements

One access route would follow the existing road along the levees. Several locations along the existing levee road (as depicted in Figure 2-1, *Project Overview*) would require widening to accommodate large machinery. Clean, certified fill material would be brought in to build up the road at several turns. After construction is complete, this material would be removed and the levees would be returned to their preconstruction condition, or as specified by the applicable access agreement or permit condition. Required public safety signage would be placed where levees would be altered.

The private road (Landing Way) off Petaluma Boulevard South, which would be used to access the southern work area, has a bridge with an unknown load rating. Before construction, an outside engineering firm would be contracted to rate the bridge. If this effort is unsuccessful, or if the load rating cannot accommodate the construction equipment, bridge improvements would be implemented.

Two types of bridge improvements are being considered. Either wooden crane mats would be installed over the existing bridge or imported recycled flat railcars would be placed over the existing bridge. This would involve the placement over the existing bridge of dual 10-foot-wide railcars, cut to the specified length, then the installation of approaches with matting and dirt. Following construction, temporary structures would be removed, and the site would be restored to a condition comparable to pre-construction.

Establishment of Resource Avoidance Areas and Wetland Matting

Identified resource avoidance areas and applicable buffer zones would be flagged during construction (see Section 3.4, *Biological Resources*, Section 3.5, *Cultural Resources*, and Section 3.6, *Cultural Resources - Tribal*). In addition, Project work on the north side of the Petaluma River (see Figure 2-1) may present problems with standing water. To provide a safe working platform in wet areas, the ground would be scarified (debris removed), leveled out, or graded to prepare the land for the installation of wetland mats typically composed of hardwood timber or a composite material. Mats would be set up along access points, excavation points, HDD pits, and deactivation points.³ These mats

³ Deactivation points are locations in a pipeline where the pipeline may be closed off to isolate pipeline sections to facilitate maintenance, repair, or replacement.

(procured from a third-party vendor) could be installed using front-end loaders and excavators. After construction is complete, all matting for the work zones would be removed and the area would be restored consistent with preconstruction conditions.

Upland Trench Excavation and Replacement Pipeline Installation

Depending on the locations, excavation depths would vary from approximately 10 feet for standard trenching for upland portion of the replacement pipeline to 16 feet for the decommissioning/removal of existing pipeline. Excavation would be conducted in accordance with California's Occupational Safety and Health Administration (Cal/OSHA) requirements. Proper engineering would be employed to design shoring and sloping plans to maintain excavation stability, minimize groundwater impacts, protect workers, and maintain access where required.

Trenching for new pipeline installation and tie-in bell holes⁴ would be installed next. Tie-in bell holes would measure 10 feet by 30 feet, also extending to a depth of 10 feet. These would be extensive excavations along the Petaluma River that would require an interlocking sheet pile shoring set-up (or similar) to limit the amount of water entering the bell holes. Based on previous projects at these valve site locations, it is assumed that some water would be encountered that would require discharge.

The water would be pumped from the excavations and treated by PG&E for land discharge, or otherwise treated and either discharged to the sanitary sewer system (pending City approval) or transferred to an appropriate receiving facility consistent with the regional water quality requirements. Total excavation would consist of tie-ins, HDD entry and exit pits, trenching (between tie ins and entry and exit pits), and sniff holes⁵. The sniff holes (measuring 6-feet-wide by 6-feet-long by 6-feet-deep) would be excavated at the existing pipeline alignment extending 100 feet to the outside of each of the pipeline tie-in points. The sniff holes are safety features to assist with the blowdown, clearance, and tie-in operations. Upon completion of the tie in process, the excavations would be refilled,

⁴ A bell hole is a hole dug into the ground over or alongside a pipeline to allow room for work, maintenance, and/or examination.

⁵ The "sniff" hole allows for upstream and downstream monitoring of a gas line and provides safety ventilation to prevent a build-up of residual gas in the line during construction. The term is so named because the monitors would halt work if they smelled gas.

compacted, and the ground restored to pre-construction conditions (described in Section 2.2.2.9).

Pipeline Welding, Fabrication, and Coating

Pipeline welding and fabrication would take place in two stages. Initially, the HDD pullback string would be welded in the southern work area. The HDD string would be approximately 1,360 feet of 16-inch steel pipeline. After the HDD pullback string is successfully installed, contractors would install the replacement pipeline in the upland locations using trench and cover methods from the HDD to the tie-in points. On the north side of the Project site, the length of trenched pipeline between the tie-in to the existing pipeline and the HDD segment would be approximately 300 feet, and on the south side, the length would be 170 feet. The contractor would work with PG&E to schedule an X-ray inspection of all welds prior to the HDD pullback. The trenched pipeline would be left exposed until strength testing (described in Section 2.2.2.5) is complete. Welding procedures and qualification requirements would be implemented to ensure that welding is done in accordance with PG&E standards⁶ using qualified personnel. During the initial welding of HDD string, the pipeline would be coated at the weld sites (after weld inspection) to protect the integrity of the welds. A single coating crew would perform this initial coating work. Coating for pipeline installation, tie-in welds, and aboveground coating would be completed after testing and tie-in and prior to backfill.

The pipeline for the direct-bury⁷ segments to be installed using trench excavation would be pre-coated from the factory with fusion bonded epoxy. For the HDD section, the pipeline would come pre-coated with fusion bonded epoxy and abrasion resistant overlay. The only coating to be performed on the Project site would consist of coating the welds that connect the pipeline joints together, coating fittings, and repairing any factory coating (if damaged during transport). Field coating is accomplished first by sandblasting the pipeline to remove any rust or contamination. Blast media and removed material would be captured on tarps and containerized for proper disposal. Two-part epoxy coating would be mixed on-site and applied by hand to the pipeline with a brush. The coating

⁶ All arc welding would be performed in accordance with PG&E Gas Welding Control Manual TD-4160-M.

⁷ Direct bury means that the pipeline is buried in direct contact with soil; it doesn't need to be installed inside another pipe and doesn't need a cover, sheath, or duct to protect it. In this case, it is pre-coated with a fusion bonded epoxy.

would include no volatile organic compounds and would be composed of 100 percent solids. A total of approximately 36 liters of coating would be required.

Horizontal Directional Drilling and Pullback

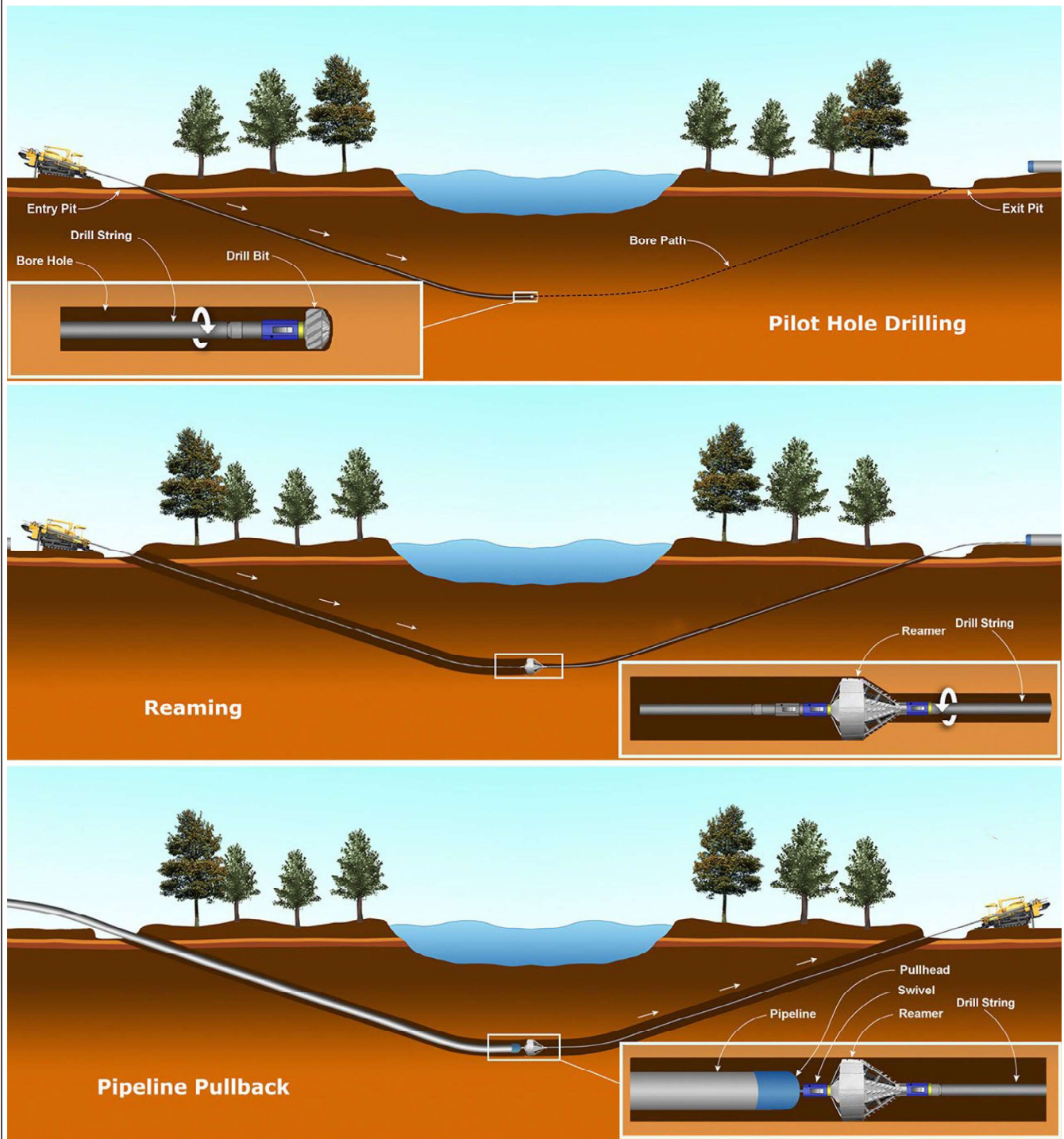
To minimize disturbance to the Petaluma River, PG&E proposes to use HDD construction methods for the river crossing. An HDD specialty subcontractor would perform the HDD installation. An HDD execution plan (inclusive of an Inadvertent Release Contingency Plan) has been prepared, describing the HDD environmental management and installation process (Appendix B). HDD exit and entry locations are depicted in Figures 2-2A and 2-2B. A conceptual diagram of the HDD process is provided as Figure 2-3.

The following is a summary of the HDD related activities required to install the proposed replacement pipeline.

To prepare the site in advance of the HDD activity, mats would be set up to protect wetlands and provide access to the HDD work areas. Mats would be used (as needed) along access points, excavation points, HDD pits, and the existing pipeline deactivation points. Site preparation would also include filter fence/straw bailed berm walls and interlocking sheet pile shoring (as needed) set up to provide structural support for the process and limit water from entering the bell holes.

HDD bore pits would be excavated at each end of the replacement pipeline alignment. The bore pits would be 20 feet by 30 feet excavated to a depth of 10 feet, and the overall HDD work areas would each measure about 150 feet by 100 feet. The drill rig would be initially positioned at the southern work area near the proposed HDD entry point (Figure 2-2B).

The first stage of the HDD process involves drilling a pilot hole using a 12.25-inch drill bit along the designated drill path. The HDD contractor would drill the pilot hole towards the northern work area, perform the reaming or widening process, and swab and clean the hole. The path of the pilot hole would be guided by a horizontal technology recorder to record the rate of penetration, depth, pull and thrust force, torque, pressure, and to monitor drilling fluid surface tank volume. An above-ground guide wire may be used within the identified work areas on the terrestrial portions of the bore to guide the path of drilling. During drilling, drilling fluid would be pumped down the hollow drill pipe to the drill bit and then would be flushed back up the borehole to the surface.



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SOURCE: Padre Associates, Inc. 2022

PG&E Gas Line 021G/R-708 Replacement Project

Figure 2-3
HDD Conceptual Diagram

The drilling fluid helps stabilize the pilot hole, cools the drill bit, and carries the cuttings up to the entry pit which would be collected, screened, and recirculated back into the pilot hole via a drilling fluid recycling system.

Once the pilot hole is completed, reaming operations would be performed to widen the bore to the appropriate diameter (approximately 1.5 times larger than the outside diameter of the replacement pipeline to allow for sufficient free space for the pull back. To perform the reaming, the drill rig would be moved to the exit pit at the northern work area and would be used to ream the pipeline hole and then pull back the HDD string below the river from south to north. Reaming tools would consist of circular cutters supported by drilling fluid. The assembled pipeline string would be tested for structural integrity along the weld joints. Upon completion of the reaming and testing operations, the hole would be swabbed and cleaned.

Following the completion of reaming operations, the pipeline string would be pulled back into the reamed hole. The drill rig would be repositioned to pull the welded replacement pipeline from south to north through the designated alignment. The pullback procedure is a process whereby the reamer is pulled back with the pipeline (pull section) rather than pushed through. The reamer would be connected to the pullback section with a swivel to minimize torsion force on the pull section. To assist with the HDD pullback procedure, side booms and cradles would elevate the pipeline to reduce axial loads and support the pipeline entering the pull hole.

The construction area would be monitored to inspect for signs of unplanned leaks or seeps of drilling fluid waste during the HDD process, as outlined in the Inadvertent Release Contingency Plan. Consistent with contract specifications, the selected contractor shall maintain a written record of inspections and their results shall be submitted to PG&E daily. Waste generated in the HDD and pullback process would be sampled and disposed of at an approved facility capable of receiving such waste (as detailed in Appendix B).

Strength Testing

Once the HDD pullback and pipeline installation is complete, the pipeline and assemblies would be hydrostatically tested in accordance with PG&E-provided standard practices and the CSLC lease provisions. The water required for the testing process would be procured from a local municipal source and trucked

to the test site. After testing, dewatering into frac tanks⁸ would occur for water quality testing before disposal. Options for disposal of the dewatering effluent include discharge to the City sanitary sewer system, transport offsite by truck, or discharge to upland areas at Shollenberger Park, pending City of Petaluma and San Francisco Bay Regional Water Quality Control Board (RWQCB) approval. To dry the pipeline, temporary launchers and receivers would be installed at respective tie-in locations, and pipeline cleaning, drying, and inspection tools (commonly called “pigs”) would be run from the launch end to the receiving end to ensure that all water is removed from the line. A caliper pig would be propelled through the line to survey for any anomalies, such as joints that are not quite aligned. Swab pig runs would continue with dry air until the drying pigs are received at the far end of the line in a clean condition and the dewpoint is verified to be at -40 degrees Fahrenheit.

Clearance and Tie-in

To complete the required work while also allowing PG&E to operate the system to maintain natural gas service, it would be necessary to complete a clearance/tie-in once the replacement pipeline is installed. The tie-in procedure would consist of welding and inspection using non-destructive weld examination techniques. After welds are complete and have passed sign-off procedures, PG&E would begin work on the existing pipeline, which would then be purged of natural gas.

After the tie-in and retirement process described below in Section 2.2.2.2 has been successfully completed, as-built survey data would be collected before any backfilling activity by a subcontractor. The selected contractor would then begin backfilling and compacting the trench excavations. The newly installed replacement pipeline within the trench would be padded with sand imported to the site. The sand would extend 6 inches on each side of the pipeline and 12 inches above the pipeline in conformance with PG&E Engineering Material Specification No. 4123 (PG&E 2022b). Once the pipeline has been padded, the excavations would be backfilled and compacted, using native soil.

⁸ *Frac tanks* are large containers that are easily transported to and from construction sites and provide safe and reliable on-site liquid storage.

2.2.2.2 Phase 2

Existing Pipeline Pre-removal Purging and Cleaning

The tie-in contractor would work with PG&E crews to perform blowdown⁹, isolate, and evacuate the existing line of natural gas consistent with PG&E's Gas Design Standard A-38, "Procedures for Purging Gas Facilities." It is estimated that a volume of 44,000 cubic feet of natural gas would be released to the atmosphere through one of the existing relief valves on the existing pipeline. Consistent with PG&E procedures and applicable regulatory requirements, the Bay Area Air Quality Management District would be notified before the venting of natural gas. After the notification, the air district may implement limits on the amount of gas released at one time and any special conditions. Vented natural gas would be released at high velocities, which would help ensure that the lighter-than-air gas would quickly dissipate high above the ground's surface. The two relief valves being considered for use are located north of the Project site at the PG&E station on Frates Road or south of the Project site near Skinner Road. No ground disturbance would be required for the release. PG&E procedures require notifications for sensitive receptors near the proposed venting. For the Project, there are sensitive receptors located as close as approximately 1,500 feet from the relief valves where the venting would occur. PG&E would implement noticing, special scheduling, silencers, carbon filtration, or other methods of odor reduction for public safety and to reduce potential noise and odor nuisances.

PG&E would implement two separate cleaning operations to prepare for removal of the two 368-foot parallel sections of the existing 12-inch-diameter pipeline (021G) under the Petaluma River. The existing parallel pipeline sections to be removed were installed well before modern in-line inspection technology was created, and diameter and other changes within the pipelines could cause modern in-line inspection tools (e.g., pigs) to get stuck. Therefore, to clean the pipelines, PG&E would likely use either a pig-driven chemical cleaning process, or a jet-rodding process. The jet-rodding process involves using a high-pressure hose with jets to propel the hose along the pipeline while effectively pressure washing the inside of the pipeline with a cleaning solution. The cleaning solution would then be vacuumed from the line either through the existing drip structure or by inserting a 2-inch PVC pipe into the pipelines for use as a conduit for vacuum liquid extraction. Whichever method is employed for the cleaning of

⁹ Blowdown is the removal of solids or liquids from a container or pipe using pressure.

the river crossing pipeline sections, a fluid sample would be collected at the conclusion of the cleaning process and sent to a lab for testing to confirm that residual hydrocarbon levels are 15 parts per million (ppm) or less. The particles and water are captured in bins at the end of the pipeline for hydrocarbon testing and disposal. The remaining segments of line (outside of CSLC jurisdiction) proposed to be retired in place would require a chemical cleaning process, which would be performed by a subcontractor with support from the construction contractor. The chemical cleaning process involves pushing a variety of cleaning pigs with slugs of water containing a cleaning agent through the lines. Compressors would be set up on one end of the line and pigs would be pushed to the other end. A double-walled frac tank would be set up at the receiving end to catch all liquids pushed through the line during cleaning. This process would continue until the line has reached the desired level of cleanliness.

Removal of Existing Pipeline and Valve Lots

After completion of the cleaning process, the two parallel 12-inch-diameter steel natural gas pipeline sections and driplines would be removed from beneath the Petaluma River. The pipeline sections would be cut at the riverbank on each side of the Petaluma River. The pipeline area would then be excavated to an anticipated pipeline burial depth of 6 to 8 feet to remove overburden (soils and sediment) with excavators working from the riverbanks away from the river to the extent of the removal section. A dredging operation would also most likely be required to remove overburden from the pipeline across the river to facilitate the removal. Once the pipeline sections are exposed on both sides of the river, they would be lifted up and out of the riverbed with the assistance of two barge-mounted cranes. Slings would be installed around the pipeline sections and used to lightly lift the sections up and out of the river bottom, working from one or both sides of the river. Before the work occurs, PG&E would obtain samples of the soils and sediment and obtain approval for dredging spoils disposal from the U.S. Army Corps of Engineers' Dredge Material Management Office (DMMO). Preliminary communications with the DMMO indicate that removed materials may be placed in upland locations at Shollenberger Park, pending approval by the City of Petaluma. Dredging would be accomplished through a mechanical "dipper (clamshell) dredging" process and spoils would be loaded onto a barge and either placed in upland locations at Shollenberger Park or transported off-site to an appropriate facility for disposal.

With a pipeline depth of 6 to 8 feet below the river bottom, it is anticipated that up to 1,500 cubic yards of material would need to be dredged to remove the existing pipeline sections. When adequate overburden is removed from the pipeline sections, each pipeline would be dislodged from the river bottom and then using a crane, pulled toward the south out of the river for segmenting and disposal. During the dredging and pipeline removal effort, proper notifications and control of river traffic would be required to ensure the safety of the public and construction personnel.

The upland portions of the existing pipeline (outside of CSLC jurisdiction) are proposed to be retired in place. Consistent with PG&E Gas Design Standard A-38, "Procedures for Purging Gas Facilities," the existing pipeline would have all free liquids removed and be 100 percent purged of natural gas. After cleaning, the pipeline would be segmented (or sectionalized) and abandoned in place, in accordance with PG&E Utility Procedure TD-9500P-16, "Abandonment of Underground Gas Facilities." High pressure "save-a valve" devices would be installed and used to verify the line is clear and to check pressure prior to cutting into the existing pipeline. The open ends of the retired pipeline would be slurry sealed before the backfilling and compaction occur. PG&E would also remove the existing valve lots at V-2.54 and V-2.61 and the existing condensate trap, dripline valves and pipeline markers (denoting the locations of the decommissioned line) in accordance with PG&E's Utility Work Procedure TD-9800P-16.

Site Restoration, Demobilization, and Construction Close-Out

After backfill has been placed (see Section 2.2.2.1) and demonstrated to be in accordance with permit compaction requirements, the site restoration process would begin. At this stage, all temporary fencing, steel plates, wetland matting, and imported temporary materials would be removed, and all workspace and staging areas would be restored to preconstruction conditions. Access roads would be restored to their preconstruction conditions, or as specified in permit and land agreement documents.

As final site restoration is completed, the selected contractor would begin demobilizing equipment, tools, and structures as necessary in a manner consistent with permits and agreements. Once all sites are restored and accepted and the punch list has been completed, demobilization of remaining structures, restoration of the laydown yards, and shutdown of equipment would occur.

2.2.3 Equipment and Workforce

Table 2-1 provides details for the proposed use of construction equipment. At the peak of construction accounting for overlapping activities, up to 40 workers may be on-site at one time.

Table 2-1. Proposed Construction Tasks with Equipment and Personnel Schedule

Equipment	Engine Tier	Hours/ Day	Number of Days	Personnel
Mobilization and Access Road Improvements				
4 Crew Cab Trucks	On Road	4	10	6
1 CAT 328	Tier 4i	8	10	6
1 CAT 928	Tier 4i	8	10	6
1 CAT Motor Grader	Tier 4f	8	10	6
3 Dump Trucks	On Road	8	10	6
1 Ton Truck and Flatbed Trailer	On Road	8	10	6
1 Boom Truck and Trailer	On Road	8	10	6
Upland Trench Excavation and Pipeline Installation				
4 Crew Cab Trucks	On Road	4	42	11
1 1-Ton Truck	On Road	8	42	11
2 CAT 328 or Similar Excavators	Tier 4i	8	42	11
1 CAT 928 or Similar Loader	Tier 4i	8	42	11
3 Dump Trucks	On Road	8	42	11
1 Water Pump, Treatment and Discharge Equipment	Varies— Tier 3 minimum	8	42	11
Pipeline Welding and Fabrication				
1 CAT 572 or Similar Sideboom	Tier 3	8	23	11
1 CAT 328 Excavator	Tier 4i	8	23	11
1 Welding Rig	On Road	8	23	11
1 Tapping Truck with Tapping Equipment	On Road	8	23	11

Table 2-1. Proposed Construction Tasks with Equipment and Personnel Schedule

Equipment	Engine Tier	Hours/Day	Number of Days	Personnel
Coating				
2 Crew Cab Trucks	On Road	16	8	5
1 185-cfm Air Compressor	Tier 4	8	8	5
1 Sand Blast Pot	N/A	8	8	5
HDD Drilling/Reaming				
1 Crew Cab Trucks	On Road	8	16	19
1 CAT 312 Excavator	Tier 4i	8	16	19
1 Horizontal Directional Drilling Rig and Support Equipment (Vermeer D220x300 [415 hp])	Tier 3	10	16	19
Pullback				
4 Crew Cab Trucks	On Road	4	1	12
1 CAT 572 or Similar Sidebooms	Tier 3	16	1	12
1 CAT 328 or Similar Excavators	Tier 4i	16	1	12
1 1-Ton Truck	On Road	8	1	12
Strength Testing				
4 Crew Cab Trucks	On Road	5	10	9
1 CAT 328 or Similar Excavator	Tier 4i	10	10	9
1 Testing Trailer with Test Equipment	N/A	10	10	9
4 4,000-Gallon Water Truck	On Road	4	10	9
1 1,500-cfm Oil-Free Air Compressor	Tier 4i	10	10	9
1 Regenerating Desiccant Air Dryer	N/A	10	10	9
Clearance and Tie-in				
6 Crew Cab Trucks	On Road	4	1	17
2 CAT 328 or Similar Excavator	Tier 4i	12	1	17
1 1-Ton Truck	On Road	12	1	17
6 Air Compressors	Tier 4	12	1	17
3 Water Buffaloes	N/A	8	1	17
1 Tapping Truck with Tapping Equipment	On Road	12	1	17

Table 2-1. Proposed Construction Tasks with Equipment and Personnel Schedule

Equipment	Engine Tier	Hours/Day	Number of Days	Personnel
Pipeline Removal				
4 Crew Cab Trucks	On Road	4	10	11
2 CAT 328 or Similar Excavators	Tier 4i	8	10	11
1 Barge-Mounted Dipper Dredge*	Tier 4f	8	10	11
2 Spoils Barges*	N/A	8	10	11
2 Barge-Mounted Cranes*	Tier 4	8	10	11
1 Barge Tug	Tier 3	8	10	11
Backfilling and Site Restoration, Demobilization				
4 Crew Cab Trucks	On Road	4	17	11
1 1-Ton Truck and Trailer	On Road	8	17	11
2 CAT 328 or Similar Excavators	Tier 4i	8	17	11
1 CAT 928 or Similar Loader	Tier 4i	8	17	11
1 Boom Truck and Trailer	On Road	8	17	11

NOTES: cfm = cubic feet per minute; HDD = horizontal directional drilling;
hp = horsepower; N/A = not applicable.

* It is anticipated that a total of three barges would be required during pipeline removal activities: one would include the mounted dipper dredge and cranes, and the other two would be spoils barges.

SOURCE: Based on data provided by PG&E (PG&E 2022a).

3.0 ENVIRONMENTAL CHECKLIST AND ANALYSIS

This section contains the Initial Study (IS) that was completed for the proposed Pacific Gas and Electric Company Gas Line 021G Replacement Project (L 021G/R-708) Across the Petaluma River (Project) in accordance with the requirements of California Environmental Quality Act (CEQA). The IS identifies site-specific conditions and impacts, evaluates their potential significance, and discusses ways to avoid or lessen impacts that would be potentially significant.

The information, analysis, and conclusions in the IS provide the basis for determining the appropriate document needed to comply with CEQA. For the Project, based on the analysis and information contained herein, the staff of the California State Lands Commission (CSLC) has found that the IS shows that there is substantial evidence that the Project may have a significant effect on the environment, but that revisions to the Project would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur. As a result, CSLC has concluded that a mitigated negative declaration (MND) is the appropriate CEQA document for the Project.

The evaluation of environmental impacts provided in this Initial Study is based in part on the impact questions contained in Appendix G of the CEQA Guidelines. These questions, which are included in an impact assessment matrix for each environmental category (e.g., Aesthetics, Agriculture and Forestry Resources, Air Quality, Biological Resources), are “intended to encourage thoughtful assessment of impacts.” Each question is followed by a check-marked box with column headings that are defined below.

- **Potentially Significant Impact.** This column is checked if there is substantial evidence that a Project-related environmental effect may be significant. If there are one or more “Potentially Significant Impacts,” an environmental impact report would be prepared for the Project.
- **Less than Significant with Mitigation.** This column is checked when the Project may result in a significant environmental impact, but the incorporation of identified Project revisions or mitigation measures would reduce the identified effect(s) to a less than significant level.
- **Less than Significant Impact.** This column is checked when the Project would not result in any significant effects. The Project’s impact would be less than significant even without the incorporation of Project-specific mitigation measures.

- **No Impact.** This column is checked when the Project would not result in any impact in the category, or the category does not apply.

The environmental resource areas listed below would be potentially affected by this Project. These were selected because there would be at least one impact that would be a “Potentially Significant Impact,” but the Applicant has agreed to Project revisions, including the implementation of mitigation measures, that would reduce the impact to less than significant with mitigation.

Environmental Issues with Potentially Significant Impacts:

- Air Quality
- Biological Resources
- Cultural Resources
- Cultural Resources – Tribal
- Geology, Soils, and Paleontological Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Recreation
- Transportation
- Wildfire
- Mandatory Findings of Significance

Detailed descriptions and analyses of impacts from Project activities and the basis for their significance determinations are provided for each environmental factor on the following pages, beginning with Section 3.1, *Aesthetics*. Relevant federal and state laws, regulations, and policies potentially applicable to the Project are listed in Appendix A; additional local regulations and applicable policies are discussed in the Regulatory Setting for each environmental factor analyzed in this IS.

AGENCY STAFF DETERMINATION

Based on the environmental impact analysis provided by this Initial Study:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.



Signature

June 15, 2023

Date

Cynthia Herzog
Division of Environmental Science, Planning, and Management
California State Lands Commission

3.1 AESTHETICS

AESTHETICS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	<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 Environmental Setting

The Project area includes and is bordered to the north and west by Shollenberger Park within the city of Petaluma, and to the east and south by agricultural lands within the Petaluma River watershed in unincorporated Sonoma County. The Project area is located approximately 0.32 mile east of U.S. Highway (U.S.) 101 in an undeveloped area of marsh and wetlands. The closest developed area is a business park, located adjacent to Shollenberger Park. The Project site extends across the Petaluma River from the northern work area, at the southeast corner of Shollenberger Park, to the southern work area, in an agricultural field at the east end of Landing Way.

There are no designated or eligible state scenic highways within view of the Project site (Caltrans 2022). Expansive views of the Petaluma River valley are available to recreationists visiting Shollenberger Park. The Project's southern work area would be located on parcels designated by Sonoma County as Scenic Landscape Units (Sonoma County PRMD 2022). Views of the Project site are available to motorists on the private Landing Way, which dead-ends at the Project site, with limited structures within one-half mile of the Project site; to motorists on Petaluma Boulevard South and U.S. 101, both located approximately 0.32 mile from the Project site; to mariners on the Petaluma River; to recreationists in Shollenberger Park; and to passengers riding the Sonoma-Marin Area Rail Transit (SMART) train.

The closest structures are industrial buildings approximately 2,700 feet north of the Project area. The closest residential development, an apartment complex at Telecom Lane and Technology Lane in Petaluma, is approximately 0.5 mile west of the northern work area. In addition, a few rural residences are located approximately 0.4 mile west of the southern work area. Publicly accessible vantage points include Shollenberger Park and the industrial/office buildings immediately adjacent to the northern work area. Interpretive paths associated with the Ellis Creek Water Recycling Facility, which are used by the public, lie adjacent to the Project site.

3.1.2 Regulatory Setting

No federal laws, regulations, or policies pertaining to aesthetics are relevant to the Project. State laws and regulations pertaining to aesthetics that are relevant to the Project are identified in Appendix A. At the local level, the following applicable policies and program regarding aesthetics are included in the Sonoma County General Plan (Sonoma County PRMD 2016) and the City of Petaluma General Plan (City of Petaluma 2021a).

3.1.2.1 Sonoma County General Plan

The following policies from the Open Space and Resource Conservation Element of the Sonoma County General Plan pertain to aesthetic and visual resources.

Policy OSRC-2h: For development on parcels located both within Scenic Landscape Units and adjacent to Scenic Corridors, apply the more restrictive siting and setback policies to preserve visual quality.

Policy OSRC-7r: Develop comprehensive programs for preservation and restoration of the freshwater marsh habitat of the Laguna de Santa Rosa area, the extensive marsh areas along the Petaluma River, other tidal marshes, and freshwater marshes such as the Pitkin, Kenwood, Cunningham, and Atascadero Marshes. Include mechanisms for preservation and enhancement such as land acquisition, zoning restrictions, public and private conservation easements, regulating filling, grading or construction, floodwater retention, and wetland restoration.

3.1.2.2 City of Petaluma General Plan

Policy and Program 1-P-36: For properties adjoining the Urban Growth Boundary, it is the intent of the City that projects developed in the City or requesting City services shall be of limited density (as shown on the General Plan Land Use Map), unless greater density is required to satisfy the requirements of state housing laws, and shall be designed to preserve the visual and physical openness and preserve the aesthetic and natural features of that portion of the property proximate to the rural areas outside of the designated Urban Growth Boundary.

3.1.3 Impact Analysis

a) Have a substantial adverse effect on a scenic vista?

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

No Impact

There are no designated scenic vistas and no designated or eligible state scenic highways or other scenic resources in the Project area. Therefore, no impact on these resources would occur.

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

Less than Significant Impact

According to the U.S. Census Bureau, the Project area is not located in an urbanized area (U.S. Census Bureau 2010). Project activities would temporarily introduce terrestrial and marine construction equipment to public views. The introduction of such equipment would primarily affect passing mariners, recreationists in Shollenberger Park, and distant views available to riders of passing SMART trains. However, Project-related changes in visual quality would be minor and temporary (lasting up to 5 months).

The proposed southern work area is within a Scenic Landscape Unit; however, with the exception of the required replacement public safety signage, no aboveground permanent elements would be visible after Project construction. In addition, vegetation disturbance would be limited and would not include any tree removal. Restoration would include removal of wetland matting and imported materials, and all workspace and staging areas would be restored to preconstruction conditions. Therefore, this impact would be less than significant.

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

Less than Significant

As described in Chapter 2, Project work activities would generally be conducted during daylight hours, and no permanent sources of light or glare that have the potential to affect nighttime views of the area would be required. Except for the pullback activities and pipeline tie-in, which would occur at least 16 hours per day, no nighttime construction is anticipated. Should lighting be needed for the pullback activities, it would be as low in intensity as possible to meet Project needs, would focus on work areas, and would be equipped with shielding to limit light trespass.

Work hours may need to be temporarily extended during HDD pullback operations because the procedure cannot be temporarily halted given the risk of a pipeline failure or inability to safely secure the work area should the procedure

be halted. Nighttime lighting would be directed downward and onto the work area. Any nighttime work illumination would be temporary and would not adversely affect views in the area because no houses are located in the immediate Project vicinity. Impacts on aesthetics or visual resources would be less than significant.

3.1.4 Mitigation Summary

The Project would not result in significant impacts on aesthetics or visual resources; therefore, no mitigation is required.

3.2 AGRICULTURE AND FORESTRY RESOURCES

AGRICULTURE AND FORESTRY RESOURCES* – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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 Natural Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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, forest land (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 forest land or conversion of forest land 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 forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

NOTE:

* In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead

agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

3.2.1 Environmental Setting

Sonoma County is ranked 19th among the 58 California counties in total value of agricultural production. The three highest-value agricultural crops for Sonoma County in 2020 were wine, milk, and livestock (California Department of Food and Agriculture 2021). In 2020, the gross value of Sonoma County's agricultural production was \$680,648,000 (Sonoma County Department of Agriculture/Weights & Measures 2022). The hay land-producing areas of the Santa Rosa Plains, Island Naval Reservation, Tubbs, and Petaluma Valley in Sonoma County are farmlands of local importance. Areas capable of producing economically valuable crops such as wine grapes are also considered locally important farmlands (California Department of Conservation 2022a). The Project site and surrounding land are not designated as farmland of local importance.

The California Department of Conservation's Farmland Mapping and Monitoring Program provides data for use in planning for the present and future use of California's agricultural land resources. The land surrounding the Project's northern work area is designated as Urban and Built-Up Land. The land surrounding the southern work area is designated as Grazing Land (California Department of Conservation 2022b). The Project site parcels are not under a Williamson Act contract (Sonoma County Assessor 2022).

The Farmland Mapping and Monitoring Program defines Grazing Land as land on which the existing vegetation is suited for grazing livestock. Farmland of Local Importance is defined as land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. However, the Project is not proposed on land designated as Farmland of Local Importance. None of the Project area has been designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

3.2.2 Regulatory Setting

Federal and state laws and regulations pertaining to agriculture and forestry resources that are relevant to the Project are identified in Appendix A. At the local level, the following planning goals are relevant to the Project.

3.2.2.1 Sonoma County General Plan

Goal AR-2: Maintain for the timeframe of this plan agricultural production on farmlands at the edges but beyond the Urban Service Areas, to minimize the influence of speculative land transactions on the price of farmland and to provide incentives for long term agricultural use.

3.2.2.2 Petaluma Watershed Enhancement Plan

Goal C: Support the viability of agriculture in the community.

3.2.3 Impact Analysis

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 Natural Resources Agency, to non-agricultural use?

Less than Significant Impact

A portion of the Project would be constructed in the Petaluma River, with upland work areas north of the river in Shollenberger Park and south of the river near 3393 Petaluma Boulevard South. The California Department of Conservation's Farmland Mapping and Monitoring Program has designated the locations of the Project work areas as Urban and Built-Up Land (northern work area) and Grazing Land (southern work area). Project construction would be temporary and would not substantially affect designated Grazing Land in the southern work area. No Project activities would occur on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; therefore, no conversion of designated farmland would occur, and the impact would be less than significant.

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

No Impact

The southern work area, proposed for temporary use for staging materials and equipment, is located on land zoned as Land Extensive Agriculture under the Sonoma County General Plan. The proposed realignment of the PG&E utility easement would not occur upon agricultural land. The Project's northern work area is zoned as Open Space/Park and Civic Facilities. For additional details regarding land use and zoning, see Section 3.12, *Land Use and Planning*. After the 5-month construction period, the Project would not conflict with the existing zoning for agricultural use. The Project site is not located on land that is under a Williamson Act contract. Therefore, no impact would occur.

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

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact

The Project site is surrounded by land zoned as Civic Facilities, Open Space/Park, and Land Extensive Agriculture. The Project site does not support and is not zoned as forest land or timberland, as defined by Public Resources Code Section 12220(g)(2) or Section 45263, or Government Code Section 51104(g)(4). There would be no loss of forest land or conversion of forest land to non-forest use. No impact would occur.

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

No Impact

As discussed above, the Project site is not designated or zoned for any type of forest land use. After construction, the site would be restored to preconstruction conditions such that future agricultural use of the land (south of the Petaluma River) would not be precluded. The Project would not involve any other changes in the existing environment due to their location or nature, which could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. No impact would occur.

3.2.4 Mitigation Summary

The Project would not result in significant impacts on agriculture and forestry resources; therefore, no mitigation is required.

3.3 AIR QUALITY

AIR QUALITY - Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.3.1 Environmental Setting

The federal government has established the national ambient air quality standards (NAAQS) to protect public health (primary standards) and welfare (secondary standards). The State of California has established separate, mostly more stringent standards referred to as the California ambient air quality standards (CAAQS). Federal and state standards have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide, suspended particulate matter (a mixture of extremely small particles and liquid droplets, e.g., dust), and lead. In addition, California has standards for ethylene, hydrogen sulfide, sulfates, and visibility-reducing particles.

The Project area is in southern Sonoma County, which is within the San Francisco Bay Area Air Basin, where air pollutants are managed by the Bay Area Air Quality Management District (BAAQMD). The basin tends to experience low to

moderate concentrations of most pollutants when compared to federal or state standards. The Project area is designated as either in attainment or unclassified for most criteria pollutants, except for ozone, fine particulate matter (PM_{2.5}), and respirable particulate matter (PM₁₀), which are designated as non-attainment for the federal and/or state standards (BAAQMD 2022).

3.3.1.1 Local Climate and Meteorology

The San Francisco Bay Area Air Basin can be described as having a coastal Mediterranean climate (BAAQMD 2017a). The basin consists of coastal mountain ranges with inland valleys and bays that distort normal wind flow patterns. Temperatures in Sonoma County rarely reach below freezing and are warm during the summertime, with cool evenings. On warm summer days, land inland of the bay can be 35 degrees warmer than coastal areas. Nighttime temperatures tend to differ by less than 10 degrees Fahrenheit between the coast and inland areas (BAAQMD 2017b).

3.3.1.2 Sensitive Receptors and Land Uses in the Surrounding Area

Certain groups are more sensitive than others to adverse health effects from poor air quality. More sensitive population groups include the elderly and the young; people with higher rates of respiratory disease, such as asthma and chronic obstructive pulmonary disease; and persons with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases.

BAAQMD defines “sensitive receptors” as children, adults, and seniors occupying or residing in residential dwellings, schools, day care centers, hospitals, and senior-care facilities. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the U.S. Occupational Safety and Health Administration to ensure the health and well-being of their employees.

The closest sensitive receptors in the vicinity of the Project site are the Azure Apartment Homes, approximately 2,700 feet northwest of the northern work area; River Montessori Charter School, which admits children for pre-kindergarten to 6th grade, approximately 2,700 feet northeast of the northern work area; and The Spring Hill School, which admits children from 18 months to 8th grade, approximately 1.5 miles west of the Project site.

3.3.1.3 Criteria Pollutants

The U.S. Environmental Protection Agency (USEPA) has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria (see Section 3.3.2, *Regulatory Setting*). Criteria pollutants that would be generated by the Project are described below.

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials, such as electronics, rubber, plastics, fabrics, paint and metals. Ozone is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_x), including NO_2 , and the presence of sunlight. ROG and NO_x are known as precursor compounds for ozone. Generally, for ozone production to be significant, ozone precursors must be present in a stable atmosphere with strong sunlight for approximately 3 hours.

Ozone is a regional air pollutant because it is not emitted directly by sources but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

Nitrogen Dioxide

NO_2 is an air pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_x . A precursor to ozone formation, NO_x is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NO_x emitted from fuel combustion is in the form of nitric oxide and NO_2 . Nitric oxide is converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere.

NO_2 has the potential to irritate airways in the human respiratory system. Short-term exposures can aggravate respiratory diseases, particularly asthma, leading

to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NO₂ may contribute to the development of asthma and potentially increase susceptibility to respiratory infections.

Carbon Monoxide

Carbon monoxide, or CO, is a nonreactive pollutant that is a product of incomplete combustion and is associated mostly with motor vehicle traffic. High CO concentrations develop primarily during the winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also produce increased CO emissions rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the blood's oxygen-carrying capacity. This reduces the amount of oxygen that reaches the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

Particulate Matter

PM₁₀ and PM_{2.5} represent fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter is emitted into the atmosphere from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates can also damage materials and reduce visibility.

Sulfur Dioxide and Lead

Sulfur dioxide is produced through the combustion of sulfur or sulfur-containing fuels such as coal. Sulfur dioxide is also a precursor to the formation of atmospheric sulfate and particulate matter (PM₁₀ and PM_{2.5}) and contributes to the atmospheric formation of sulfuric acid that could precipitate downwind as acid rain.

Lead has a range of adverse neurotoxin health effects and was formerly released into the atmosphere primarily via leaded gasoline. Levels of atmospheric lead have decreased with the phase-out of leaded gasoline.

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes nearly 200 compounds, including diesel particulate matter emissions from diesel-fueled engines (CARB 2022a).

3.3.2 Regulatory Setting

Federal and state laws and regulations pertaining to air quality that are relevant to the Project are identified in Appendix A. Air pollution control in the Project area is administered on three governmental levels: USEPA has jurisdiction under the Clean Air Act; the California Air Resources Board (CARB) has jurisdiction under the California Health and Safety Code and the California Clean Air Act; and BAAQMD shares responsibility with CARB for ensuring that all of the federal and state ambient air quality standards (the NAAQS and CAAQS) are attained.

USEPA and CARB classify an area as attainment, unclassified, or nonattainment, depending on whether the monitored ambient air quality data show compliance, insufficient data to determine compliance, or noncompliance with the NAAQS and CAAQS, respectively. At the local level, policies related to air quality are identified in the Sonoma County and City of Petaluma general plans, and BAAQMD has adopted an air quality plan and CEQA significance thresholds that are applicable to the Project area.

3.3.2.1 Air Quality Standards

USEPA established the NAAQS to protect public health (primary standards) and welfare (secondary standards) and CARB established its CAAQS to protect the health of the most sensitive groups of people. USEPA and CARB are required to designate air basins as “attainment” or “nonattainment” based on whether air quality meets the NAAQS and CAAQS, respectively. Table 3.3-1 lists the applicable federal and state ambient air quality standards.

Table 3.3-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	Federal Standard
Ozone (O ₃)	1 Hour	0.09 ppm	–
Ozone (O ₃)	8 Hours	0.070 ppm	0.070 ppm
Carbon Monoxide (CO)	1 Hour	20 ppm	35 ppm
Carbon Monoxide (CO)	8 Hours	9.0 ppm	9 ppm
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm
Nitrogen Dioxide (NO ₂)	1 Hour	0.18 ppm	0.030 ppm
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	–	0.030 ppm
Sulfur Dioxide (SO ₂)	24 Hours	0.04 ppm	0.14 ppm
Sulfur Dioxide (SO ₂)	3 Hours	–	0.5 ppm (secondary)
Sulfur Dioxide (SO ₂)	1 Hour	0.25 ppm	0.075 ppm
Respirable Particulate Matter (PM ₁₀)	Annual Geometric Mean	20 µg/m ³	–
Respirable Particulate Matter (PM ₁₀)	24 Hours	50 µg/m ³	150 µg/m ³
Fine Particulate Matter (PM _{2.5})	Annual Geometric Mean	12 µg/m ³	12.0 µg/m ³
Fine Particulate Matter (PM _{2.5})	24 Hours	–	35 µg/m ³
Hydrogen Sulfide (H ₂ S)	1 Hour	0.03 ppm	–
Vinyl Chloride	24 Hours	0.01 ppm	–
Sulfates	24 Hours	25 µg/m ³	–
Lead	30-Day Average	1.5 µg/m ³	–
Lead	Calendar Quarter	–	1.5 µg/m ³
Lead	Rolling 3-Month Average	–	0.15 µg/m ³

Table 3.3-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	Federal Standard
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more due to particles when relative humidity is less than 70%	–

NOTES: $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; ppm = parts per million

SOURCE: CARB 2022b

3.3.2.2 Sonoma County General Plan

The following policies from the Sonoma County General Plan's Open Space and Resource Conservation Element (Sonoma County 2008e) may be applicable to the Project.

Policy OSRC-16c: Refer projects to the local air quality districts for their review.

Policy OSRC-16e: Cooperate with the local air quality district to monitor air pollution and enforce mitigations in areas affected by emissions from fireplaces and woodburning stoves.

Policy OSRC-16i: Ensure that any proposed new sources of toxic air contaminants or odors provide adequate buffers to protect sensitive receptors and comply with applicable health standards. Promote land use compatibility for new development by using buffering techniques such as landscaping, setbacks, and screening in areas where such land uses abut one another.

3.3.2.3 City of Petaluma General Plan

The following policy from the City of Petaluma General Plan (City of Petaluma 2021a) is applicable to the Project.

Policy 4-P-16: To reduce combustion emissions during construction and demolition phases, the contractor of future individual projects shall encourage the inclusion in construction contracts of the following requirements or measures shown to be equally effective:

- Maintain construction equipment engines in good condition and in proper tune per manufacturer's specification for the duration of construction;
- Minimize idling time of construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment;
- Use alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline);
- Use add-on control devices such as diesel oxidation catalysts or particulate filters;
- Use diesel equipment that meets the ARB's [California Air Resources Board] 2000 or newer certification standard for off-road heavy-duty diesel engines;
- Phase construction of the project; and
- Limit the hours of operation of heavy-duty equipment.

3.3.2.4 Bay Area Clean Air Plan

The Project site is managed by BAAQMD. Air districts produce air quality plans and CEQA guidance documents that generally focus on demographic forecasts and planned land use development, planned transportation system improvements or control measures, and development and planning of long-term stationary sources of air pollutant emissions. BAAQMD adopted the Bay Area Clean Air Plan in 2017 to provide a strategy to protect public health and the climate (BAAQMD 2017a). The plan's primary goals are to protect public health by achieving attainment of air quality standards. The plan includes a wide range of proposed control measures, which consist of actions to reduce the nonattainment pollutants discussed above. The plan outlines how BAAQMD works toward attaining the federal and state standards.

3.3.2.5 Significance Thresholds

BAAQMD's CEQA Air Quality Guidelines (BAAQMD 2017b) include adopted impact significance thresholds recommended for use in assessing projects' short-term (construction) and long-term (operational) air pollutant emissions (BAAQMD 2017b). The Project would have a significant impact on air quality if it would generate air pollutant exhaust emissions exceeding the thresholds listed in Table 3.3-2. The significance thresholds are focused on NO_x, ROG, PM₁₀, and PM_{2.5}, as these pollutants contribute to the nonattainment status of ambient air quality standards within the San Francisco Bay Area Air Basin.

Table 3.3-2. Bay Area Air Quality Management District Air Quality Thresholds of Significance

Criteria Air Pollutant/Precursor	Construction Average Daily Emissions (pounds per day)	Operational	
		Average Daily Emissions (pounds per day)	Maximum Annual Emissions (tons per year)
NO _x	54	54	10
ROG	54	54	10
PM ₁₀	82*	82	15
PM _{2.5}	54*	54	10

NOTES: NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter; PM₁₀ = respirable particulate matter; ROG = reactive organic gases

*Applies to construction exhaust emissions only.

SOURCE: BAAQMD 2017b.

3.3.3 Impact Analysis

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant with Mitigation

BAAQMD's primary goals are to protect public health by achieving the attainment of air quality standards. The plan includes a wide range of proposed control measures, which consist of actions to reduce ozone, fine particulate matter (PM_{2.5}), and respirable particulate matter (PM₁₀) emissions. BAAQMD guidance states that "if approval of a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project would be considered consistent with the Clean Air Plan" (BAAQMD 2017b).

MM AQ-1 would be implemented to ensure consistency with the Clean Air Plan. With this MM incorporated, the Project would mitigate potentially significant impacts from fugitive dust to less than significant. Therefore, the Project would not conflict with or obstruct implementation of the Clean Air Plan. **MM AQ-1** would reduce this impact to a less than significant level.

MM AQ-1: Air Quality Construction Measures. PG&E shall implement the following Bay Area Air Quality Manage District (BAAQMD) basic dust control practices:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- 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 miles per hour.
- 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 by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure, Title 13, Section 2485 of California Code of Regulations). 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 PG&E regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?

Less than Significant with Mitigation

Construction

As described in Section 3.3.1, *Environmental Setting*, ozone, PM₁₀, and PM_{2.5} are nonattainment pollutants in the San Francisco Bay Area Air Basin. During Project construction activities, equipment and vehicle exhaust would emit ROG and

NO_x, which are ozone precursors; in addition, particulate matter (both PM₁₀ and PM_{2.5}) would be emitted in the form of both fugitive dust and exhaust. These pollutants would be generated by construction activities involving off-road equipment, on-road vehicle trips, haul trucks delivering construction material, water trucks used for site dust control, and construction worker commutes to and from the Project site. BAAQMD recommends that construction-related fugitive dust emissions and exhaust emissions be evaluated separately. Those separate evaluations are provided below.

Fugitive Dust Emissions

Excavation activities and equipment movement across unpaved construction sites generate dust. Dust can cause eyes to water or irritate the lungs, nose, and throat. Excavation, grading, and other construction activities can generate windblown dust that adds PM₁₀ and PM_{2.5} to the local atmosphere.

BAAQMD has taken a qualitative approach to evaluating impacts of fugitive dust emissions during construction. Any project that implements the *BAAQMD Basic Construction Mitigation Measures Recommended for All Projects* would not result in a significant impact with respect to fugitive dust (BAAQMD 2017b). Therefore, **MM AQ-1**: Air Quality Construction Measures would be implemented to address construction-related dust, consistent with BAAQMD recommendations. Implementing **MM AQ-1** would reduce this impact to a less than significant level.

Exhaust Emissions

Construction-related emissions of criteria air pollutants from equipment and on-road vehicle exhaust were estimated using the CalEEMod emissions model (Version 2022.1); see Appendix C for the CalEEMod modeling output information associated with the Project.

Although construction is proposed to occur over a 5-month period, for a conservative estimate of average daily emissions it was assumed that several of the construction phases would overlap, and the overall construction period was modeled to take place over a condensed period of approximately 4 months. Project-specific data for phasing of the construction schedule and the specific equipment fleet by phase were provided by the Project Applicant and were used in the model to estimate emissions over the construction period. The total estimated emissions that would be generated over the duration of Project construction were divided by the number of modeled construction workdays (i.e., 91 days) to determine average daily emissions from construction. Table 3.3-3

presents an estimate of the Project's construction-related emissions from equipment and vehicle exhaust.

Table 3.3-3. Project Construction Emissions (Pounds per Day)

Construction Emissions	ROG	NO_x	Exhaust PM₁₀	Exhaust PM_{2.5}
Total (tons)	0.56	0.59	0.01	0.01
Average Daily (pounds)*	12.31	12.97	0.22	0.22
BAAQMD Construction Threshold (average daily pounds)	54	54	82	54
Significant Impact?	No	No	No	No

NOTES: BAAQMD = Bay Area Air Quality Management District; NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter; PM₁₀ = respirable particulate matter; ROG = reactive organic gases

*Average daily emissions are calculated by dividing the total emissions that would be generated by the Project by the number of modelled workdays, which is estimated to be 91 days.

SOURCE: Data compiled by Environmental Science Associates in 2022

As shown in Table 3.3-3, average daily emissions associated with the Project would not exceed the significance thresholds for ROG, NO_x, PM₁₀, or PM_{2.5}. Therefore, the Project's construction-related exhaust emissions of criteria air pollutants would result in a less than significant impact with respect to attainment of ambient air quality standards for ozone, PM₁₀, and PM_{2.5}.

Operation

The Project would not generate any long-term operational emissions; therefore, no impact would occur.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than significant Impact

The Project would emit PM₁₀ and PM_{2.5} exhaust emissions, the majority of which would be diesel particulate matter, which is a TAC. However, BAAQMD recommends that health risk impacts be quantified and considered quantitatively when sensitive receptors are located within 1,000 feet of TAC sources; and as described in Section 3.3.1.2, *Sensitive Receptors and Land Uses in the Surrounding Area*, the nearest receptors are approximately 2,700 feet

from the closest Project construction area. Therefore, temporary emissions generated during construction, including diesel particulate matter, would not result in substantial impacts at the nearest receptors.

The Project would not introduce any new stationary sources of TACs, and Project-related construction emissions would be temporary and are proposed to last 5 months. Therefore, this impact would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than significant Impact

Project construction may generate temporary odors from exhaust fumes and venting of the natural gas pipeline. Because of the highly dispersive nature of diesel exhaust and because the nearest residential receptors are not in the immediate vicinity of the Project site, this effect would not be considered significant. One-time venting of the natural gas pipelines would occur from an existing blowdown stack at high velocities to ensure that the lighter-than-air gas is quickly dissipated above the site. In addition, pursuant to PG&E procedures, notifications would be provided to nearby residences and PG&E would implement special scheduling, carbon filtration, or other methods of odor reduction to reduce the potential for odor nuisances associated with vented natural gas. Therefore, the Project's impact related to the one-time venting of natural gas would result in a less than significant odor impact.

The Project is not in the immediate vicinity of sensitive receptors, and the Project would not result in emissions that could cause long-term odors or other adverse effects during its operation. Therefore, the Project's impact related to the generation of odors would be less than significant.

3.3.4 Mitigation Summary

Implementation of the following MM would reduce the potential for Project-related impacts on air quality resources to less than significant.

MM AQ-1: Air Quality Construction Measures.

3.4 BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, or that is a species of interest to the State Lands Commission or the California Coastal Commission; or cause a marine wildlife population to drop below self-sustaining levels?	<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, regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, State Lands Commission, or California Coastal Commission?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

BIOLOGICAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
impede the use of native wildlife nursery sites?				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including essential fish habitat)?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.4.1 Environmental Setting

The analysis presented in this section is based on both publicly available and subscription-based biological resources data. ESA Biologist, Leanne Dunn, conducted a reconnaissance level site visit on June 30, 2021, to assess baseline conditions and observe biological resources in the Project area. In addition to the field survey, the following data sources were consulted to support this analysis:

- U.S. Geological Survey 7.5-minute topographic maps for the Petaluma River and surrounding eight quadrangles.
- Historic and current aerial imagery (Google Earth 2022).
- The California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CNDDDB) (CDFW 2022a) and Natural Communities List (CDFW 2022b).
- The California Native Plant Society's (CNPS's) Inventory of Rare and Endangered Plants (CNPS 2022).
- The U.S. Fish and Wildlife Service's (USFWS's) Information for Planning and Consultation Species List (USFWS 2022a).
- The National Wetlands Inventory database (USFWS 2022b).

3.4.1.1 Natural Communities

Natural communities are assemblages of plant species that occur together in the same area and are defined by species composition and relative abundance. The natural community classification is based on field observations and the standard list of California terrestrial natural communities recognized by the CNDDDB (Holland 1986).

Habitat types identified in the Project's study area include nonnative annual grassland/agricultural lands, open water, brackish seasonal wetland, and tidal (salt) marsh. Developed/disturbed land is also present but is not considered a vegetation community. Sensitive communities within the Project site include seasonal wetlands, tidal marsh, and open water. The open water consists of the Petaluma River, a tidal slough connected to San Pablo Bay. The northern work area contains tidal salt marsh, and brackish seasonal wetland in Shollenberger Park; the wetland features become more saline closer to the Petaluma River (USFWS 2022b).

Nonnative Annual Grassland

Nonnative grassland or agricultural land is not considered a sensitive natural community. This vegetation community is dominated by introduced grasses and forbs, with interspersions of weedy species commonly associated with a ruderal community. Annual grassland may provide little cover for wildlife, yet many species forage and breed in this habitat. Agricultural lands in the southern work area were previously under cultivation for hay and are presently fallow. Grassland may attract common reptiles such as western fence lizard (*Sceloporus occidentalis*), California alligator lizard (*Elgaria multicarinata*), and common garter snake (*Thamnophis sirtalis*) and may also provide nesting and foraging habitat for bird species such as western meadowlark (*Sturnella neglecta*) or California horned lark (*Eremophila alpestris*). Common small mammals may include western harvest mouse (*Reithrodontomys megalotis*), California ground squirrel (*Otospermophilus beecheyi*), and California vole (*Microtus californicus*).

Within the Project area, grassland and agricultural lands consist of patchy areas of primarily ruderal vegetation on the south bank of the Petaluma River.

Tidal Marsh

Tidal (estuarine) marsh is a sensitive natural community (CDFW 2022b). It consists of a plant community located above the tidal mudflat but hydrologically

influenced by tidal action, featuring salt-tolerant plant species such as California bulrush (*Schoenoplectus californicus*), common bulrush (*S. acutus*), broad-leaf cattail (*Typha latifolia*), bulrush (*Bolboschoenus* spp.), pickleweed (*Salicornia pacifica*), and nonnative fat-hen (*Atriplex prostrata*). At the upper elevations of the marsh, at the edge of the transition zone, plants may include salt grass (*Distichlis spicata*), alkali heath (*Frankenia salina*), and gumplant (*Grindelia stricta*).

Marsh vegetation provides nesting and foraging opportunities and cover for waterbird species and small mammals, including mallard (*Anas platyrhynchos*), great blue heron (*Ardea herodias*), great egret (*A. alba*), marsh wren (*Cistothorus palustris*), San Pablo song sparrow (*Melospiza melodia samuelis*), red-winged blackbird (*Agelaius phoeniceus*), salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), raccoon (*Procyon lotor*), and California vole, and raptors such as northern harrier (*Circus hudsonius*). Shorebirds and waterfowl may include black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra americana*), marbled godwit (*Limosa fedoa*), sandpiper species, northern shoveler (*Anas clypeata*), American wigeon (*Anas americana*), northern pintail (*Anas acuta*), gadwall (*A. strepera*), and canvasback (*Aythya valisineria*). Special-status wildlife species that may occur within tidal marsh habitats include salt marsh harvest mouse (*Reithrodontomys raviventris*), Suisun shrew (*Sorex ornatus sinuosus*), Ridgway's rail (*Rallus obsoletus*), and California black rail (*Laterallus jamaicensis*).

Within the Project area, tidal marsh habitat is located on the northern bank of the Petaluma River in Shollenberger Park. It is patchy and fragmented by nearby trails.

Brackish Seasonal Wetland

In addition to tidal marshland, Shollenberger Park contains freshwater marsh within side channels, and brackish seasonal wetland in the central pond (USFWS 2022b). Brackish wetland is a sensitive natural community (CDFW 2022b). Within the Park, this area is fed by rainwater during the winter, occasionally fed by river overflow, and typically dries during the summer. Brackish marshes contain a mixture of salt marsh and freshwater marsh vegetation, and support similar species of birds and wildlife to those in tidal marshland. Within the Project area, brackish seasonal wetland is present in patches in the northern work area.

Open Water

The Petaluma River is an open-water tidal slough bordered by stands of marsh vegetation. The open water provides habitat for fish species, including the federally listed steelhead (*Oncorhynchus mykiss irideus*) and green sturgeon (*Acipenser medirostris*). The riverbanks include subtidal habitat and intertidal mudflat; intertidal mudflat includes intertidal areas not continuously submerged, upslope of the subtidal areas and in numerous smaller tidal channels and is generally devoid of vegetation. Mudflat provides foraging opportunities for shorebirds while deeper waters provide foraging and resting habitat for grebes, cormorants, and diving ducks. Shallow waters could provide habitat for dabbling ducks such as mallard, northern shoveler, and gadwall, and for western pond turtle.

3.4.1.2 Special-Status Species

Several species known to occur in the vicinity of the Project area are protected under the federal Endangered Species Act (U.S. Code Title 16, Sections 1531–1544) or the California Endangered Species Act (California Fish and Game Code Sections 2050 through 2115.5), or both, or have been designated as Species of Special Concern by CDFW. In addition, Section 15380(b) of the CEQA Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing. Species recognized under any of these terms are collectively referred to as *special-status species*.

A list of special-status species with potential to occur in or near the Project area was compiled from a nine-quadrangle search of the CNDDDB (CDFW 2022a) centered on the U.S. Geological Survey Petaluma River 7.5-minute quadrangle (USGS 2021); a nine-quadrangle search of the CNPS Rare Plant Inventory (CNPS 2022); and a search of the USFWS Information for Planning and Consultation database (USFWS 2022a). The full list of special-status species was then assessed based on known occurrences, habitat requirements, and distribution relative to natural communities that occur in and around the Project area. The list of special-status plant and wildlife species considered in the analysis is provided in Appendix D-1, Table BIO-1, *Potential to Occur*.

No special-status plant species were considered to have moderate or higher potential to occur, given the disturbed nature of the marsh and grassland habitat present. Wildlife species having moderate or higher potential to occur in the Project area are described below in greater detail.

Steelhead

The Central California Coast steelhead Distinct Population Segment is federally listed as threatened. This Distinct Population Segment includes those fish found in coastal river basins from the Russian River south to Soquel and Aptos Creek, California, and the drainages of San Francisco Bay and San Pablo Bay, including the Petaluma River. The species may be resident (non-migratory, referred to as “rainbow trout”) or may migrate to the open ocean (anadromous) (CDFW 2022a).

Adult steelhead lay eggs in wintertime; juvenile fish rear in freshwater until they become large enough to migrate to the ocean. Steelhead select spawning sites that contain gravel substrate and have sufficient flow velocity to maintain circulation through the gravel and provide a clean, well-oxygenated environment for incubating eggs. Steelhead fry generally rear in edgewater habitats and move gradually into pools and riffles as they grow larger. Cover is an important habitat component for juvenile steelhead, both as a velocity refuge and as a means of avoiding predation. Steelhead are present in the Petaluma River, which is designated critical habitat for this species (*Federal Register* Title 70, Page 52487, September 2, 2005; NMFS 2016).

Green Sturgeon

Green sturgeon primarily spawn in the upper Sacramento River and migrate to coastal Pacific Ocean waters. The species frequently enters large coastal bays and estuaries, including the San Francisco Bay estuary, during the summer to feed. Juveniles spend 2 to 4 years in estuaries before emigrating to the sea and sub-adults seek out protected bays, including San Francisco Bay in the warm months. Although green sturgeon do not spawn in the Petaluma River, juveniles may stray into tidal portions of the river throughout the year (CDFW 2022a).

Western Pond Turtle

Western pond turtle (*Actinemys marmorata*) is a CDFW Species of Special Concern. This species is normally associated with permanent ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams; it requires basking sites and suitable upland habitat, such as sandy banks, for egg laying. This species can tolerate full-strength seawater for a short period of time, but it normally is found in freshwater (Zeiner et al. 1988-1990).

The western pond turtle was recorded in Ellis Creek in 2007 and in Shollenberger Park in 2008; adults were observed basking on woody debris (CDFW 2022a). This species has moderate potential to occur along the Project alignment in Shollenberger Park or the Petaluma River, where water, woody debris, or other basking sites are present. Nearby grassland habitat could provide marginal nesting habitat for this species.

Ridgway's Rail and California Black Rail

Ridgway's rail, a federally listed and state-listed endangered species, and California black rail, a state-listed threatened species, are secretive birds that are difficult to observe in dense marsh vegetation; they prefer to run and hide from threats, rather than flying away. Ridgway's rail maintains large home ranges in tidal and brackish marshes, and the species has high site fidelity. Ridgway's rails occur within a range of tidal and brackish marshes; the qualities of a marsh strongly influence the population density of rails it can support. Physical habitat characteristics positively correlated to Ridgway's rail presence include large marsh size, proximity to other marshes, presence of high-tide refugia, presence of buffers or transitional zones between marshes and upland areas, diverse marsh elevations, and intricate channel networks (USFWS 2013).

California black rail may inhabit saltwater, brackish, and freshwater marshes. The vegetation of marshes occupied by California black rails ranges from almost pure pickleweed to sedges, saltgrass, bulrush, and cattails; the species prefers saturated ground in shallow marsh for nesting.

The California black rail and Ridgway's rail have been recorded numerous times in the past 10 to 15 years in marshes along the Petaluma River and in San Pablo Bay. The closest black rail record is from the Petaluma Marsh just upstream of the Project area in 2015 (CDFW 2022a). The closest record of Ridgway's rail was in 2014 in the Petaluma Marsh adjacent to Shollenberger Park, along the Petaluma River upstream of the Project area (CDFW 2022a). Both rail species are assumed to be present in the marshes along the Petaluma River, in and surrounding the Project area.

Breeding and Migratory Birds

Tidal marsh and nonnative grassland may provide nesting and foraging habitat for a variety of resident and migratory birds in shrubs, or dense ground vegetation. Few trees are present in the Project area. Birds such as San Pablo song sparrow, marsh wren, and salt marsh common yellowthroat may nest in the

marsh along with shorebirds and waterbirds, including dabbling ducks, that would also use adjacent lowland grassland habitats.

Salt Marsh Harvest Mouse

The salt marsh harvest mouse, a federally listed endangered species, is a small rodent similar to the more widespread western harvest mouse (*Reithrodontomys megalotis*). As described in the species' recovery plan (USFWS 2013), the fringing tidal marshes along northern San Pablo Bay (from the Petaluma River to the Mare Island Strait) support the largest population of the northern subspecies of salt marsh harvest mice in the North Bay. Salt marsh harvest mice commonly occur in the upper portions of tidal marshes where terrestrial grasses are absent or remote. However, salt marsh harvest mice also frequently utilize terrestrial grassland habitats adjacent to tidal marsh and grass-pickleweed ecotones. This species is typically associated with tall, dense, continuous stands of pickleweed, but may also be found in upper marsh stands of other vegetation.

The salt marsh harvest mouse was recorded in the Petaluma Marsh (1990) along the Petaluma River (CDFW 2022a) and was positively detected close to the location (of the proposed Project) in 2022 (personal communication Smith, K. 2023). The salt marsh harvest mouse is assumed to be present in pickleweed habitat near the Project area.

3.4.2 Regulatory Setting

Federal and state laws and regulations and local policies and ordinances pertaining to biological resources that are relevant to the Project are identified in Appendix A.

3.4.2.1 Sonoma County General Plan

Goal OSRC-7: Protect and enhance the County's natural habitats and diverse plant and animal communities.

Policy OSRC-7a: Designate as Biotic Habitat Areas in the Open Space and Resource Conservation Element the known locations shown on Figures OSRC-5a through OSRC 5i and identified as Special Status Species Habitat, Marshes and Wetlands, Sensitive Natural Communities, and Habitat Connectivity Corridors.

Policy OSRC-7b: Rezone to the Biotic Resources combining district all lands designated as Biotic Habitat Areas. Prepare and adopt an ordinance that

provides for protection of designated Biotic Habitat Areas in conformance with the following principles. Until the ordinance is adopted, require that land use and development in designated areas comply with these principles:

- (1) For discretionary projects, notify applicants of protected habitats and species and possible requirements of Federal and State regulatory agencies, request identification of known protected habitats and species, and:
 - (a) In designated Biotic Habitat Areas, require site assessment and adequate mitigation. The priorities for adequate mitigation are, in order of highest to lowest priority: Avoid the habitat. Mitigate on site to achieve no net loss. Mitigate off site to achieve no net loss. Create replacement habitat off site to achieve no net loss. To the extent feasible, the mitigation required by the County should be consistent with permit requirements of Federal and State regulatory agencies.
 - (b) In designated Marshes and Wetlands, require a setback of 100 feet from the delineated edges of wetlands. The setback may be reduced based upon site assessment and appropriate mitigation.
 - (c) In designated Habitat Connectivity Corridors, encourage property owners to consult with CDFG, install wildlife friendly fencing, and provide for roadway undercrossings and oversized culverts and bridges to allow movement of terrestrial wildlife.
 - (d) The acreage required for adequate mitigation and replacement habitat shall be at least two times the acreage affected unless a lower level is acceptable to the applicable State and Federal agencies, with the amount depending on the habitat affected and the applicable mitigation priority value.
- (2) For discretionary projects in all designated Biotic Habitat Areas, send referrals to appropriate regulatory agencies and, where such agencies' comments or other agency information indicates biotic resources could be adversely affected, require site assessment, compliance with agency requirements and adequate mitigation pursuant to the priorities in (1) (a).

Policy OSRC-7c: Notify discretionary and ministerial permit applicants of possible requirements of Federal and State regulatory agencies related to jurisdictional wetlands or special status species.

Policy OSRC-7d: In all areas outside Urban Service Areas, encourage property owners to utilize wildlife friendly fencing and to minimize the use of outdoor lighting that could disrupt native wildlife movement activity.

Policy OSRC-7e: In coordination with resource agencies, landowners and affected public, review Biotic Habitat Area designations and related policy issues periodically, but at least every five years. If warranted, develop recommendations for additional policies that may be needed to ensure appropriate protection of biotic resources. Include consideration of methods to identify and monitor cumulative habitat loss and establish thresholds to protect sensitive resources.

Policy OSRC-7f: Support acquisition of conservation easements or fee title by the Sonoma County Agricultural Preservation and Open Space District (SCAPOS) of designated Biotic Habitat Areas.

Policy OSRC-7g: Where additional Biotic Habitat Areas are designated in Area Plans, revise such plans and guidelines as needed to provide protection of biotic resources equivalent or better than the protection provided by the General Plan.

Policy OSRC-7h: In coordination with resource agencies, landowners and affected public, conduct a comprehensive study of the cumulative impacts of habitat fragmentation and connectivity loss and the effects of exclusionary fencing on wildlife movement. If warranted, identify essential habitat connectivity corridors and develop recommendations for policies to protect essential habitat corridors and linkages and to restore and improve opportunities for native plant and animal dispersal.

Policy OSRC-7j: Establish a clearinghouse of information for public use related to biotic habitat protection and management and work toward making this information available by computer.

Policy OSRC-7k: Require the identification, preservation and protection of native trees and woodlands in the design of discretionary projects, and, to the maximum extent practicable, minimize the removal of native trees and fragmentation of woodlands, require any trees removed to be replaced, preferably on the site, and provide permanent protection of other existing woodlands where replacement planting does not provide adequate mitigation.

Policy OSRC-7l: Identify important oak woodlands, assess current protection, identify options to provide greater protection of oak woodlands and their role in connectivity, water quality and scenic resources, and develop recommendations for regulatory protection and voluntary programs to protect and enhance oak woodlands through education, technical assistance, easements and incentives.

Policy OSRC-7m: Designate important valley oak habitat areas, reevaluate current designations, and apply a Valley Oak Habitat combining district zoning that requires adequate mitigation for trees removed and monitoring of replacement tree survival.

Policy OSRC-7o: Encourage the use of native plant species in landscaping. For discretionary projects, require the use of native or compatible non-native species for landscaping where consistent with fire safety. Prohibit the use of invasive exotic species.

Policy OSRC-7p: Support voluntary programs for habitat restoration and enhancement, hazardous fuel management, removal and control of invasive exotics, native plant revegetation, treatment of woodlands affected by Sudden Oak Death, use of fencerows and hedgerows, and management of biotic habitat.

Policy OSRC-7r: Develop comprehensive programs for preservation and restoration of the freshwater marsh habitat of the Laguna de Santa Rosa area, the extensive marsh areas along the Petaluma River, other tidal marshes, and freshwater marshes such as the Pitkin, Kenwood, Cunningham, and Atascadero Marshes. Include mechanisms for preservation and enhancement such as land acquisition, zoning restrictions, public and private conservation easements, regulating filling, grading or construction, floodwater retention, and wetland restoration.

Policy OSRC-7s: Develop comprehensive programs for preservation and restoration of the San Pablo Bay area and shoreline habitats, including mechanisms for preservation and enhancement such as acquisition, zoning and easements and avoiding activities such as filling, grading or construction that would be detrimental to the biotic resources or historic water retention functions.

Policy OSRC-7t: Continue to actively participate in the FishNet4C program and work cooperatively with participating agencies to implement

recommendations to improve and restore aquatic habitat for listed anadromous fish species and other fishery resources.

Sonoma County Ordinance No. 6089

Zoning code changes adopted in 2014 in Sonoma County Ordinance No. 6089 implement the stream protection policies of the Sonoma County General Plan and added the Riparian Corridor (RC) Combining Zone to all designated streams shown on the general plan's open space maps, including the Petaluma River (Permit Sonoma 2013, 2014). The Petaluma River is designated RC 100, a "riparian corridor with a streamside conservation area of 100 feet on each side of a designated stream measured from the top of the higher bank."

Under the amendments made by Ordinance No. 6089, grading, vegetation removal, structures, roads, utility lines, and parking lots are prohibited within any stream channel or streamside conservation area. However, an exception to this prohibition may be approved by the director with a zoning permit, if the use (a) involves the minor expansion of an existing, legally established structure, where it is demonstrated that the expansion will be accomplished with a minimum of vegetation removal and the protection of riparian functions; or (b) involves only the maintenance, restoration, or reconstruction of an existing, legally established structure.

3.4.2.2 City of Petaluma General Plan

The City of Petaluma General Plan 2025 identifies current and future needs in areas such as land use, housing, transportation, public services, environmental quality, and economic viability (City of Petaluma 2021a). The following goals and policies from the Petaluma General Plan are relevant to biological resources in the vicinity of the project alignment.

Goal 4-G-1: Biology & Natural Resources. Protect and enhance biological and natural resources within the UGB.

Policies and Programs:

4-P-1: Protect and enhance the Petaluma River and its tributaries through a comprehensive river management strategy of the following programs:

- A. Fully adopt and incorporate the Goals, Objectives, Policies and Programs of the Petaluma River Access and Enhancement Plan as an integral part of the General Plan 2025. Implement the Petaluma River

- Access and Enhancement Plan including expanded improvements identified through project specific environmental assessment.
- B. Institute and maintain public access to and along the entire length (on one or both sides), of the river while ensuring that natural resources and river dependent industry are protected.
 - C. Require design review to address the relationship and stewardship of that project to the river or creek for any development on sites with frontage along the river and creeks.
 - D. Create setbacks for all tributaries to the Petaluma River extending a minimum of 50 feet outward from the top of each bank, with extended buffers where significant habitat areas, vernal pools, or wetlands exist. Development shall not occur within this setback, except as part of greenway enhancement (for example, trails and bikeways). Where there is degradation within the zone, restoration of the natural creek channels and riparian vegetation is mandatory at time of adjacent development.
 - E. Facilitate compliance with Phase II standards of the National Pollutant Discharge Elimination System (NPDES) to improve the water quality and aesthetics of the river and creeks.
 - F. Work with the State Lands Commission, State Department of Fish and Game, the Sonoma County Water Agency, and other jurisdictional agencies on preservation/enhancement of the Petaluma River as a component of reviewing major development along the river.
 - G. Expand the planting and retention of trees along the upper banks of the river and creeks to reduce ambient water temperature and shade out invasive, non-native species.
 - H. Revise the Development Code to include:
 - Standards for the four management zones that run the entire length of the river: 1) Restoration Zone, 2) Buffer Zone, 3) Preservation Zone, and 4) River Oriented Development Zone. These standards shall be based on the River Plan's text and sections A-A through O-O as augmented by the cross-section needs identified through the XP-SWMM analyses;
 - Design review requirements as articulated in the River Plan for any development on sites with frontage along the river or within 300 ft. of the river;

- I. Develop a consistent design for site furniture, a wayfinding system, and educational signage in the PRC and along the creeks and tributaries leading to it to heighten the recognition and value of the river and its ecosystem.
- J. Utilize the Parks and Recreation, Water Resources & Conservation, Public Works departments, property owners (e.g., Landscape Assessment Districts) and/or other appropriate public agencies (e.g., Sonoma County Water Agency) to manage the long-term operations, maintenance responsibilities, and stormwater capacity associated with the river and tributary greenways.
- K. Prohibit placement of impervious surfaces in the Floodway (i.e., Parking lots, roadways, etc.) with the exception of pathways and emergency access improvements.
- L. Continue to implement, where appropriate, flood terrace improvements to reduce localized flooding in concert with habitat enhancement projects.
- M. Cooperate with State and Federal agencies to address and/or eradicate issues and environmental problems associated with possible infestation of the malden crab into the Petaluma River and adjacent tributaries.

4-P-2: Conserve wildlife ecosystems and sensitive habitat areas in the following order of protection preference: 1) avoidance, 2) on-site mitigation, and 3) off-site mitigation.

- A. Utilize Technical Memorandum 3: Biological Resources Review as a baseline document, expanding to address project specific impacts.

4-P-3: Protect special status species and supporting habitats within Petaluma, including species that are State or Federal listed as endangered, threatened, or rare.

- A. As part of the development review process, site-specific biological resource assessments may be required to consider the impacts on riparian and aquatic resources and the habitats they provide for invertebrates, fish, amphibians, reptiles, birds, mammals, and plants. If development is located outside these ecologically sensitive regions, no site-specific assessment of biological resources may be necessary. Appropriate mitigation measures to reduce impacts to sensitive

habitats and special status species shall be imposed on a project-by-project basis according to Petaluma's environmental review process.

- B. Permit mitigation banking as a conditional use in all land use designations along the Petaluma River and its tributaries.

Goal 8-G-10: Water Quality: Reduce pollutant load in surface water runoff, thereby improving water quality within the Petaluma River and its tributaries.

8-P-38: All development activities shall be constructed and maintained in accordance with Phase 2 National Pollutant Discharge Elimination System (NPDES) permit requirements.

3.4.2.3 PG&E Bay Area Habitat Conservation Plan

PG&E has developed USFWS-approved Habitat Conservation Plans (HCPs) that provide a comprehensive framework to conserve and protect federally listed species in support of a federal incidental take permit for the covered species for PG&E operations and maintenance activities in the Bay Area Region, and multiple other regions in California (San Joaquin Valley Region, Sacramento Valley and Foothills, North Coast, and Central Coast). The Project would be located within the PG&E Bay Area Habitat Conservation Plan (ICF 2017) area. The Bay Area HCP incorporates the use of modeled habitat developed in collaboration with the USFWS for covered species (PG&E 2017). Modeled habitat is then used as a tool to automatically screen the impact area, determine covered species occupancy, and apply take coverage of the appropriate HCP. In addition to proposed mitigation, the Project would comply with all applicable HCP field protocols and other measures for the protection of biological resources (Appendix D-2).

3.4.3 Impact Analysis

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant with Mitigation

3.4.3.1 Impacts to Aquatic Species

The Petaluma River is designated critical habitat for steelhead, which, along with green sturgeon, may be present in its waters throughout the year and may

be affected by Project-related changes in water quality. Impacts to aquatic species due to Project implementation would be significant.

PG&E proposes to discharge appropriately treated ground water and wastewater into the Petaluma River. In addition, as part of Phase 1, the installation of the replacement pipeline with HDD has the potential to result in the inadvertent release of drilling fluids (predominantly bentonite clay). **MM HAZ-1** (Section 3.10, *Hazards and Hazardous Materials*) requires an Inadvertent Release Contingency Plan that monitors and records the drilling fluid volumes, pressures, and flow rates as well as including equipment that will be on site to contain and clean up a drilling fluid spill. The Inadvertent Release Contingency Plan also includes the procedure to follow if a release occurs, including halting drilling operations, documenting the drilling fluid release, notifying stakeholders, and containing the spill.

As part of Phase 2, the Project would temporarily disturb less than 0.25-acre of the substrate and associated benthic organisms within the Petaluma River when using a dipper dredge to remove up to 1,500 cubic yards of overburden material from above the existing subsurface pipelines. **MM BIO-1** would require environmental training for all Project personnel regarding the listed species. Dredging could increase turbidity that would adversely affect fish habitat in the river. **MM BIO-2** would require monitoring for sensitive species and measures to be taken if such species are detected. **MM BIO-3** would assure that in-water work is conducted during the recommended work window to avoid impacts to special-status fish species, and **MM BIO-4** would require monitoring for turbidity and implementation of corrective measures if turbidity levels exceed applicable thresholds.

Marine mammal species are not expected to be present in the Petaluma River, apart from occasional strays from San Pablo Bay. Increased turbidity can result in decreased levels of dissolved oxygen, increased temperatures, and decreased local pH conditions that may affect marine mammals. With the implementation of **MMs BIO-1, BIO-2, BIO-3, BIO-4, and HAZ-1**, impacts to special-status aquatic species would be less than significant.

MM BIO-1: Environmental Training Program. An environmental training program shall be developed and presented by a qualified biologist, approved by CSLC staff. All contractors and employees involved with the Project shall be required to attend the training program prior to starting work on the Project. At a minimum, the program shall cover special-status species that could occur on the site, their distribution,

identification characteristics, sensitivity to human activities, legal protection, penalties for violation of state and federal laws, reporting requirements, and required Project avoidance, minimization, and mitigation measures.

MM BIO-2: Biological Monitoring. A qualified biological monitor, approved by CSLC staff, shall survey the onshore work area for sensitive species or other wildlife that may be present no more than 24 hours prior to the commencement of Project activities. In addition, the biological monitor shall monitor Project activities within surface water and sensitive habitats, and other activities that have the potential to impact special-status species on a daily basis once Project activity begins unless otherwise approved in writing. If at any time during Project activities any special-status wildlife species are observed within the Project area, work around the animal's immediate area shall be stopped or work shall be redirected to an area within the Project area that would not impact these species until the animal is relocated by a qualified biologist. Listed species would be allowed to leave of their own volition, unless coordination with U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife (CDFW) provides authorization for relocation by a qualified biologist with appropriate handling permits. In consultation with CDFW, an escape ramp may be installed to facilitate exit for the species. Work would resume once the animal is clear of the work area. In the unlikely event a special-status species is injured or killed by Project-related activities, the biological monitor shall stop work, notify CSLC, and consult with the appropriate agencies to resolve the impact prior to re-starting work in the area.

MM BIO-3: Special-Status Fish Protection To avoid impacts on steelhead or the species' designated critical habitat, pipeline removal shall be conducted only during the National Marine Fisheries Service (NMFS) - recommended work window (June 15 to October 15) and shall comply with all NMFS-recommended measures for protection of fish species.

MM BIO-4: Turbidity Monitoring Plan. The Applicant shall implement a Turbidity Monitoring Plan during all in-water work to define allowable turbidity thresholds and ensure that turbidity levels upstream and downstream of the Project area are compliant with regulatory requirements. A qualified environmental monitor, approved by CSLC staff, shall be present during in-water work to regularly monitor turbidity levels upstream and downstream of in-water work activities. If the results of the turbidity monitoring plan detect a Project-related increase in turbidity that exceeds the allowable thresholds for increased turbidity, as defined by regulatory permits, work shall stop while corrective

measures are implemented. Corrective measures may include the use of a turbidity curtain or other sediment control devices, alteration to the timing and duration of in-water work and excavation, or minor modifications in methodology that result in reducing the in-water excavation.

MM HAZ-2: Inadvertent Release Contingency Plan.

3.4.3.2 Impacts to Birds

The Project would establish a northern and southern work area and would include HDD installation of the replacement pipeline under the Petaluma River and removal of the existing pipeline from the river. Disturbance of the work area would be mostly temporary. Entry and exit work areas would each occupy approximately 15,000 square feet, for a total of 30,000 square feet or two-thirds of an acre. Both construction and installation of the pipeline on the riverbanks via HDD as well as Phase 2 removal activities could harm nesting birds, including rail species, due to human or equipment traffic. These activities could result in death or injury by construction equipment, disturbance of suitable habitat, and visual disturbance, which could force these species to abandon habitat.

In addition, riparian species may be disturbed by construction noise and vibration. In addition to standard construction equipment, the tie-in bell holes used in HDD installation would require an interlocking sheet pile shoring set-up (or similar) to limit the amount of water entering the bell holes. Excavators with mounted vibrators would be used for sheet pile installations. The excavator mounted vibrator is the noisiest piece of construction equipment proposed for use by the Project, and daytime noise levels were estimated assuming the simultaneous operation of an excavator mounted vibrator and an excavator. Noise disturbance could force these species to abandon their habitat. In addition, the disturbance of nesting habitat could result in nest failure. With the implementation of **MMs BIO-1, BIO-2, and BIO-5**, impacts to species due to construction, noise, and vibration would be less than significant.

MM BIO-1: Environmental Training Program.

MM BIO-2: Biological Monitoring

MM BIO-5: Nesting Bird Season Pre-Construction Surveys. If Project-related vegetation removal and ground-clearing activities are scheduled between March 1 and August 1, then rail surveys will be conducted in suitable habitat for Ridgway's and black rails within 700 feet of the Project area in the season prior to planned work (January/February). If

nesting rails are detected, work will be avoided within a 700-foot buffer around the nest area for the duration of nesting season.

Other nesting bird pre-construction surveys shall be conducted within 1 week prior to the start of construction in potential nesting habitat within 350 feet of the Project area to identify nest sites, and a report shall be submitted to CSLC and CDFW for review within 1 week of pre-construction surveys, that outlines the surveys conducted, nest locations identified, and recommended nest protection buffers. Construction activities shall be prohibited within the established buffer zones until the young have fledged. If an active raptor or passerine bird nest is identified, an appropriate species-specific nest protection buffer shall be recommended based on a Nesting Bird Management Plan approved by the CDFW and site-specific conditions.

3.4.3.3 Impacts to Reptiles

Project construction activities and pipeline removal during Phase 2 has the potential to impact western pond turtle basking sites and suitable upland nesting habitat, which would be significant.

MMs BIO-1, BIO-2, and BIO-6 would protect western pond turtle, and other terrestrial species by requiring worker education, pre-construction surveys, installation of exclusion fencing, and biological monitoring.

Implementation of **MMs BIO-1, BIO-2, and BIO-6** would reduce potentially significant impacts to Western pond turtles to a less than significant level.

MM BIO-1: Environmental Training Program.

MM BIO-2: Biological Monitoring.

MM BIO-6: Western Pond Turtle Pre-Construction Surveys. A qualified biologist, approved by CSLC, shall conduct pre-construction surveys for western pond turtles (WPT) and their nests 48 hours prior to ground disturbance to ensure that individuals are not present in the work area. Prior to ground disturbance activities, a barrier, such as wildlife exclusion fencing, shall be placed around the excavation area to prevent WPT from moving into work areas. A qualified biological monitor shall be present to monitor project activities during all in-water work and initial ground disturbance that has the potential to impact special-status species. Should WPT be found within the work areas, a qualified biologist in consultation with CDFW shall relocate the species outside of work area barriers. If WPT nests are identified, a nest protection buffer

area, as approved by CDFW, shall be established around the nest(s). Construction activities shall be prohibited within the established buffer zone until the hatchlings emerge.

3.4.3.4 Impacts to Mammals

Potential impacts due to Project construction and pipeline removal on the riverbanks could result in significant impacts to the salt marsh harvest mouse which is assumed to be present in pickleweed habitat near the Project area.

MMs BIO-1, BIO-2, and BIO-7 would protect salt marsh harvest mouse and other terrestrial species by requiring the installation of exclusion fencing, worker education, and biological monitoring. Implementation of **MMs BIO-1, BIO-2, and BIO-7** would thereby reduce potentially significant impacts on special-status species to a less than significant level.

MM BIO-1: Environmental Training Program.

MM BIO-2: Biological Monitoring.

MM BIO-7: Protection of Terrestrial Marsh Species. PG&E shall ensure the implementation of the following measures:

- Work areas within 200 feet of tidal marsh shall be bordered by temporary exclusion fencing. The fence shall be made of a smooth material that does not allow the salt marsh harvest mouse to climb or pass through, of a minimum aboveground height of 30 inches, and the bottom shall be buried to a depth of at least 6 inches so that mice cannot crawl under the fence. Installation of the fence shall be monitored by a qualified biologist with experience with this species, who will check the fence alignment before vegetation clearing and fence installation to ensure no special-status species are present.
- Where tidal marsh habitat cannot be avoided and PG&E proposes vegetation removal, vegetation removal from the ground disturbance work area plus a 10-foot buffer around the area shall be implemented using hand tools or another method approved by USFWS and CDFW and shall not be implemented using heavy equipment such as an excavator. Vegetation height within the buffer zone shall be maintained at or below 5 inches above ground. Vegetation removal in wetland habitat shall be conducted under the supervision of a qualified biologist(s) approved by CSLC.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, State Lands Commission, or California Coastal Commission?

Less than Significant with Mitigation

The sensitive natural communities that would be affected by the Project are tidal (estuarine) and brackish marsh, which are addressed under criterion c) for protected wetlands. Open water (Petaluma River) is also present in the Project area. During Phase 1, direct impacts to the Petaluma River would be avoided through the use of HDD technology, but could result in inadvertent release of fluids used in HDD implementation. In Phase 2, open trench installations would be used to remove a segment of existing pipelines from the river and connect to the tie-ins. These activities could affect riparian vegetation, and result in the mobilization of sediments and increased turbidity in the river, which would be significant.

Turbidity monitoring would be conducted as part of **MM BIO-4** to detect a Project-related increase in turbidity that exceeds the allowable thresholds for increased turbidity, as defined by regulatory permits. **MM BIO-8** would assure the avoidance, mitigation, and restoration of habitat impacted during construction. To ensure that inadvertent releases of contaminants are minimized during Phase 1 HDD construction, **MM HAZ-1** (see Section 3.10, *Hazards and Hazardous Materials*) would require an Inadvertent Release Contingency Plan be prepared as part of the HDD Execution Plan (Appendix B). As described in Section 3.11, *Hydrology and Water Quality*, indirect impacts may occur through silt deposition or migration of sediment into waterways. These indirect impacts would be reduced by **MM HYD-1**, which would require application of best management practices (BMPs) as part of the Project's storm water pollution prevention plan (SWPPP).

With the implementation of **MMs BIO-4, BIO-8, HAZ-1, and HYD-1**, impacts to riparian habitat would be reduced to a less than significant level.

MM BIO-4: Turbidity Monitoring Plan.

MM BIO-8: Avoidance and Minimization of Impacts on Wetlands. PG&E shall ensure the implementation of the following measures:

- Prior to construction, the Project biologist, approved by CSLC, shall flag wetland features next to and within work areas for

avoidance. Where possible, no ground disturbing activities shall take place within 50 feet of a wetland. At the southern work area, crews shall install plating or a temporary bridge to allow for travel across the ditch surrounding the farmed wetland.

- Permanent impacts on jurisdictional wetlands shall be mitigated by the creation, restoration, enhancement, or preservation of on- or off-site wetlands at an equal ratio, or as determined through permit requirements to be issued for the Project from the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW.
- Before construction begins, the Project engineer and a qualified biologist, approved by CSLC, shall identify locations for equipment and personnel access and materials staging that will minimize wetland vegetation disturbance. When heavy equipment is required, unintentional soil compaction shall be minimized by using equipment with a greater reach, low-pressure equipment, or construction mats. Vegetation clearing shall be limited to areas outside of marshland habitat to the greatest extent possible. For vegetation management activities occurring adjacent to wetland habitat, herbicides to be used shall be U.S. Environmental Protection Agency–certified for use in and adjacent to aquatic environments.
- No less than one month prior to construction, PG&E shall prepare a habitat restoration and monitoring plan for the restoration of temporary wetland impacts and submit it to the CSLC for review and approval. The plan shall describe requirements for any needed salvage and replanting protocols before and after construction is complete, to restore the wetland value to its original state prior to construction, based on the pre-construction surveys.

This plan shall include but not be limited to protocols for the replanting of wetland plants removed before or during construction, and management and monitoring of the plants to ensure successful replanting pursuant to the requirements of permits issued for the Project. The revegetation protocol shall use native species sourced from the local watershed or adjacent watersheds.

The monitoring plan shall include annual monitoring by a qualified biologist of restored areas, to be submitted annually for 5 years unless otherwise approved in writing. The plan shall contain vegetation management protocols, monitoring protocols, performance criteria (i.e., success criteria), and an

adaptive management plan if success criteria are not being met. The adaptive management plan shall include interim thresholds for success including percent cover of wetland plants, and percent cover of weed species, to be assessed each year as well as alternative management approaches to undertake if thresholds are not met (e.g., weed control or additional replanting).

MM HAZ-2: Inadvertent Release Contingency Plan.

MM HYD-1: Stormwater Pollution Prevention Plan.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant with Mitigation

A formal wetland delineation was conducted for the site in 2021 (GANDA 2022a). A total of approximately 11.1 acres of wetlands and water features subject to Section 404 of the Clean Water Act, and 1.2-acre of tidal wetlands also subject to Section 10 of the Rivers and Harbors Act, were identified on-site. Although there would be no permanent loss of wetlands, construction access would require the temporary placement of fill in wetlands and water features (GANDA 2020). Using equipment in or adjacent to wetlands could result in the temporary loss of or damage to wetland vegetation. The temporary or permanent loss of jurisdictional wetlands would be a significant impact.

In addition to adherence to the Project SWPPP (**MM HYD-1**), **MM BIO-8** would be implemented to further reduce significant impacts on wetlands. This mitigation measure requires that work be sited outside wetlands as much as possible, that temporarily affected areas be restored, and that the Project comply with required permit conditions. Implementation of **MM BIO-8** would reduce impacts on wetlands to a less than significant level.

MM BIO-4: Turbidity Monitoring Plan.

MM BIO-8: Avoidance and Minimization of Impacts on Wetlands.

MM HAZ-2: Inadvertent Release Contingency Plan.

MM HYD-1: Stormwater Pollution Prevention Plan.

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?

Less than Significant Impact

The Petaluma River serves as a wildlife corridor for fish and waterbirds and may serve as a nursery area for juvenile fish, while the surrounding marshlands provide movement corridors for shorebirds, small mammals, reptiles, and amphibians. Although Phase 1 would avoid direct impacts on the river by using HDD so direct impacts on open water would be avoided and disturbance of marsh habitat would be reduced (refer to Appendix B, HDD Execution plan for additional details), Phase 2 would include dredging of the river to remove portions of the pipeline, and temporary disturbance of the riverbank. Impacts on the use of the Petaluma River as a wildlife corridor and nursery due to temporary disturbance would be minimal. Thus, the impact of the Project on fish or wildlife movement or established wildlife corridors or nursery sites would be less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including essential fish habitat)?

Less than Significant Impact

The City of Petaluma General Plan (City of Petaluma 2021a) requires that the Petaluma River be protected from development and that its water quality and ecological integrity be maintained. It further requires avoidance as a primary approach to impacts, followed by on-site and off-site mitigation, and protection of special-status species present at the river and in surrounding wetlands and other ecologically sensitive areas. The Sonoma County General Plan Open Space and Conservation Element (Sonoma County 2008) requires protection of wetlands, waters, riparian areas and other sensitive natural communities. The Project would comply with all City of Petaluma General Plan and Sonoma County General Plan policies related to the Petaluma River and sensitive natural communities on its banks and would not conflict with any of the local policies or ordinances. Thus, the impact of the Project related to local policies or ordinances would be less than significant.

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?

Less than Significant with Mitigation

PG&E has a USFWS-approved habitat conservation plan (Bay Area HCP) (see Section 3.4.2, *Regulatory Setting*) that provides a comprehensive framework for conservation and protection of listed species for PG&E operation and maintenance activities in the Bay Area Region. The Bay Area HCP indicates that salt marsh harvest mouse and Ridgway's rail will be protected in areas of suitable habitat under the California Wildlife Habitat Relationships model (ICF 2017). The Petaluma Marsh is specifically noted as Ridgway's rail habitat. A potentially significant impact could occur due to Project activities.

MMs BIO-1, BIO-2, BIO-5, BIO-6, BIO-7, and BIO-8 would be implemented to reduce impacts to species covered under the Bay Area HCP to a less than significant level. In addition, HCP-standard field protocols would be implemented (refer to Appendix D-2), where feasible, consistent with other regulatory obligations or safety considerations.

MM BIO-1: Environmental Training Program.

MM BIO-2: Biological Monitoring.

MM BIO-5: Nesting Bird Season Pre-Construction Surveys.

MM BIO-6: Western Pond Turtle Pre-Construction Surveys.

MM BIO-7: Protection of Terrestrial Marsh Species.

MM BIO-8: Avoidance and Minimization of Impacts on Wetlands.

3.4.4 Mitigation Summary

Implementation of the following MMs would reduce the potential for Project-related impacts on biological resources to less than significant.

MM BIO-1: Environmental Training Program.

MM BIO-2: Biological Monitoring.

MM BIO-3: Special-Status Fish Protection.

MM BIO-4: Turbidity Monitoring Plan.

MM BIO-5: Nesting Bird Season Pre-Construction Surveys.

MM BIO-6: Western Pond Turtle Pre-Construction Surveys.

MM BIO-7: Protection of Terrestrial Marsh Species.

MM BIO-8: Avoidance and Minimization of Impacts on Wetlands.

MM HAZ-2: Inadvertent Release Contingency Plan (see Section 3.10, *Hazards and Hazardous Materials*).

MM HYD-1: Stormwater Pollution Prevention Plan (see Section 3.11, *Hydrology and Water Quality*).

3.5 CULTURAL RESOURCES

CULTURAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.5.1 Environmental Setting

3.5.1.1 Precontact Context

The San Francisco Bay Area has been subjected to more than 75 years of archaeological research that has resulted in the identification and recovery of extensive, stratified artifact assemblages and associated features including burials and hearths. In the 1930s, during excavations in the Lower Sacramento and Upper San Joaquin valleys, concerted efforts were made to construct a prehistoric cultural chronology/taxonomy in Central California (Lillard et al. 1939). The Early, Middle, and Late Period taxonomy of the Central California Taxonomic System (CCTS) were developed based on observations made about three culturally stratified artifact assemblages and burial lots of associated grave goods (Gerow 1968).

Fredrickson (1973, 1993) later developed a refined taxonomic system originally designed to provide sufficient flexibility to apply to many different cultural chronological situations found throughout different regions of California. The system defines broad temporal periods (i.e., Archaic, Emergent) that are further defined by regional economic patterns. Patterns are defined by an assemblage of mostly functional artifacts (e.g., projectile points and groundstone). Patterns are defined more locally as aspects. Aspects are usually differentiated by stylistic differences in artifacts. Fredrickson's taxonomic system and

nomenclature has been used and updated by archaeologists throughout the North Coast Ranges (White 2002) and in the northern Bay Area (Wohlgemuth et al. 2006). The terminology continues to be used and updated by archaeologists in the San Francisco Bay Area and Central Valley.

3.5.1.2 Regional Historical Context

In 1769, Spain began establishing a series of missions in California to assert land ownership claims and pacify and forcibly Christianize the indigenous populations. Twenty-one missions were established between 1769 and 1823 between San Diego and Sonoma. The missions in close proximity to the Project area are the Mission San Rafael Arcángel, founded in the modern city of San Rafael in 1817 as a medical asistencia of Mission San Francisco de Asís, and Mission San Francisco Solano, founded in 1823 in the modern city of Sonoma. During this time, Russian and English expansion of trapping, cattle trades, and explorations led to the settlement of Northern California, whilst threatening Spanish rule.

Mexico gained independence from Spain after the end of the Mexican Revolution in 1821. The Mexican government secularized the missions and began issuing large land grants of former mission lands to Mexican citizens. Following the Mexican secularization period of 1835 to 1846, the Mexican military commander of the northern frontier, Lieutenant Mariano Guadalupe Vallejo, was awarded Rancho Petaluma in 1834, one of the most substantial land grants of the period and consisting of 66,000 acres. Developed in the 1820s, the Petaluma Adobe is located approximately 2.5 miles to the northwest of the Project area and the Petaluma River.

Following the discovery of gold in 1848, approximately 90,000 people flocked to the California gold fields and Petaluma was officially founded as a trading post in 1852 with the establishment of a post office, incorporated soon after in 1858. During this period, the Petaluma River (technically a tidal slough) became an important source of regional travel and trade between Sonoma County and the city of San Francisco. The narrow, shallow, and twisting waterway wound its way north from San Pablo Bay, through the Project area, to the city of Petaluma, requiring boats to change course over 80 times in order to reach the burgeoning community. Due in part to the accessibility of the area via river travel and flourishing agricultural industries, the population of the city of Petaluma grew rapidly during the mid-19th century, reaching upwards of 1,300 by 1857 (Dwyer and McGivern 1970:3).

By 1864, a 2.5-mile-long Petaluma and Haystack Railroad (also known as “Minturn’s Railroad”) was completed as an improvement to the existing arduous overland stagecoach ride between the city of Petaluma and the Haystack Landing, a boat landing along the Petaluma River formerly located approximately 335 feet northwest of the Project area. The Contra Costa Steam Navigation Company purchased the railroad in 1874 but soon passed it on to the Sonoma and Marin Railroad Company in 1875. By the 1870s, the railroad had been extended south to the city of San Rafael, and several years later it was absorbed by Peter Donahue’s San Francisco & North Pacific Railroad (which later became the Northwestern Pacific Railroad [NWPRR]) to convey passengers and freight from Petaluma to a ferry terminal at Sausalito (Hope 2006; Markwyn 2002).

By the 1880s, the area surrounding the Project area contained a grand orchard with pears, plums, apples, and other fruit trees planted approximately 15 years prior (ca. 1868). The immediate area adjacent to the Project area appears to have changed ownership several times after the turn of the century before falling into disrepair and becoming the home of squatters by the 1970s (Winegarner 2007). The landing itself continued to be used through the early- to mid-20th century, with references to Basalt Rock of Napa operating barges from Haystack Landing.

3.5.1.3 Cultural Resource Records Search and Surveys

On November 11, 2019, Garcia and Associates (GANDA) conducted a review of PG&E’s Confidential Cultural Resource Database. The database includes a subscription to cultural resources records and data from the Northwest Information Center of the California Historical Resources Information System. The review included the Project area and a 0.25-mile radius. Previous surveys, studies, and site records were accessed. Records in the Built Environment Resource Directory and the Archaeological Determinations of Eligibility for Sonoma County were also reviewed. These sources contain information about places of recognized historical significance, including those evaluated for listing in the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), and the California Inventory of Historical Resources, California Historical Landmarks, and California Points of Historical Interest. The purposes of the records search were to:

- Determine whether known cultural resources have been recorded in the Project vicinity.
- Assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites.

- Develop a context for the identification and preliminary evaluation of cultural resources.

Two cultural resources have been previously identified directly adjacent to the Project area: P-49-002834 and P-49-002904. P-49-002834 is a historic-era segment of the Northwestern Pacific Railroad alignment currently used by Sonoma-Marín Area Rail Transit (SMART) passenger trains. P-49-002904 is a historic-era ranching complex that borders the eastern edge of the Project area. No portion of either resource was identified within the Project area during the pedestrian survey conducted by GANDA and the Federated Indians of Graton Rancheria (FIGR).

Six additional cultural resources have been identified within 0.25 mile of the Project area: P-49-001044, P-49-001368, P-49-001583, P-49-002903, P-49-004747, and Railroad Track Site. Of these six resources, two have pre-contact components, and the others have historic-era components. None of these resources would be affected by the Project.

Table 3.5-1 lists and describes all previously recorded cultural resources.

Table 3.5-1. Summary of Previously Recorded Cultural Resources within the Project Disturbance Areas and Buffer

Primary Site Number	Description	Location
P-49-001044	Quarry Site	Outside of Project disturbance area
P-49-001368	Haystack boat landing	Outside of Project disturbance area
P-49-001583	Pre-contact midden and historic trash scatter	Outside of Project disturbance area
P-49-002834	Northwestern Pacific Railroad	Adjacent to Project disturbance area
P-49-002903	Unpaved access road	Outside of Project disturbance area
P-49-002904	Ranch complex	Adjacent to Project disturbance area
P-49-004747	Ranch complex	Outside of Project disturbance area
Railroad Track Site	Pre-contact midden	Outside of Project disturbance area

SOURCE: PG&E 2019

GANDA archaeologists and a tribal representative from FIGR conducted a pedestrian survey of all accessible portions of the Project area on December 17, 2019, and November 11, 2020. GANDA archaeologists completed a follow-up survey on April 19, 2022. The survey area included the Project area and a 50-foot radius around all planned construction disturbance areas. The Project area was surveyed by walking close-interval transects spaced approximately 15 meters apart.

Two new cultural resources, the Petaluma River Levee (LV-1) and an unnamed bridge (PR-041922-KH-01), were identified in the Project area during the survey and recorded on California Department of Recreation (DPR) 523 forms. The Petaluma River Levee (LV-1) has been breached in several places along the eastern end while the western end is used as part of the trail system of Shollenberger Park. The unnamed bridge (PR-041922-KH-01) was of unknown age, with several modern modifications and additions. The levee has been recommended not eligible for the National Register or California Register because of its lack of historic significance. The bridge has also been recommended not eligible for the National Register or California Register because it is of unknown historic age and has had multiple recent modifications by the property owner that affect its historic integrity.

GANDA prepared a geoarchaeological assessment of the Project area and concluded that the Project area has moderate sensitivity for buried archaeological resources. Three pre-contact resources have been identified within 1 mile of the Project area; however, the Project area is primarily within tidal marshlands, and pre-contact habitation is unlikely to have occurred within the tidal zone of the Petaluma River (GANDA 2022b).

No shipwrecks in the Petaluma River have been logged in the CSLC Shipwrecks Database for the Project area. Except as verified by actual surveys, CSLC data on shipwrecks were taken from books, old newspapers, and other contemporary accounts that do not contain precise locations. The CSLC Shipwrecks Database reflects information from many sources and generally does not reflect actual fieldwork. Additionally, not all shipwrecks are listed in the CSLC Shipwrecks Database, and their listed locations may be inaccurate, as ships are often salvaged or re-floated.

3.5.2 Regulatory Setting

Federal and state laws and regulations pertaining to cultural resources that are relevant to the Project are identified in Appendix A. There are no local regulations pertaining to cultural resources analysis.

3.5.3 Impact Analysis

a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

No Impact

CEQA Guidelines Section 15064.5 requires the Lead Agency to consider the effects of a project on historical resources. A *historical resource* is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register or determined by a Lead Agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. The following discussion focuses on architectural and structural resources. Archaeological resources, including archaeological resources that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed in the discussion under Criterion b), below.

Through a records search, background research, and a field survey, no historical resources were identified in the Project area. Two resources, the Petaluma River Levee (LV-1) and an unnamed bridge (PR-041922-KH-01), were identified within the Project area and recommended not eligible for the National Register or California Register because of their lack of historic significance.

There are no architectural or structural resources in the Project area that qualify as historical resources, as defined in CEQA Guidelines Section 15064.5. Therefore, no impact on historical resources would occur.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less than Significant with Mitigation

This section discusses archaeological resources, both as historical resources according to CEQA Guidelines Section 15064.5 and as unique archaeological resources as defined in Public Resources Code (PRC) Section 21083.2(g). A

significant impact would occur if the Project would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

Based on the results of the records search and pedestrian survey, no archaeological resources have been identified in the Project area. The Project is not anticipated to affect any known archaeological resources pursuant to CEQA Guidelines Section 15064.5.

The geoarchaeological assessment and consultation with FIGR indicate that the Project area has moderate sensitivity for buried archaeological resources. A discovery is unlikely; however, should any cultural materials be identified during ground-disturbing activities and be found to qualify as a historical resource per CEQA Guidelines Section 15064.5 or as a unique archaeological resource as defined in PRC Section 21083.2(g), any impacts of the Project on the resource could be potentially significant.

MMs CUL-1/TCR-1, CUL-2/TCR-2, CUL-3/TCR-3, and CUL-4/TCR-4 are proposed to reduce impacts on archaeological resources and reduce potentially significant impacts on archaeological resources to a less than significant level.

MM CUL-1/TCR-1: Cultural Resources Awareness Training. Prior to Project implementation, a consultant and construction-worker cultural and tribal cultural resources awareness training program for all personnel involved in Project implementation shall be developed in coordination with the PG&E Cultural Resource Specialist (CRS), the qualified on-site archaeologists and the consulting Native American Tribe (Federated Indians of Graton Rancheria). The training will be conducted by the Project archaeologist and Tribal Representative(s) and must be provided to all Project employees, contractors, subcontractors, and other workers prior to their involvement in any ground-disturbing activities, with subsequent training sessions to accommodate new personnel becoming involved in the Project. Evidence of compliance with this mitigation measure shall be documented within pre-Project compliance documentation materials prior to Phase 1 and Phase 2 mobilizations throughout Project implementation.

The purpose of the training shall be to educate on-site construction personnel as to the sensitivity of archaeological and tribal cultural resources in the Project area, including understanding the difference between non-Native archaeological resources (cultural resources) and resources that are Native American in nature (tribal cultural resources). The training will also cover the requirements of the plan identified in

MM CUL-2/TCR-2, including the possibility of exposing cultural or tribal cultural resources, guidance on recognizing such resources, and direction on procedures if a potential resource is encountered. PG&E shall instruct all Project personnel that touching, collecting, or removing cultural materials from the property is strictly prohibited. The program will also underscore the requirement for confidentiality and culturally appropriate treatment of any find of significance to Native Americans, consistent with Native American tribal values and customs.

The training shall include, at a minimum:

- A brief overview of the cultural sensitivity of the Project site and surrounding area
- What resources could potentially be identified during ground disturbance
- The protocols that apply in the event unanticipated cultural or tribal cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated
- Consequences in the event of noncompliance
- Safety procedures when working with monitors

MM CUL-2/TCR-2: Cultural and Tribal Cultural Resources Management and Treatment Plan (CRMTP).

Prior to implementation of Phase 1 and Phase 2 activities, PG&E shall develop a comprehensive Cultural Resources Management and Treatment Plan (CRMTP) for review and concurrence by CSLC staff and the consulting tribe(s). No tribal cultural resources shall be collected, relocated, or otherwise impacted until the approved CRMTP is in place. The purpose of the CRMTP is to describe the procedures and requirements for protection and treatment of both non-Native American archaeological or historic resources and Tribal cultural resources that may be discovered during Project implementation. The CRMTP shall be provided to the CSLC and representatives from the consulting Tribe (Federated Indians of Graton Rancheria) for review and concurrence at least 45 days before the start of construction. PG&E shall fully carry out, implement, and comply with the CRMTP throughout all phases of construction.

The CRMTP shall include at a minimum:

- A description of the roles and responsibilities of cultural resources personnel, including the PG&E Cultural Resource Specialist (CRS), the qualified on-site archaeologists, and Tribal Representatives (who may also be monitors), and the reporting relationships with

Project construction management, including lines of communication and notification procedures

- Description of how the monitoring shall occur and the frequency of monitoring, consistent with the recommendations submitted by the consulting tribe during consultation on the Project (pursuant to Public Resources Code Sections 21080.3.2 and 21082.3) and reflected in the criteria listed in these mitigation measures
- Description of what resources may be inadvertently encountered;
- Description of procedures for halting work on the site, establishment of buffer zones around potential finds, and notification procedures
- Description of the respective authorities of the PG&E CRS, on-site archaeologist, and Tribal Representative(s) to evaluate and determine significance of discoveries, and authority to determine appropriate treatment, depending on whether the discovery is Native American in nature
- Provisions for treatment of tribal cultural resources and the recommended treatment protocols submitted by the consulting Tribe during consultation on the Project (pursuant to Public Resources Code Sections 21080.3.2 and 21082.3)
- Provisions for the culturally appropriate handling of Tribal cultural resources, if avoidance is infeasible, including procedures for temporary custody, processing materials for reburial, minimizing handling of cultural materials, and development of a reburial plan and agreement for returning materials to a suitable location in the Project area where they would not be subject to future disturbance
- Procedures for the appropriate treatment of human remains, pursuant to California Health and Safety Code section 7050.5 and California Public Resources Code section 5097.98, which include procedures for determination of a most likely descendant by the Native American Heritage Commission
- A description of monitoring reporting procedures including the requirement that reports resulting from the Project be filed with the Northwest Information Center (NWIC) and the North Central Information Center (NCIC) and copies provided to CSLC, USACE, and the consulting Tribe (Federated Indians of Graton Rancheria), consistent with their geographic affiliation, within one year of Project completion

MM CUL-3/TCR-3: Cultural Resources Construction Monitoring. In addition to providing the training required by MM CUL-1/TCR-1, the PG&E CRS, and/or their on-site archaeologist, shall provide monitoring during implementation of Phase 1 and Phase 2 activities, as may be specified in the CRMP required by MM CUL- 2/TCR-2. PG&E shall also retain a Federated Indians of Graton Rancheria Tribal Representative, if one is available, who will monitor all Project construction areas. Activities to be monitored include, but are not limited to, the Phase 1 horizontal direction drilling (HDD) bore pits excavated for the Northern and Southern Work Areas as well as terrestrial trenching for both Phase 1 and Phase 2. Both the archaeologist and the Tribal monitor(s) shall have the authority to temporarily halt or redirect construction in the event that potentially significant cultural resources or tribal cultural resources are discovered during Project related activities. The work stoppage or redirection shall occur to an extent sufficient to ensure that the resource is protected from further impacts. Detailed monitoring procedures, including criteria for increasing or decreasing monitoring and the location and scope of monitoring activities agreed to by both PG&E CRS-designated on-site archaeologist and Tribal monitor(s), shall be outlined in the CRMP identified in MM CUL-2/TCR-2. The Applicant shall provide a minimum 2-week notice to the on-site archaeologist and designated representatives from the consulting Tribe prior to all activities requiring monitoring and shall provide safe and reasonable access to the Project site. The monitor, if available, shall work in collaboration with the inspectors, Project managers, and other consultants hired/employed by PG&E or the PG&E's Contractor.

MM CUL-4/TCR-4: Discovery of Previously Unknown Cultural Resources or Tribal Cultural Resources. If any potential tribal cultural resources, archaeological resources, other cultural resources, or articulated or disarticulated human remains are discovered by the tribal monitor(s), designated on-site archaeologist, or other Project personnel during construction activities, all work shall cease within 100 feet of the find, or a distance agreed upon by the on-site archaeologist and Tribal monitor(s) based on the project area and nature of the find. Work stoppage shall remain in place until the Tribal Monitor, PG&E CRS, and the designated on-site archaeologist have jointly determined the nature of the discovery, and the significance of the discovery has been determined by either the archaeologist/cultural resources specialist (for cultural resources) or the Tribal monitor (for tribal cultural resources), as detailed in the CRMP identified in MM CUL-2/TCR-2. Tribal cultural resources shall not be photographed nor be subjected to any studies beyond such inspection as may be necessary to determine the nature and significance of the discovery. If the discovery is

confirmed as potentially significant or a tribal cultural resource, an Environmentally Sensitive Area (ESA) will be established using fencing or other suitable material to protect the discovery during subsequent investigation. No ground-disturbing activities shall be permitted within the ESA until the area has been cleared for construction. The exact location of the resources within the ESA must be kept confidential and measures shall be taken to secure the area from site disturbance and potential vandalism.

Impacts to previously unknown significant cultural and tribal cultural resources shall be avoided through preservation in place if feasible. If the on-site archaeologist or Tribal monitor, as appropriate, determines that damaging effects on the cultural or tribal cultural resource can be avoided in place, then work in the area may resume provided the area of the discovery remains clearly marked for no disturbance. Title to all archaeological sites, historic or cultural resources, and tribal cultural resources on or in the tide and submerged lands of California is vested in the State and under CSLC jurisdiction. The final disposition of archaeological, historical, and tribal cultural resources recovered on State lands under CSLC jurisdiction must be approved by the CSLC.

Implementation of MMs **CUL-1/TCR-1** through **CUL-4/TCR-4** would reduce impacts on archaeological resources to a less than significant level.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant with Mitigation

Based on the results of the records search and pedestrian survey conducted, no human remains are known to exist in the Project area. Therefore, the Project is not anticipated to affect human remains, including those interred outside of formal cemeteries.

Although a discovery is unlikely, should any previously unknown human remains be encountered during ground-disturbing activities, **MM CUL-5/TCR-5** would be implemented to provide protocols for potential discovery and reduce impacts on human remains. With the implementation of **MM CUL-5/TCR-5**, impacts on human remains inadvertently encountered during construction would be reduced to less than significant levels.

MM CUL-5/TCR-5: Unanticipated Discovery of Human Remains. If human remains or associated grave goods (e.g., non-human funerary objects,

artifacts, animals, ash or other remnants of burning ceremonies) are encountered, all ground disturbing activities shall halt within 100 feet of the discovery or other agreed upon distance based on the project area and nature of the find; the remains will be treated with respect and dignity and in keeping with all applicable laws including California Health and Safety Code section 7050.5 and California Public Resources Code section 5097.98. If representatives are not already on site when a discovery is made, the Project archaeologist or their designated on-site cultural resources specialist, Tribal Representative(s), PG&E, and CSLC shall be notified immediately. The archaeologist shall contact the County Coroner within 24 hours. If human remains are determined by the County Coroner to be of Native American origin, the County Coroner shall notify the Native American Heritage Commission within 24 hours of this determination, and the Native American Heritage Commission shall identify a Most Likely Descendent. No work is to proceed in the discovery area until consultation is complete and procedures to avoid or recover the remains have been implemented. Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code § 6250 et seq. The reburial plan described in the CRMTP identified in MM CUL-2/TCR-2 shall include specific details about temporary custody of remains, reburial location, confidentiality, and recordation in the California Historic Resources Inventory System.

3.5.4 Mitigation Summary

Implementation of the following MMs would reduce the potential for Project-related impacts on cultural resources to less than significant. The following measures would be implemented prior to and during construction.

MM CUL-1/TCR-1: Cultural Resources Awareness Training.

MM CUL-2/TCR-2: Cultural and Tribal Cultural Resources Management and Treatment Plan (CRMTP).

MM CUL-3/TCR-3: Cultural and Tribal Cultural Resources Monitoring.

MM CUL-4/TCR-4: Discovery of Previously Unknown Cultural or Tribal Cultural Resources.

MM CUL-5/TCR-5: Unanticipated Discovery of Human Remains.

3.6 CULTURAL RESOURCES – TRIBAL

TRIBAL CULTURAL RESOURCES – Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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, subdivision (k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.6.1 Environmental Setting

Tribal cultural resources are either of the following:

Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed or determined to be eligible for listing in the California Register of Historical Resources (California Register) or local register of historical resources, as defined in Public Resources Code (PRC) Section 5020.1 (k).

Resources determined by the CEQA Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c).

For a cultural landscape to be considered a tribal cultural resource, it must be geographically defined in terms of the size and scope of the landscape (PRC Section 21074[b]). Also, a historical resource as defined in PRC Section 21084.1, a unique archaeological resource as defined in PRC Section 21083.2(g), or a non-unique archaeological resource as defined in PRC Section 21083.2(h) may also be a tribal cultural resource.

3.6.1.1 Ethnographic Context

The Project area is located within the ethnographic territory of the Coast Miwok (Barrett 1908; Kelly 1978; Kroeber 1925). The Coast Miwok language, a member of the Miwok subfamily of the Penutian family, is divided into two dialects: the Western (or Bodega) and the Southern (or Marin), which in turn is subdivided into valley and coast. “Miwok” refers to the entire language family that was spoken by the Coast Miwok, as well as Lake, Valley, and Sierra Miwok. Coast Miwok territory encompassed all present-day Marin County and parts of Sonoma County, from Duncan’s Point on the coast to between the Sonoma and Napa rivers. Each large village had a tribal leader, but there does not appear to have been any defined broader-scale organization.

Much of the information about post-contact Coast Miwok material culture and lifestyles was gathered from Tom Smith (Bodega dialect) and María Copa (Marin dialect) (based on Kelly’s field notes from 1931 to 1932). According to Smith and Copa, settlements focused on bays and estuaries, or on areas along perennial interior watercourses. The economy was based on fishing, hunting, and gathering, and revolved around a seasonal cycle during which people traveled throughout their territory to make use of resources as they became available. Marine foods, including kelp, clams, crabs, and especially fish, were a year-round staple. Acorns were gathered in season and stored for use throughout the year. Tobacco was used generously by most men.

By the mid-1800s Spanish missionization, diseases, raids by Mexican slave traders, and dense immigrant settlement had disrupted Coast Miwok culture, dramatically reducing the population and displacing the native people from their villages and land-based resources. By the time of California’s initial integration into the United States in the late 1840s, the Coast Miwok population

had dwindled from approximately 2,000 individuals to one-eighth of its size before European contact.

In 1920, the Bureau of Indian Affairs purchased a 15.45-acre tract of land in Graton for the Marshall, Bodega, Tomales, and Sebastopol Indians. This land was put into a federal trust and these neighboring peoples, who included both Coast Miwok and Southern Pomo, were consolidated into one recognized group: the Graton Rancheria. In 1958, the U.S. government enacted the Rancheria Act of 1958, transferring tribal property into private ownership. Forty-four rancherias in California were affected, including the Graton Rancheria.

Since then, tribal members have continued to protect their cultural heritage and identity despite being essentially landless. On December 27, 2000, President Bill Clinton signed into law legislation that restored federal recognition to FIGR. The tribe currently has approximately 1,100 members, employs a Tribal Historic Preservation Officer (THPO),¹⁰ and is engaged in the protection and interpretation of its tribal cultural resources.

3.6.1.2 Tribal Coordination

GANDA conducted a review of PG&E's Confidential Cultural Resource Database on November 11, 2019. The results of the records search indicate that one pre-contact Native American cultural resource has been previously identified within the 0.25-mile search radius. P-49-001583 is a multi-component resource with a pre-contact habitation site with midden soil, flaked stone tools and debitage, shell fragments, and human remains. The historic-era component consists of a glass and ceramic scatter. The resource is located south of and outside of the Project area on an elevated landform outside of the tidal area of the Petaluma River. PG&E's Cultural Resources Specialist (CRS) and Cultural Resources Land Consultant met with the FIGR THPO to discuss the Project. The FIGR THPO requested that PG&E arrange to have a tribal representative be present during the pedestrian survey, cultural resources awareness training, and cultural resources monitoring for the Project.

A FIGR tribal representative was present during the pedestrian survey conducted by GANDA (GANDA 2022b), and PG&E and the FIGR THPO agreed

¹⁰ Section 101(d)(2) of the National Historic Preservation Act allows tribes to assume any or all the functions of a State Historic Preservation Officer with respect to tribal land.

that cultural resources awareness training and monitoring should be conducted for the Project.

On June 10, 2021, CSLC contacted the California Native American Heritage Commission (NAHC) requesting a search of the NAHC's Sacred Lands File and a list of Native American representatives who may have knowledge of tribal cultural resources in the Project area, or interest in the Project. The NAHC replied on June 16, 2021, stating that the Sacred Lands File has no record of sacred sites in the vicinity of the Project area. The NAHC response included a list of 11 Native American representatives from nine tribes who may have knowledge of tribal cultural resources in the Project area or may be interested in the Project. On August 2, 2021, CSLC notified the nine tribes on the NAHC contact list to ensure those tribes would have an opportunity to provide meaningful input on the potential for Tribal cultural resources to be found in the Proposed Project area and recommend steps to be taken to ensure adverse impacts to Tribal cultural resources are avoided. The outreach letters were sent to chairpersons and representatives of the following Tribes:

- Federated Indians of Graton Rancheria
- Pinoleville Pomo Nation
- Gudiville Indian Rancheria
- Mishewal-Wappo Tribe of Alexander Valley
- Cloverdale Rancheria of Pomo Indians
- Middletown Rancheria
- Middletown Rancheria of Pomo Indians
- Dry Creek Rancheria of Pomo Indians
- Lytton Rancheria

The CSLC received a response from the FIGR on September 2, 2021, requesting formal consultation under AB52. CSLC representatives met with the FIGR THPO, who requested a subsurface study. After consideration of archaeological sensitivity and logistics, the FIGR THPO agreed that cultural resources monitoring (**MM CUL-3/TCR-3** below) during ground disturbance was appropriate for the Project.

3.6.2 Regulatory Setting

Federal and state laws and regulations pertaining to tribal cultural resources that are relevant to the Project are identified in Appendix A. There are no applicable local regulations pertaining to tribal cultural resources.

3.6.3 Impact Analysis

Would the Project cause a substantial adverse change in the significance of a Tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of 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 (CRHR), or in a local register of historical resources as defined in Public Resources Code section 5020.1, subdivision (k), or

(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant with Mitigation

Based on the results of correspondence with the NAHC and the records search of PG&E's Confidential Cultural Resource Database, the Project would not affect any known tribal cultural resources that are listed or determined eligible for listing in the California Register, or that are included in a local register of historical resources as defined in PRC Section 5020.1(k), pursuant to PRC Section 21074(a)(1). In addition, PG&E, GANDA, and FIGR did not identify any resource with the potential to be affected by the Project as a significant tribal cultural resource pursuant to criteria set forth in PRC Section 5024.1(c). Resource P-49-001583 is outside the Project area and would not be affected by the Project. Therefore, the Project is not anticipated to affect any such resources.

However, proposed pipeline replacement and decommissioning activities could impact previously unrecorded tribal cultural resources. Potential discoveries during Project construction could consist of historical or archaeological resources that are Native American in nature or could consist of tribal cultural resources

associated with Native American history, culture, and habitation of the area. A tribal cultural resource may or may not also be considered an archaeological or historical resource. There is not complete overlap – a tribal cultural resource that is evaluated and determined “not significant” by an archaeologist could be determined to be potentially significant by a consulting tribe. The following mitigation measures would reduce potentially significant impacts on tribal cultural resources to a less than significant level: **MM CUL-1/TCR-1: Cultural Resources Awareness Training**, **MM CUL-2/TCR-2: Cultural and Tribal Cultural Resources Management and Treatment Plan (CRMTP)**, **MM CUL-3/TCR-3: Cultural Resources Construction Monitoring**, **MM CUL-4/TCR-4: Discovery of Previously Unknown Cultural Resources or Tribal Cultural Resources**, and **MM CUL-5/TCR-5: Unanticipated Discovery of Human Remains**.

See Section 3.5, *Cultural Resources*, for the text of these mitigation measures.

3.6.4 Mitigation Summary

Implementation of the following MMs would reduce the potential for Project-related impacts on tribal cultural resources to less than significant. The following measures would be implemented prior to and during construction.

MM CUL-1/TCR-1: Cultural Resources Awareness Training.

MM CUL-2/TCR-2: Cultural and Tribal Cultural Resources Management and Treatment Plan (CRMTP).

MM CUL-3/TCR-3: Cultural and Tribal Cultural Resources Monitoring.

MM CUL-4/TCR-4: Discovery of Previously Unknown Cultural or Tribal Cultural Resources.

MM CUL-5/TCR-5: Unanticipated Discovery of Human Remains.

3.7 ENERGY

ENERGY - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.7.1 Environmental Setting

3.7.1.1 California Energy System

California's energy system includes electricity, natural gas, and petroleum crude oil. According to the California Energy Commission (CEC), California's energy system generated 50 percent of the natural gas and less than 1 percent of the petroleum crude oil consumed or used in the state. The rest of the state's natural gas and petroleum crude oil is imported and includes natural gas purchases from Canada, the Rocky Mountain states, and the Southwest; and petroleum imported from Alaska and foreign sources. Electricity is also imported into California from the Pacific Northwest and the Southwest (CEC 2018, 2022a, 2022b).

Electricity

The production of electricity requires the consumption, use, or conversion of energy resources including natural gas, coal, hydroelectric, and nuclear, as well as renewable sources such as wind, solar, and geothermal. Of the electricity generated in California, approximately 50 percent is generated by natural gas-fired power plants, 6 percent comes from large hydroelectric dams, 9 percent comes from nuclear power plants, and less than 1 percent is generated by coal-fired power plants. The remaining approximately 35 percent of in-state total electricity production is supplied by renewable sources including solar, biomass, geothermal, small hydroelectric, and wind power (CEC 2022a).

Transportation Fuels

Gasoline is by far the most-used transportation fuel by volume in California. Nearly all gasoline used in the state is obtained through the retail market. In 2021, approximately 13.1 billion gallons of gasoline were sold in California's retail market (CDTFA 2022a). Diesel fuel is the second-most-used transportation fuel by volume, and in 2021, 3.1 billion gallons of diesel were sold in California (CDTFA 2022b). According to the U.S. Department of Energy's Energy Information Administration, nearly all semi-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction, and military vehicles and equipment have diesel engines (U.S. Energy Information Administration 2022).

Natural Gas

Natural gas has a large range of uses, from generating electricity to cooking, space heating, and powering transportation of alternative fuel sources. Much of California's natural gas is imported, providing a large portion of the total in-state capacity and electricity generation. Approximately 45 percent of all natural gas burned in the state is used for electricity generation. The rest is consumed in the residential, industrial, and commercial sectors (21 percent, 25 percent, and 9 percent, respectively) (CEC 2022c).

3.7.1.2 Local and Regional Energy Use

PG&E is an investor-owned utility company that provides electricity supplies and services throughout a 70,000-square-mile service area that extends from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. Sonoma County is within PG&E's service area for electricity and natural gas.

In Sonoma County, approximately 2,868 million kilowatt-hours (kWh) of electricity were consumed in 2020, with approximately 1,521 million kWh consumed by nonresidential uses (CEC 2022d).

Non-electric passenger cars and small trucks are fueled primarily by regular unleaded gasoline. Large trucks and heavy construction equipment primarily use diesel fuel. Both are used widely in Sonoma County and across all parts of the PG&E service territory. The CEC estimates that approximately 167 million gallons of gasoline and 59 million gallons of diesel were sold in Sonoma County in 2020 (CEC 2022e).

Existing Energy Use on the Project Site

The Project site consists of the Petaluma River channel and the adjacent northern and southern work areas. The northern work area includes a portion of Shollenberger Park and is adjacent to offices, retail businesses, and the Ellis Creek Water Recycling Facility. The southern work area is in the vicinity of the Sonoma-Marín Area Rail Transit line and agricultural lands. Existing energy use consists primarily of the use of electricity to power retail, commercial, and industrial spaces and fuel use by workers in the Project vicinity.

3.7.2 Regulatory Setting

Federal and state laws, regulations, and policies pertaining to energy that are relevant to the Project are identified in Appendix A. Local general plan policies related to energy are provided below.

3.7.2.1 Sonoma County General Plan

The following policy from the Open Space and Resource Conservation Element of the Sonoma County General Plan is applicable to the Project (Sonoma County 2008d).

Policy OSRC-14d: Support project applicants in incorporating cost effective energy efficiency that may exceed State standards.

3.7.2.2 City of Petaluma General Plan

The following policies from the Energy and Greenhouse Gas Element of the City of Petaluma's General Plan are applicable to the Project (City of Petaluma 2021a).

Policy 4-P-19: Encourage use and development of renewable or nontraditional sources of energy.

Policy 4-P-30: Continue to monitor new technology and innovative sustainable design practices for applicability to ensure future development minimizes or eliminates the use of fossil fuel and GHG [greenhouse gas]-emitting energy consumption.

3.7.3 Impact Analysis

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact

Construction-related energy expenditures would include both direct and indirect energy use, primarily the use of petroleum-based diesel and gasoline fuels. Direct energy use would include fuel consumption for the operation of construction vehicles and equipment and the use of electricity as a temporary power source at the proposed construction staging yards. Indirect energy use would be required for generation of the materials and components proposed for use during construction. This would include energy used for the extraction of raw materials, manufacturing processes, and transportation associated with manufacturing. Project construction activities would not involve the consumption of natural gas, but once the new pipeline is constructed natural gas in the existing pipeline would need to be released in Phase 2 before the existing pipeline segments under the river can be removed.

Project construction would take approximately 5 months to complete. During this time frame, approximately 793 gallons of gasoline and 17,215 gallons of diesel fuel would be consumed to construct the Project. These diesel and gasoline fuel volumes were calculated based on the GHG exhaust emissions estimated for the Project. For details regarding the estimated GHG emissions, see Section 3.9, *Greenhouse Gas Emissions*. Project fuel use during construction would represent a nominal amount (less than one percent) of the more than 167 million gallons of gasoline and 59 million gallons of diesel used in Sonoma County in 2020 (refer to Section 3.7.1.2).

Construction and operation of the Project would comply with all applicable federal, state, and local requirements for energy conservation. Therefore, the Project would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. This impact would be less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact

If a project were to conflict with state energy standards or local goals for energy efficiency, this would suggest that energy resources were being used in a wasteful manner. The energy standards noted in Section 3.7.2, *Regulatory Setting*, and Appendix A, including the State Energy Policy Act of 2005, as well as the policies of the City of Petaluma and Sonoma County general plans, promote strategic planning and include goals to reduce consumption of fossil fuels, increase the use of renewable resources, and generally enhance energy efficiency.

Construction, operations, and maintenance would be conducted in a manner consistent with the goals and strategies of state and local energy standards. The Project would comply with the State's regulation for in-use off-road diesel vehicles, which requires idling limitations to no more than 5 minutes. Given such compliance, fuel energy consumed in the construction phase would not be wasted through unnecessary idling. Project construction would be short-term and would not result in a permanent increase in the use of nonrenewable energy resources. As established in this section, construction fuel use would represent a negligible percentage of the overall amount of fuel consumed annually in Sonoma County and would not conflict with current energy conservation standards as discussed above. Fuel use for Project operation and maintenance would be essentially the same as required under existing conditions. Therefore, the Project would not conflict with or obstruct a state or local plan, and no impact would occur.

3.7.4 Mitigation Summary

The Project would not result in significant impacts related to energy; therefore, no mitigation is required.

3.8 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil* creating substantial direct or indirect 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"/>

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

NOTE:

* The CBC, based on the International Building Code and the now defunct Uniform Building Code, no longer includes a Table 18-1-B. Instead, Section 1803.5.3 of the CBC describes the criteria for analyzing expansive soils.

3.8.1 Environmental Setting

3.8.1.1 Regional and Site Geomorphology and Geology

The Project site is situated along the Petaluma River, within the Coast Ranges Geomorphic Province (Kleinfelder 2023). This province is generally characterized by northwest-trending mountain ranges and intervening valleys, which reflect the dominant northwest structural trend of the bedrock in the region. The basement rock in the northern portion of this province consists predominantly of the Franciscan Complex, a subduction complex of diverse groups of igneous, sedimentary and metamorphic rocks of Cretaceous to Upper Jurassic age, and to the east, the Coast Range Ophiolite¹¹ and the Great Valley Complex, an Upper to Middle Jurassic age volcanic ophiolite sequence with associated Lower Cretaceous to Upper Jurassic sedimentary rocks. The San Andreas Fault Zone, which defines the westernmost boundary of the local bedrock, is located approximately 15.9 miles southwest of the Project site. In the site vicinity, the Great Valley Sequence and Franciscan Complex are unconformably overlain by Tertiary continental and marine sedimentary and volcanic rocks. These Tertiary-age rocks are locally overlain by younger Quaternary alluvial and bay mud deposits.¹²

¹¹ Ophiolite is a section of oceanic crust and the underlying upper mantle that has been uplifted and exposed, and often emplaced onto continental crustal rocks.

¹² Jurassic time is from 145 million to 200 million years ago; Cretaceous to Upper Jurassic time is from 65 million to 160 million years ago; Tertiary time is from 2.6 million to 65 million years ago; and Quaternary time is from the present to 2.6 million years ago.

3.8.1.2 Local Geology

The Project site is underlain by Holocene-age¹³ bay mud deposits (Kleinfelder 2023). This unit is described as soft, peaty, muddy intertidal muds and as bay muds, clay, peat, and fine sands deposited near sea-level in the San Pablo Bay. Geotechnical borings indicate very soft to medium stiff lean-to fat clays from the ground surface to approximately 20 feet below ground surface (bgs), followed by lateral discontinuous layers of silt, silty sand, and clayey sand to an approximate depth of 35 feet bgs. Medium-stiff to very stiff lean clay was encountered to an approximate depth of 80 feet bgs, followed by medium-dense to very dense silty and clayey sands to an approximate depth of 122 feet bgs.

3.8.1.3 Soils

Expansive soils are soils that possess a “shrink-swell” characteristic. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying; the volume change is reported as a percent change for the whole soil. This property is measured using the coefficient of linear extensibility (COLE) (NRCS 2017). The U.S. Natural Resources Conservation Service (NRCS) relies on measurements of linear extensibility to determine the shrink-swell potential of soils. If the linear extensibility percentage exceeds three percent (COLE=0.03), shrinking and swelling may damage buildings, roads, and other structures.

NRCS Web Soil Survey data indicates that the soil underlying the Project site has a linear extensibility rating of 5.7 percent, which is considered the high end of a moderate linear extensibility rating (NRCS 2021).

3.8.1.4 Seismicity, Faulting, and Liquefaction

Fault Rupture

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) prohibits the development of structures for human occupancy across active fault traces in California. Under the Alquist-Priolo Act, the California Geological Survey (CGS) has established “Zones of Required Investigation” on either side of an active fault that delimits areas susceptible to surface fault rupture. The zones are referred to as Earthquake Fault Zones (EFZs) and are shown on official maps published by CGS (2022). Surface rupture occurs when the ground surface is

¹³ Holocene time is from the present to 11,700 years ago.

broken by fault movement during an earthquake; typically, these types of hazards occur within 50 feet of an active fault.

The Project site is not located within a delineated EFZ; the nearest EFZ is the Hayward–Rodgers Creek fault zone, approximately 4.3 miles northeast of the Project site.

Ground Shaking

The Project site is in a historically seismically active region of California. The 2014 Working Group on California Earthquake Probabilities (WGCEP)¹⁴ concluded that there is a 72 percent probability that a magnitude 6.7 earthquake or higher will strike the San Francisco Bay Area over the next 30 years (Field et al. 2015). The fault zone most likely to rupture is the Hayward–Rodgers Creek fault zone. According to the WGCEP, there is a 32 percent probability that an earthquake of magnitude 6.7 or greater will occur on the Hayward–Rodgers Creek fault zone within the next 30 years, as modeled by the U.S. Geological Survey ShakeMap, with very strong to violent ground shaking expected (USGS 2013).

Liquefaction and Lateral Spreading

Liquefaction is a phenomenon in which unconsolidated, water-saturated sediments become unstable as a result of strong seismic shaking. During an earthquake, these sediments can behave like a liquid, potentially causing severe damage to overlying structures. *Lateral spreading* is a variety of minor landslide that occurs when unconsolidated liquefiable material breaks and spreads, usually down gentle slopes, as a result of the effects of gravity. *Liquefaction-induced lateral spreading* is defined as the finite, lateral displacement of gently sloping ground as a result of pore-pressure buildup or liquefaction in a shallow underlying deposit during an earthquake. The occurrence of this phenomenon is dependent on many complex factors, including the intensity and duration of ground shaking, particle-size distribution, and soil density.

The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving and cracking of structure slabs as a result of sand boiling, and buckling of deep foundations

¹⁴ This is a working group consisting of seismologists from the U.S. Geological Survey, California Geological Survey, Southern California Earthquake Center, and California Earthquake Authority.

caused by ground settlement. Dynamic settlement (i.e., pronounced consolidation and settlement from seismic shaking) may also occur in loose, dry sands above the water table, resulting in settlement of and possible damage to overlying structures. In general, relatively high potential for liquefaction exists in loose, sandy soils that are within 50 feet of the ground surface and are saturated (below the groundwater table). Lateral spreading can move blocks of soil, placing strain on buried pipelines that can lead to leaks or pipeline failure.

Liquefaction analyses suggest that post-liquefaction settlements due to a potential “maximum considered earthquake” are similar on either side of the Petaluma River. Post-liquefaction settlements are likely to be in the range of up to one inch on the north side of the river and up to four inches on the south side of the river. Post-liquefaction settlements near the bore entry point could be up to five to eight inches. The majority of the settlement is expected to come from sand layers below the channel of the river ranging from approximately 22 feet to 38 feet bgs (Kleinfelder 2023).

Landslides

Landslides are one of the various types of downslope movements in which rock, soil, and other debris are displaced as a result of gravity. The potential for material to detach and move downslope depends on a variety of factors, such as the type of material, water content, and the steepness of the terrain. No historic landslides have been documented within the Project site (Wagner et al. 2002).

3.8.1.5 Subsidence

When crude oil and/or groundwater is extracted from the subsurface, subsidence of the overlying land surface can occur. Subsidence is usually associated with severe, long-term withdrawal in excess of recharge that eventually leads to overdraft of the aquifer. As crude oil and/or groundwater is pumped out, water and/or oil is removed from the soil pore spaces leading to a reduction in soil strength. The subsurface conditions more conducive to subsidence include clay or organic-rich soils. Sand- and gravel-rich soils are less prone to subsidence because the larger grains comprise a skeleton less dependent on water pressure for support. The subsidence can result in damage to infrastructure such as buildings or pipelines. The Project does not include the extraction of crude oil or groundwater.

3.8.1.6 Paleontological Resources

Paleontological resources are the fossilized remains or impressions of plants and animals, including vertebrates (animals with backbones, such as mammals, birds, and fish), invertebrates (animals without backbones, such as starfish, clams, and coral), and microscopic plants and animals (microfossils). They are valuable, nonrenewable, scientific resources used to document the existence of extinct life forms and to reconstruct the environments in which they lived. Fossils can be used to determine the relative ages of the depositional layers in which they occur and of the geologic events that created those deposits. The age, abundance, and distribution of fossils depend on the geologic formation in which they occur and the topography of the area in which they are exposed. The geologic environments within which the plants or animals became fossilized usually were quite different from the present environments in which the geologic formations now exist.

Biological Monitoring and Assessment Specialists Inc. (BioMaAS) prepared the paleontological resources assessment for the Project, which presents the results of an archival search and synthesis followed by an assessment of potentially significant fossil resources (BioMaAS 2020). The report also evaluates the potential for impacts on paleontological resources during Project construction activities and recommends potential mitigation to minimize any potential negative effects. The analysis in the report is based on a review of the available paleontological literature and geologic maps. No formal records search was submitted, as the desktop review provided enough data to evaluate the potential for significant paleontological resources to occur within the Project site.

The ground surface at the Project site is underlain by deposits mapped as early Holocene-age intertidal deposits composed of peaty-mud and Holocene-age bay muds, clay, peat, and fine sands deposited near sea level in San Pablo Bay (BioMaAS 2020). The Project site appears to be underlain by clays with lesser fine-grain sands and silts to a depth of about 122 feet bgs (Kleinfelder 2023).

Organic material could be encountered during earthmoving activities, but it is very unlikely that anything found would be old enough to be considered a fossil or a significant paleontological resource (BioMaAS 2020).

Available published literature indicates that there are four late Pleistocene-age vertebrate fossil localities in the vicinity of the city of Petaluma. Significant fossil discoveries include the remains of ground sloths, horses, bison, and mastodons

(BioMaAS 2020). No records of fossils have been reported from the intertidal and bay mud deposits present at the Project site (BioMaAS 2020).

3.8.2 Regulatory Setting

Federal and state laws and regulations pertaining to geology, soils, and paleontological resources and relevant to the Project are identified in Appendix A. At the local level, the following policies from the Public Safety Element of the Sonoma County General Plan are applicable to the Project.

3.8.2.1 Sonoma County General Plan

Policy PS-1a: Continue to use all available data on geologic hazards and related risks from the appropriate agencies.

Policy PS-1b: Continue to use studies of geologic hazards prepared during the development review process.

Policy PS-1e: Continue to implement the “Geologic Hazard Area” combining district which establishes regulations for permissible types of uses and their intensities and appropriate development standards.

Policy PS-1f: Require and review geologic reports prior to decisions on any project which would subject property or persons to significant risks from the geologic hazards areas shown on Public Safety Element hazard maps and related file maps and source documents. Geologic reports shall describe the hazards and include mitigation measures to reduce risks to acceptable levels. Where appropriate, require an engineer’s or geologist’s certification that risks have been mitigated to an acceptable level and, if indicated, obtain indemnification or insurance from the engineer, geologist, or developer to minimize County exposure liability.

Policy PS-1h: Adopt, upon approval by the International Code Council (ICC) and the State of California, revisions to the Uniform Building Code which increase resistance of structures to ground shaking and other geologic hazards.

3.8.2.2 City of Petaluma General Plan

The following policies from the Natural Hazards Element of the City of Petaluma’s General Plan are pertinent to geology and soils (City of Petaluma 2021a).

10-P-1: Minimize risk of property damage and personal injury posed by natural hazards

10-P-2: Protect the community from risks associated with seismically induced ground ruptures, ground-shaking, ground failure, slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic geologic, and fire hazards.

3.8.3 Impact Analysis

a) Directly or indirectly cause potential substantial adverse effects¹⁵, 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.

No Impact

The Project site does not lie within any mapped EFZs according to the available data. The area could be affected by earthquakes or seismic ground shaking, but no current data indicate the presence of active faults within the Project site. The nearest EFZ is the Hayward–Rodgers Creek fault zone, approximately 4.3 miles northeast of the Project site. The Project would not include any habitable structures and would not expose people or structures to potential substantial adverse effects associated with rupture of a known earthquake fault. No impact related to surface fault rupture would occur.

¹⁵ In accordance with CEQA, the analysis for the following impacts [a)(i) through (iv)] addresses the potential impacts of the Project on the environment; it does not address the potential impact that the environment could inflict on the Project. As stated by the California Supreme Court, “agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project’s future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users.” (California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369, 10 386). As noted in more detail in this section, Project activities would not exacerbate existing geological conditions.

(ii) Strong seismic ground shaking?

Less than Significant Impact

The Project would be subject to the seismic design criteria of the California Building Code (CBC), which requires that all improvements be constructed to withstand any anticipated ground shaking from regional fault sources. All construction on-site would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would be fully compliant with the seismic recommendations of a California-registered, professional geotechnical engineer in accordance with the CBC. Adherence to the applicable CBC requirements would ensure that the Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Therefore, this impact would be less than significant.

(iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact

As discussed in Section 3.8.1.4, *Geologic and Seismic Hazards*, liquefaction analyses suggest that post-liquefaction settlements are likely to be up to one inch on the north side of the Petaluma River, up to four inches on the south side of the river, and five to eight inches near the bore entry point. Most of the settlement is expected to come from sand layers ranging from approximately 20 feet to 35 feet bgs. As discussed in Chapter 2, *Project Description*, the pipeline would be installed inside a continuous steel pipeline installed using HDD techniques.

The Project would not include the construction of habitable structures, nor is work proposed near existing structures, and construction activities would be temporary. The Project would be required to adhere to the most current version of the CBC, which requires that a final, site-specific geotechnical investigation be performed. The geotechnical investigation conducted for the Project includes an analysis of liquefaction susceptibility associated with the proposed Project HDD construction based on soil borings taken at four locations along the HDD route (Kleinfelder 2023). The analysis determined that, based on the data at these soil boring locations, areas of post-liquefaction settlements along the HDD pipeline route are likely to be in the range of up to five to eight inches at locations near the proposed bore entry point on the south side of the river. Because the liquifiable soils exist at an elevation below the channel banks and

invert, the geotechnical evaluation determined that the Project's risk of liquefaction leading to lateral spreading is considered low. Final design for the Project would account for the analysis of liquefaction potential contained in the geotechnical evaluation. Although the potential for localized liquefaction exists, the Project would be required to incorporate the information and design recommendations of the geotechnical report and the CBC's seismic design criteria to address potential impacts of liquefaction. Given the low risk of lateral spreading and the Project's assumed adherence to CBC guidelines and recommendations of the geotechnical report to address liquefaction, the impact related to liquefaction and other seismic-related ground shaking would be less than significant.

(iv) Landslides?

No Impact

No historic landslides have been documented within the Project site. Additionally, the surrounding topography is relatively flat, and no slopes or hillsides are present. Finally, the Project does not include the construction of structures on open slopes. Therefore, no impact would occur.

b) Result in substantial soil erosion or the loss of topsoil?

Less than Significant with Mitigation

Project construction would involve ground-disturbing earthwork including limited earthmoving, trenching, and grading. These activities could increase the susceptibility of the Project site's soils to erosion by wind or water and could subsequently result in the loss of topsoil. If not controlled and managed, the impact of soil erosion could be significant. However, as described in Section 3.11, *Hydrology and Water Quality*, **MM HYD-1** would ensure that a storm water pollution prevention plan (SWPPP) would be developed and implemented, in accordance with a National Pollutant Discharge Elimination System General Permit for Stormwater Discharge Associated with Construction and Land Disturbance Activities (also known as a Construction General Permit). The SWPPP would include best management practices (BMPs) designed to control and reduce soil erosion. The BMPs may include dewatering procedures, stormwater runoff quality control measures, watering for dust control, and the construction of silt fences, as needed. During construction activities, soil would be compacted to further reduce soil erosion. Given the implementation of **MM HYD-1**, Stormwater Pollution Prevention Plan, containing soil and erosion

control measures, the impact related to soil disturbance and loss would be reduced to less than significant levels.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact

As discussed in Section 3.1.8.5, the Project does not include the extraction of crude oil or groundwater and therefore could not cause subsidence or collapse. As discussed in response to Question a(iii) and a(iv), above, the possibility exists that soil and/or geologic units within the Project site could become unstable as a result of Project construction. As also discussed above, the Project would not include the construction of any habitable structures, and there would be no permanent on-site personnel during operation and maintenance of the Project. The Project would be required to adhere to the most current version of the CBC, which includes specifications and seismic design criteria that would reduce any potential impact caused by ground instability resulting from the Project. Given adherence to CBC guidelines and the recommendations of a geotechnical report, any potential impact would be less than significant.

d) Be located on expansive soil¹⁶ creating substantial risks to life or property?

Less than Significant Impact

NRCS Web Soil Survey data indicate that the soil underlying the Project site has a linear extensibility rating of 5.7 percent, which is considered a moderate linear extensibility rating (NRCS 2021).

However, the pipeline would be buried underground and not exposed at the surface. Consequently, the pipeline would be less exposed to the expansion and contraction of soils during cycles of wetting and drying. In addition, the Project would be designed and constructed with adherence to CBC requirements and geotechnical investigation recommendations and would avoid impacts resulting from potentially expansive soils on the Project site. The Project would not create substantial direct or indirect risks to life or property related to expansive soils, and impacts would be less than significant.

¹⁶ The CBC, based on the International Building Code and the now defunct Uniform Building Code, no longer includes a Table 18-1-B. Instead, Section 1803.5.3 of the CBC describes the criteria for analyzing expansive soils.

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 Project would not include the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact associated with this criterion would occur.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact

As described in Section 3.8.1.4, *Paleontological Resources*, the deposits that underlie the Project site are mapped as Holocene-age intertidal deposits and Holocene-age bay mud. No records of fossils have been reported from the intertidal and bay mud deposits present at the Project site. Additionally, any artificial fill that may be present is not considered to contain any significant paleontological resources; these deposits are late Holocene-age to recent and have no potential to contain significant paleontological resources.

Excavation for the horizontal directional drilling pits and trenching activities would occur at depths of up to approximately 10 feet and 16 feet bgs, respectively; and drilling would occur up to approximately 72 feet below the bed of the river. However, these activities are not expected to reach or disturb any significant paleontological resources. Therefore, the Project would not directly or indirectly destroy a unique paleontological resource or unique geologic feature, and no impact would occur.

3.8.4 Mitigation Summary

Implementation of the following MM would reduce the potential for Project-related impacts to Geology, Soils, and Paleontological Resources to less than significant.

MM HYD-1: Stormwater Pollution Prevention Plan (see Section 3.11, *Hydrology and Water Quality*)

3.9 GREENHOUSE GAS EMISSIONS

GREENHOUSE GAS EMISSIONS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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 an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.9.1 Environmental Setting

“Global warming” and “climate change” are terms commonly used to describe the increase in the average temperature of Earth’s near-surface air and oceans since the mid-20th century. Natural processes and human actions have been identified as affecting the climate. The Intergovernmental Panel on Climate Change (IPCC) has concluded that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. However, increasing greenhouse gas (GHG) concentrations in the atmosphere resulting from human activity since the 19th century, such as fossil fuel combustion, deforestation, and other activities, are a major factor in climate change.

GHGs in the atmosphere naturally trap heat by impeding the exit of solar radiation that has hit Earth and is reflected back into space—a phenomenon referred to as the “greenhouse effect.” Some GHGs occur naturally and are necessary for keeping Earth’s surface habitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have trapped solar radiation and reduced the amount reflected into space, thus intensifying the natural greenhouse effect and resulting in an increase in global average temperature.

Carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, and perfluorocarbons are the principal GHGs. When concentrations of these gases exceed historical concentrations in the atmosphere, the greenhouse effect is

intensified. CO₂, methane, and nitrous oxide occur naturally and are also generated by human activity. Emissions of CO₂ are largely byproducts of fossil fuel combustion, while methane results from off-gassing, natural gas leaks from pipelines and industrial processes, and incomplete combustion associated with agricultural practices, landfills, energy providers, and other industrial facilities. Nitrous oxide emissions are also largely attributable to agricultural practices and soil management. CO₂ sinks include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution, and are two of the largest reservoirs of CO₂ sequestration. Other human-generated GHGs include fluorinated gases such as hydrofluorocarbons and perfluorocarbons, which have much higher potential for heat absorption than CO₂ and are byproducts of certain industrial processes.

CO₂ is the reference gas for climate change, as it is the GHG emitted in the highest volume. The effect of each GHG on global warming is the product of the mass of their emissions and their global warming potential (GWP). The GWP of a gas indicates how much the gas is predicted to contribute to global warming relative to the amount of warming that would be predicted to be caused by the same mass of CO₂, which has a GWP of 1. For example, methane and nitrous oxide are substantially more potent GHGs than CO₂, with GWPs of 25 and 298 times that of CO₂, respectively (CARB 2022c).

In emissions inventories, GHG emissions are typically reported in their “CO₂ equivalent” (CO₂e) values. CO₂e is calculated as the product of the mass emitted of a given GHG and its specific GWP. Methane and nitrous oxide have much higher GWPs than CO₂, but CO₂ is emitted in higher quantities and accounts for the majority of GHG emissions in CO₂e, both from land use developments and from human activity in general.

3.9.1.1 Effects of Global Climate Change

Among the potential global warming impacts in California are loss of snowpack, sea level rise, increases in the number of extreme-heat days per year and the number of days with high ground-level ozone, larger forest fires, and increased drought in some parts of the state. Secondary effects are likely to include the displacement of thousands of coastal businesses and residences (as a result of sea level rise), impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity.

When enacting Assembly Bill (AB) 32, the Global Warming Solutions Act, the California Legislature found that global warming would cause detrimental effects on some of the state's largest industries—agriculture, winemaking,

tourism, skiing, commercial and recreational fishing, and forestry—and on the adequacy of electrical power generation (CARB 2008). AB 32 and its sister legislation Senate Bill (SB) 32, which expanded on the goals of AB 32, are discussed further in Appendix A.

3.9.2 Regulatory Setting

Federal and state laws and regulations pertaining to GHG emissions that are relevant to the Project are identified in Appendix A. Local plans and policies related to GHG emissions are summarized below.

3.9.2.1 Sonoma County General Plan

The following policies from both the Land Use Element and Open Space and Resource Conservation Element of the Sonoma County General Plan (Sonoma County 2008a, 2008e) may be applicable to the Project.

Policy LU-11a: Encourage reduction in greenhouse gas emissions, including alternatives to use of gas-powered vehicles. Such alternatives include public transit, alternatively fueled vehicles, bicycle and pedestrian routes, and bicycle and pedestrian friendly development design.

Policy LU-11b: Encourage all types of development and land uses to use alternative renewable energy sources and meaningful energy conservation measures.

Policy OSRC-14g: Develop a Greenhouse Gas Emission Reduction Program, as a high priority, to include collaboration with local, regional, and State agencies and other community groups to identify effective greenhouse gas reduction policies and programs in compliance with new State and Federal standards.

3.9.2.2 City of Petaluma General Plan

The following policies from the Energy and Greenhouse Gas Element of the City of Petaluma General Plan (City of Petaluma 2021a) may be applicable to the Project.

Policy 4-P-24: Comply with AB 32 and its governing regulations to the full extent of the City's jurisdictional authority.

Policy 4-P-25: To the full extent of the City's jurisdictional authority, implement any additional adopted State legislative or regulatory standards, policies and

practices designed to reduce greenhouse gas emissions, as those measures are developed.

Policy 4-P-26: Implement all measures in the municipal Climate Action Plan to meet the municipal target set in Resolution 2005-118 (20% below 2000 levels by 2010).

3.9.2.3 Climate Action 2020 and Beyond—Sonoma County Regional Climate Action Plan

Climate Action 2020 and Beyond (CA2020) is a collaborative effort between the Regional Climate Protection Authority (RCPA), Sonoma County, and all nine cities in the county to reduce GHG emissions and respond to the impacts of climate change. CA2020 focuses on near-term actions implemented through 2020 to achieve a 25 percent reduction in countywide GHG emissions (compared to 1990 levels) consistent with AB 32 GHG reduction goals. CA2020 does not address the state's SB 32 goals for 2030.

The following local measures from Chapter 3, "Reducing Community Emissions," of CA2020 may be applicable to the Project (RCPA 2016).

7-L2: Electrify Construction Equipment. Incentivize replacement of fossil fuel construction equipment with alternatively fueled or electric equipment.

7-L3: Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching. Encourage use of more efficient equipment and support equipment conversion to alternative fuels with lower GHG intensity.

7-S1: Low-Carbon Fuel Standard: Off Road. Require a minimum of 10% reduction in the carbon intensity of transportation fuels sold in California by 2020.

8-L1: Idling Ordinance. Limit idling of all commercial vehicles to 3 minutes, except as necessary for the loading or unloading of cargo within a period not to exceed 30 minutes.

8-L2: Idling Ordinance for Construction Equipment. Adopt an ordinance that limits idling time to 3 minutes for heavy-duty construction equipment.

In 2016, RCPA certified an environmental impact report and adopted CA2020, which was subsequently litigated. The Superior Court found the environmental impact report inadequate and RCPA declined to appeal. Although CA2020

cannot be used for CEQA compliance because of the Superior Court's order, it can still serve as an advisory resource for RCPA's work to coordinate countywide climate protection efforts. The concepts in the plan are intended to advance smart land use, resource efficiency, carbon-free electricity, and fuel switching, and are aligned with the climate action strategies articulated in the State Scoping Plan established to achieve the statewide GHG reduction goals (Sonoma County 2018a).

3.9.2.4 Sonoma County Climate Action Resolution

Unable to adopt the Climate Action 2020 Plan, the Sonoma County Board of Supervisors adopted the Climate Change Action Resolution (Sonoma County 2018b). This resolution is intended to help create countywide consistency and clear guidance about coordinated implementation of the GHG emissions reduction measures.

Under the resolution, Sonoma County adopted to work toward RCPA's countywide target to reduce GHG emissions by 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. Sonoma County also adopted all the goals identified in CA2020 to reduce GHG emissions to pursue local actions that support these goals.

3.9.2.5 City of Petaluma Climate Emergency Action Framework

The Climate Emergency Action Framework (City of Petaluma 2021b) is the result of collaboration by the Petaluma Climate Action Commission with City of Petaluma staff and community volunteers about top concerns and priorities in the city. This framework is intended to provide a high-level account of Petaluma's current context, to suggest broad goals and targets to guide the City of Petaluma's ongoing response to and discussion about the climate crisis, and to guide and inform subsequent policies and implementation strategies.

In response to the state's 2045 carbon neutrality target adopted in 2018, on May 6, 2019, the City of Petaluma passed a Climate Emergency Resolution (Resolution 2019-057 N.C.S.) that calls for achieving carbon neutrality no later than 2045. Based on more recent information from the IPCC, that less than 10 years of GHG emissions at current rates would result in a 1.5-degree-Celsius increase in global temperature, the Climate Emergency Action Framework recommends that the City of Petaluma achieve carbon neutrality by 2030 and develop a climate action plan outlining the actions Petaluma will take to achieve its climate goals including achievement of carbon neutrality by 2030.

3.9.3 Impact Analysis

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact

GHG emissions and global climate change represent cumulative impacts from human activities and development projects locally, regionally, statewide, nationally, and worldwide. GHG emissions from all of these sources cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects around the world has contributed and will continue to contribute to global climate change and its associated environmental impacts.

BAAQMD does not have an adopted significance threshold for construction-related GHG emissions. However, it requires that projects quantify and disclose GHG emissions that would occur during construction and determine the significance levels of construction-generated GHG emissions impacts relative to meeting the state's GHG reduction goals. The following analysis considers a two-fold approach:

- The analysis considers whether GHG emissions generated by the Project would conflict with the state's GHG reduction goals.
- In the absence of a quantitative significance threshold from BAAQMD for construction-related GHG emissions, CSLC can consider such a significance threshold adopted by another nearby air district. Therefore, although this threshold is not directly applicable to projects within BAAQMD's jurisdiction, this analysis also evaluates Project emissions relative to the Sacramento Metropolitan Air Quality Management District's GHG mass-emissions (or "bright-line") threshold of 1,100 metric tons of CO_{2e} per year for construction activity (SMAQMD 2020).

During Project construction, GHGs would be emitted by fuel combustion from construction equipment and vehicles transporting workers, materials, and equipment to and from the Project site. The levels of GHG emissions generated would vary throughout the 5-month construction period based on the type and intensity of construction activities performed, and emissions would cease when construction is complete. Construction-related GHG emissions from equipment

and on-road vehicle exhaust were estimated using the CalEEMod emissions model (Version 2022.1); see Appendix C for the output information from the CalEEMod model run conducted for the Project.

In addition, after construction of the new pipeline, natural gas in the existing pipeline to be replaced would need to be released before pipeline removal. Approximately 44,000 cubic feet of natural gas is anticipated to be released from the existing pipeline. Natural gas is composed of 70–90 percent methane, which is a potent GHG and a major contributor to global warming. Methane is the second most abundant anthropogenic (human activity–related) GHG, after CO₂; methane accounts for about 16 percent of global anthropogenic GHG emissions (IPCC 2014). Methane is more than 25 times as potent as CO₂ at trapping heat in the atmosphere. This analysis conservatively assumes that 100 percent of the natural gas proposed for release would be methane. The associated CO₂e emissions were estimated by multiplying the released methane emissions by a GWP of 25.

Table 3.9-1 summarizes GHG emissions generated by Project construction equipment and vehicles and includes the GHG emissions from the one-time release of natural gas from the existing pipeline. As shown, GHG emissions generated or released by the Project over the 5-month construction period would be approximately 209 metric tons CO₂e.

Table 3.9-1. Greenhouse Gas Emissions from Project Construction

Source	Total GHG Emissions (metric tons CO ₂ e)
Construction Equipment and Vehicles	183
Natural Gas Released from Existing Pipeline	26
Project Total	209

NOTES: CO₂e = carbon dioxide equivalent; GHG = greenhouse gas

SOURCE: Data compiled by Environmental Science Associates in 2022 (see Appendix C).

BAAQMD's current CEQA Air Quality Guidelines include thresholds for project-level operational GHG emissions, which are based on implementation of best management practices. BAAQMD does not provide significance thresholds for construction-related GHG emissions; it considers a project's construction emissions to represent a very small portion of the project's lifetime GHG emissions. For this reason, among others, BAAQMD's proposed thresholds are designed to address

primarily operational GHG emissions from land use projects, which represent the vast majority of project-related GHG emissions.

Although the Project would generate GHG emissions only during construction, BAAQMD's approach to assessing significance applies to the Project at a foundational level: To achieve statewide GHG targets pursuant to SB 32, the California Air Resources Board (CARB) 2017 Scoping Plan Update (CARB 2017), and the forthcoming CARB 2022 Scoping Plan Update (CARB 2022d), efforts to reduce GHG emissions must focus on operational sources, such as building energy use and vehicle travel. The underlying principle of BAAQMD's thresholds is that operational emissions must align with state-level targets. BAAQMD endorses the opinion held by the California Supreme Court in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) (62 Cal.4th 204), that a project that would be consistent with meeting the state's long-term climate goals can be found to have a less than significant impact on climate change under CEQA. If a project would contribute its "fair share" of what will be required to achieve those long-term climate goals, a reviewing agency can find that the impact would not be significant because the project would help to solve the problem of global climate change (62 Cal.4th 220–223).

GHG emissions from off-road construction equipment represent a very small portion of overall statewide emissions (0.6 percent). CARB has identified only limited strategies to control emissions from such equipment. In other words, the state can achieve its 2030 target with very limited emissions reductions in the construction sector. This is a holistic approach in which CARB looks at all emissions sources in California and focuses on reducing the largest emissions sources that the state can influence and control. The 2017 Scoping Plan Update (CARB 2017) calls for reducing emissions from certain sources substantially (like vehicular emissions and building energy use) while not targeting emissions from other sources (like construction equipment). Under this strategy, the state can still achieve its 2030 GHG emissions reduction target. Because BAAQMD's thresholds are based on overall consistency with statewide targets, it can be concluded that construction-related emissions would be less than significant.

In addition, the total Project-generated GHG emissions of 209 metric tons of CO₂e would be well below the Sacramento Metropolitan Air Quality Management District's construction threshold of 1,100 metric tons CO₂e per year.

For these reasons, the Project's construction-related GHG emissions are not considered cumulatively considerable, and the associated impact would be less than significant.

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 Project would generate emissions primarily from construction equipment and vehicles. Neither CARB nor BAAQMD targets construction activities as a sector to achieve GHG reductions to meet the state's GHG reduction goals. In their climate action planning, CARB and BAAQMD target operational sources such as building energy use and transportation as sectors where maximum reductions can be achieved. Therefore, CARB's 2017 Scoping Plan Update does not include any strategies or actions that address construction equipment. The 2022 Scoping Plan Update, currently underway, also identifies transportation electrification, reduction of automobile vehicle miles traveled, and building decarbonization as the priority strategies for local government climate action, with no strategies that address construction equipment. In addition, the Sonoma County and City of Petaluma general plans and climate action planning policies (see Section 3.9.2) that are applicable to construction equipment and activities primarily encourage using cleaner construction equipment, increasing the fuel efficiency of vehicles and equipment, transitioning from fossil fuels to alternative low-carbon fuels and electricity, and limiting idling by construction equipment and vehicles.

Project equipment and vehicles would be subject to CARB's airborne toxic control measure to limit idling by diesel-fueled commercial equipment and vehicles. The transition to a cleaner, low-carbon-fueled, fuel-efficient construction fleet is an ongoing process as older vehicles in the construction fleet are retired and new equipment and vehicles meeting new standards are included. CARB has identified very few strategies for controlling GHG emissions from off-road construction equipment and considers the state's 2030 target to be achievable with very limited emissions reductions in the construction sector.

The Project would not lead to an increase in operational emissions. In summary, GHG emissions generated during Project construction would not be considered to conflict with any plan, policy, or regulation adopted to reduce GHG emissions. This impact would be less than significant.

3.9.4 Mitigation Summary

The Project would not result in significant impacts related to GHG emissions; therefore, no mitigation is required.

3.10 HAZARDS AND HAZARDOUS MATERIALS

HAZARDS AND HAZARDOUS MATERIALS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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 Government Code section 65962.5 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 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise or people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) 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"/>

HAZARDS AND HAZARDOUS MATERIALS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.10.1 Environmental Setting

3.10.1.1 Hazardous Materials Definitions

Terms used in the characterization of baseline conditions, regulatory framework, and impact analysis for hazards and hazardous materials are defined below.

Hazardous Material

The term “hazardous material” can have varying definitions depending on the regulatory programs. For the purposes of this MND, the term refers to both hazardous materials and hazardous wastes. Section 25501(n) of the California Health and Safety Code defines a *hazardous material* as follows:

Hazardous material means any material that because of its quantity, concentrations, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous Waste

A *hazardous waste* is a waste that because of its quantity, concentration, or physical, chemical, or infectious characteristics, causes or significantly contributes to an increase in mortality or illness or poses substantial or potential threats to public health or the environment (U.S. Code Title 42, Section 6903[5]).

Hazardous wastes are further defined under the Resource Conservation and Recovery Act as substances exhibiting the characteristics of ignitability, reactivity, corrosivity, or toxicity. Chemical-specific concentrations used to

define whether a material is a hazardous, designated, or nonhazardous waste include the Total Threshold Limit Concentrations (TTLCs), Soluble Threshold Limit Concentrations (STLCs), and Toxic Characteristic Leaching Procedures (TCLPs). These concentrations are listed in California Code of Regulations Title 22, Section 66261, and are used as waste acceptance criteria for landfills. Waste materials with chemical concentrations exceeding the TTLCs, STLCs, and TCLPs must be sent to Class I disposal facilities, may be sent to Class II disposal facilities depending on the waste material, and may not be sent to Class III disposal facilities.

Screening Levels for Hazardous Materials in Soil, Soil Gas, or Groundwater

The U.S. Environmental Protection Agency Regional Screening Levels and San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) Environmental Screening Levels (ESLs) are guidelines used to evaluate the potential risk associated with chemicals found in soil or groundwater where a release of hazardous materials has occurred.

Though developed and maintained by the San Francisco Bay RWQCB, the ESLs are used by regulatory agencies throughout the state. Screening levels have been established both for residential and commercial/industrial land uses and for construction workers:

- Residential screening levels are the most restrictive. Soil with chemical concentrations below these ESLs generally would not require remediation and would be suitable for unrestricted uses if disposed of off-site.
- Commercial/industrial screening levels are generally less restrictive than residential screening levels because they are based on potential worker exposure to hazardous materials in the soil (and these are generally less than residential exposures).
- Screening levels for construction workers are also less restrictive than those for commercial/industrial workers because construction workers are exposed to the chemical of concern only for the duration of construction, while industrial workers are assumed to be exposed over a working lifetime.

Chemical concentrations below these screening levels generally would not require remediation and would be suitable for unrestricted uses. In addition, there are other more specific but similar screening levels used more narrowly focused on human health or ecological risk assessment considerations.

Natural Gas

Natural gas is a naturally occurring mixture of gaseous hydrocarbons consisting primarily of methane in addition to various smaller amounts of other higher hydrocarbons. Natural gas is colorless and odorless, so odorizers such as mercaptan, which smells like sulfur or rotten eggs, are commonly added to natural gas supplies for safety so that leaks can be readily detected. Natural gas is flammable in the presence of oxygen and can be explosive if leaked into a confined space such as a building.

3.10.1.2 Hazardous Materials Database Search

The State Water Resources Control Board (SWRCB) GeoTracker website (SWRCB 2022) and the California Department of Toxic Substances Control (DTSC) EnviroStor website (DTSC 2022) were reviewed to identify known hazardous materials sites listed on the “Cortese List.” Under the provisions of Government Code Section 65962.5, the Cortese List identifies sites known to currently have or to have previously had hazardous materials spills or releases (SWRCB 2022; DTSC 2022). One leaking underground storage tank site was shown in the proposed northern work area. However, the address for that site is actually farther to the northeast at the United Parcel Service (UPS) site at 3860 Cypress Drive and is not located in the northern staging area. The UPS site is at least 4,000 feet to the northeast.¹⁷

In summary, the GeoTracker and EnviroStor websites do not identify any hazardous materials sites on the Project site. This indicates that regulatory agencies have not identified sites that would adversely affect implementation of the Project.

The Project would involve installing the pipeline below the Petaluma River (using HDD methods) and conducting minor dredging to remove existing pipeline from below the riverbed. This would result in the mobilization of sediments from the riverbed. Previous dredging operations conducted by the U.S. Army Corps of Engineers (USACE) on the river provide information on the anticipated chemistry of sediments from the riverbed. Based on the information provided by USACE,

¹⁷ The GeoTracker mapping system shows one closed site within the southern work area, but upon investigation, this site was found to actually be located in Santa Barbara County (SWRCB 2022; DTSC 2022). The address for that site is given as 4000 South Highway 101 in Santa Maria, California. The DTSC mapping system incorrectly uses 4000 Highway 101 in Petaluma as the address for this site.

testing results did not show any concerning levels of contaminants in the portion of the channel where the PG&E pipelines would be removed (Vargas, pers. comm. 2022).

There are no schools within one-quarter mile of either the northern or southern work areas. The nearest school is River Montessori Charter School, approximately 0.5 mile northeast of the northern work area.

One airport is located within 2 miles of the northern Project area: Petaluma Municipal Airport, approximately 1.8 miles to the north-northwest. The Project work areas are not located within the airport safety zones (Sonoma County Airport Land Use Commission 1998).

3.10.1.3 Emergency Response/Evacuation Planning

The Sonoma County Multijurisdictional Hazard Mitigation Plan includes long-term and short-term policies, programs, projects, and other activities to alleviate the death, injury, and property damage that can result from a disaster. The hazard mitigation plan defines measures to reduce risks from natural disasters in the Sonoma County Operational Area, which consists of the entire county, including unincorporated areas, incorporated cities, and special-purpose districts. The plan complies with federal and state hazard mitigation planning requirements to establish eligibility for funding under Federal Emergency Management Agency grant programs for all planning partners (Sonoma County 2021). The Sonoma County Multijurisdictional Hazard Mitigation Plan does not include any delineated evacuation routes to be used in the event of an emergency (Sonoma County 2021).

3.10.1.4 Wildfire

The California Department of Forestry and Fire Protection (CAL FIRE) Forest Resource Assessment Program has published maps that delineate Very High Fire Hazard Severity Zones in State Responsibility Areas (SRAs) and Local Responsibility Areas (LRAs). Based on mapping by CAL FIRE, there are no established Very High Fire Hazard Severity Zones within SRAs within or near the Project site (CAL FIRE 2007).

3.10.2 Regulatory Setting

Federal and state laws and regulations pertaining to hazards and hazardous materials and relevant to the Project are identified in Appendix A. At the local

level, the following objective and policies are relevant to the analysis of the Project's impacts on hazards and hazardous materials.

3.10.2.1 Sonoma County General Plan

Objective PS-4.2: Regulate the handling, storage, use, and disposal of hazardous materials in order to reduce the risks of damage and injury from hazardous materials.

Policy PS-4a: While maintaining the autonomy granted to it pursuant to State zoning laws, implement Federal, State, and County requirements for the storage, handling, disposal, and use of hazardous materials, including requirements for management plans, security precautions, and contingency plans.

Policy PS-4c: Require a use permit for any commercial or industrial use involving hazardous materials in threshold planning quantities as determined by Federal and State laws. Hazardous materials management plans shall be required as a condition of approval for such permits.

Policy PS-4g: Maintain the Sonoma County Operational Area Hazardous Materials Incident Response Plan, which provides for effective responses to releases of hazardous materials, the safe disposal of hazardous wastes, and a public information program.

3.10.2.2 City of Petaluma General Plan

Policy 10-P-4: Minimize the risk to life and property from the production, use, storage, and transportation of hazardous materials and waste by complying with all applicable State and local regulations.

3.10.3 Impact Analysis

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant with Mitigation

Project construction would involve the routine use of small quantities of hazardous materials commonly used during construction activities such as fuels, lubricants, and oil for construction equipment. Storage and use of hazardous materials at the site during routine use could result in the accidental release of small quantities of hazardous materials, which could degrade soil and/or surface water within the

Project area. The use, storage, transport, and disposal of hazardous materials during construction and operation of the Project would be carried out in accordance with federal, state, and county regulations. Conforming to these requirements would ensure that hazardous materials used for construction would be stored in appropriate containers, with secondary containment to prevent a potential release. Additionally, as required, Project-related spills of hazardous materials would be reported to appropriate regulatory entities, such as the City of Petaluma, USFWS, CDFW, and the San Francisco Bay RWQCB. Spills of hazardous materials would be cleaned up immediately, and contaminated soils would be excavated and transported to approved disposal facilities, consistent with state and local requirements. **MM HAZ-1** would ensure correct storage and handling of materials through a Project Work and Safety Plan (PWSP). The PWSP would require separate storage for incompatible hazardous materials, secondary containment for hazardous materials storage, trained personnel for hazardous materials handling, on-site spill clean-up kits, and equipment refueling stations to be in specific sites with appropriate spill containment. With the implementation of this measure, the impact would be less than significant.

MM HAZ-1: Project Work and Safety Plan. A Project Work and Safety Plan (PWSP) shall be submitted to CSLC staff and all other pertinent agencies for review and approval at least 30 days prior to the implementation of the Project that includes both phases. The PWSP shall include the following information (at a minimum):

- Contact information
- Safety Data Sheets (SDS) that contains information on potential hazardous materials and chemicals on site
- Hazardous Spill Response and Contingency Plan
- Emergency Action Plan
- Summary of the Project HDD Execution Plan
- Project Management Plan
- Site Safety Plan, including measures for proper handling of hazardous materials including, but not limited to soils containing residual pesticides
- Permit Condition Compliance Matrix

b) Create a significant hazard to the public or the environment through reasonably foreseeable accident and upset conditions involving the release of hazardous materials into the environment?

Less than Significant with Mitigation

Prior to proposed gas line replacement, as described in Chapter 2, it is estimated that a volume of 44,000 cubic feet of natural gas would be released to the atmosphere to evacuate the existing line. Natural gas is highly flammable, but the one-time release would be vented from an existing blowdown stack at high velocities, which would help ensure that the lighter-than-air gas would be quickly dispersed high above the ground surface. This release would occur in accordance with public notification and subject to review and input from BAAQMD. The release would be controlled to ensure that no ignition sources are in the area. The impact related to the potential to create a significant hazard to the public or the environment associated with fire or explosion hazard due to the venting of natural gas from the pipelines to be removed would be less than significant. During operations, the basic objective of the Project is to make safety improvements to the existing pipeline to prevent natural gas leaks. The natural gas would be pressurized to move the gas through the pipeline. PG&E monitors the pressure in natural gas pipelines in real time. In the event of a leak, the pressure drops and is recorded at the monitoring stations, triggering the automatic shutdown of the affected pipeline sections. PG&E would then investigate to identify the location of the leak and implement repairs. Considering the existing condition of the pipeline, which PG&E states cannot be adequately protected by the existing infrastructure, the Project's replacement of the gas line would result in a beneficial impact related to decreased hazards to the public or the environment due to long-term fire or explosion hazards associated with any operational natural gas leaks.

As described in greater detail in the HDD Execution Plan (Appendix B), PG&E has committed to measures that would minimize hazardous releases. The drilling fluid (proposed for use to help drill the pilot holes and subsequent reamers) would be composed of nontoxic compounds, such as bentonite, which is a type of clay. The HDD contractor would implement several standard measures to reduce the likelihood of drilling fluid release (i.e., frac-out) and contain drilling fluid in the event of a frac-out occurrence. An Inadvertent Release Contingency Plan would ensure that measures are in place to monitor drilling pressure, prepare for contingencies, and to implement containment in the event of a frac-out.

MM HAZ-2 would reduce the impact associated with HDD execution to less than significant levels.

Phase 2 would remove the pipeline from the riverbed and could dislodge existing debris, impact existing utilities in or above the riverbed, or leave behind debris that would all constitute a potential release of hazardous materials. A pre-Project Geophysical Debris Survey of the riverbed would identify pre-Project bottom contours as well as any debris or exposed utilities in order to avoid those areas during decommissioning. **MM HAZ-3** also includes a post-Project survey to ensure no Project-related debris is left at the site.

Finally, the existing pipeline may have an asbestos coating which would be disturbed during pipeline removal activities. Airborne asbestos and asbestos fibers in the vicinity of nearby residences would be a potentially significant impact to human health. **MM HAZ-4** would ensure that the existing pipeline is tested prior to cutting and removal, and if necessary, handled and removed from the Project site by certified professionals according to air district and worker safety regulations. With implementation of these measures, the impacts would be less than significant.

MM HAZ-2: Inadvertent Release Contingency Plan. PG&E and/or its selected contractor shall submit an Inadvertent Release Contingency Plan to CSLC for review and approval. The draft Inadvertent Release Contingency Plan (contained in the HDD Execution Plan) shall be finalized at least 30 days prior to construction and implemented during HDD construction. The Final Inadvertent Release Contingency Plan shall contain measures to detect and address any inadvertent drilling fluid migration outside of the HDD drill hole, including measures to limit the potential for drilling fluid release (frac-out) into the Petaluma River.

MM HAZ-3: Pre- and Post-Project Bathymetric and Surficial Features Multi-Beam Debris Survey. Pre- and post-Project Bathymetric and Surficial Features Multi-Beam Debris Surveys of the riverbed shall be conducted using a vessel equipped with a multi-beam sonar system. The pre-Project survey, used in conjunction with previously collected data, shall serve to fully identify pre-Project bottom contours, debris, and any exposed utilities, and a copy of the survey shall be submitted to CSLC staff for review 30 days prior to Project implementation. A post-Project Bathymetric and Surficial Features Multi-Beam debris survey shall also be performed, and the results compared to the initial baseline survey. Any anomalous objects that were not already found and identified in the pre-Project survey and that remain unidentified during the

bathymetric and debris surveys shall be positively identified using methods such as divers or ROV. All Project-related debris shall be recovered. A Project close-out report with drawings shall be submitted to the CSLC within 60 days of work completion.

MM HAZ-4: Asbestos Handling Procedures. PG&E shall inform construction personnel of the potential presence of asbestos-containing material (ACM) at the Project site prior to their assignment. After exposing the existing pipeline for removal, and prior to the start of cutting and tie-in activities, a certified asbestos inspector/consultant shall test whether the coating consists of ACM greater than 1 percent by weight. If testing reveals the coating contains ACM less than 1 percent by weight, the pipeline segment shall be treated as normal construction waste and no additional measures are required. If testing reveals the coating contains ACM equal to or greater than 1 percent by weight, the materials shall be controlled by a certified asbestos abatement contractor in accordance with the regulations and notification requirements of BAAQMD Rule 2, and in accordance with applicable worker safety regulations. All ACM removed from the pipeline segment(s) shall be labeled, transported, and disposed of at a verified and approved ACM disposal facility.

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

The Project site is not located within 0.25 mile of any existing or proposed schools. The nearest school is River Montessori Charter School, approximately 0.5 miles northeast of the northern work area. Because the Project site is not within 0.25 mile of an existing or proposed school, no impact would occur.

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 Project would not be located on a site that is included on a list of hazardous materials sites (under the provisions of Government Code Section 65962.5, commonly referred to as the "Cortese List"). Because the Project would not be located on an existing hazardous materials site, there would be no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Less than Significant Impact

Portions of the Project would be located within 2 miles of an airport. Petaluma Municipal Airport is approximately 1.8 miles north-northwest of the northern work areas off Shollenberger Park Road. However, the Project site would not be within any established noise hazard or safety zones, would not construct structures that could interfere with flight paths, and would not result in a safety hazard or excessive noise for people residing or working in the Project area. Therefore, the impact would be less than significant.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact

Project activities would not require road closures and would not obstruct any major arterial roadways. The Project would not interfere with an emergency response plan or emergency evacuation plan; therefore, the impact would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less than Significant with Mitigation

Based on the CAL FIRE fire hazard severity zone maps, the Project site is not within a Very High Fire Hazard Severity Zone, in either an SRA or an LRA (see Section 3.20, *Wildfire*). The use of construction equipment and the possible temporary on-site storage of fuels and/or other flammable construction chemicals could pose an increased risk of fire, which could result in injury to workers or the public during construction. However, adherence to PG&E wildfire prevention standards would reduce fire risks during construction, consistent with regulatory requirements. Additionally, PG&E and its contractors would be required to comply with hazardous materials storage and fire protection regulations, which would minimize the potential for fire creation. As described in Section 3.20, *Wildfire*, if a fire were to erupt upon the site or in the adjacent marshland, a potentially significant impact could result. To address such impacts, in addition to these

PG&E standards and regulatory requirements, **MM WF-1** (described in Section 3.20, Wildfire) would require preparation and implementation of a site-specific safety plan to address fire risk at the Project site. With implementation of **MM WF-1** along with adherence to PG&E standards and other regulatory compliance, the risk of wildland fires during construction would be reduced to less than significant levels.

3.10.4 Mitigation Summary

Implementation of the following MMs would reduce potential Project-related impacts on hazards and hazardous materials to less than significant.

MM HAZ-1: Project Work and Safety Plan.

MM HAZ-2: Inadvertent Release Contingency Plan.

MM HAZ-3: Pre- and Post-Project Bathymetric and Surficial Features Multi-Beam Debris Survey.

MM HAZ-4: Asbestos Handling Procedures.

MM WF-1: Site Specific Wildfire Safety Plan (see Section 3.20, *Wildfire*).

3.11 HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 or through the addition of impervious surfaces, in a manner that would:				
i) Result in substantial erosion or siltation on or off site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

HYDROLOGY AND WATER QUALITY – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.11.1 Environmental Setting

3.11.1.1 Surface Water

The surface water at the Project site includes the tidally influenced Petaluma River and its tributary streams. Flow along the length of the Petaluma River is controlled by precipitation runoff and limited tidal effects control flows in the river's lower reaches. Water from the Petaluma River is not a primary source of water supply to the city of Petaluma, but it may influence groundwater quality and supply. Major tributaries to the Petaluma River include Adobe Creek, Lichau Creek, Lynch Creek, Black John Slough, Willow Brook, and San Antonio Creek. Minor tributaries include Liberty and Wiggins creeks (Traum et al. 2022).

The Petaluma River is listed on the 303(d) list of impaired waters for sedimentation/siltation, diazinon (a pesticide), pathogens, nutrients, nickel, and trash. The San Francisco Bay RWQCB has identified the following existing beneficial uses for the Petaluma River: navigation, water contact recreation, non-contact recreation, warm freshwater habitat, cold freshwater habitat, preservation of rare and endangered species, fish migration, spawning, and estuarine and wildlife habitat (SWRCB 2018).

3.11.1.2 Groundwater

The Project site is within the approximately 46,000-acre Petaluma Valley groundwater basin, which is immediately north of San Pablo Bay and part of the larger SF Bay basin for water quality planning purposes. The Petaluma River, the principal stream draining the basin, flows through the larger Petaluma Valley watershed. The major urban water supplier in the Petaluma Valley groundwater basin is the City of Petaluma, which relies primarily on imported surface water from the Russian River, supplied by Sonoma County Water Agency. The basin has been classified by the California Department of Water Resources as a medium-priority basin, with groundwater levels declining in some areas. Based on the Petaluma Valley groundwater basin's medium-priority designation, the

groundwater sustainability agency for the basin—the Petaluma Valley Groundwater Sustainability Agency—adopted the Petaluma Valley Groundwater Sustainability Plan (Sonoma Water 2021).

Sources of groundwater recharge in the basin include percolation of precipitation and excess irrigation water, infiltration from streams, and boundary inflow from neighboring groundwater basins.

3.11.1.3 Flooding

Flooding is inundation of normally dry land that results from a rise in surface water levels or rapid accumulation of stormwater runoff during storm events. The Federal Emergency Management Agency (FEMA), through its Flood Insurance Rate Mapping Program, designates areas where urban flooding could occur during 100-year and 500-year flood events. A 100-year flood event has a 1 percent probability of occurring in a single year, and a 500-year flood event has a 0.2 percent probability of occurring in a single year. These types of floods can occur in consecutive years or periodically throughout a decade; the terms “100-year” and “500-year” refer to probability, not to the period between such floods. According to the FEMA Flood Insurance Rate Map (FIRM) for the area, the Project site is within the 100-year floodplain (FEMA 2015).

3.11.1.4 Tsunami and Seiche

The Project site is approximately 9.5 miles northwest of San Pablo Bay and 20 miles east of the Pacific Ocean. Given the distances to these water bodies, there is no risk of tsunami or seiche inundation.

3.11.2 Regulatory Setting

Federal and state laws and regulations pertaining to hydrology and water quality that are relevant to the Project are identified in Appendix A. At the regional and local level, the following permits and plans are applicable to the analysis of the Project's impacts on hydrology and water quality.

3.11.2.1 National Pollutant Discharge Elimination System

Project construction would disturb more than 1 acre of land surface, affecting the quality of stormwater discharges into waters of the United States. The Project would therefore be subject to the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)

(Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The federal authorities for the NPDES program are described in detail in Appendix A.

The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the United States from construction sites that disturb 1 acre or more of land surface, or that are part of a common plan of development or sale that disturbs more than 1 acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

Under the Construction General Permit, construction sites must be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high). The assigned risk level is based on both the sediment transport risk at the site and the risk to receiving waters during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the amount of sediment that could be discharged to receiving water bodies and is based on the nature of the construction activities and the site's location relative to receiving water bodies. The receiving-waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to effluent standards; good site management "housekeeping"; non-stormwater management; erosion and sediment controls; run-on and runoff controls; inspection, maintenance, and repair; and monitoring and reporting requirements.

In addition, the Construction General Permit requires the development and implementation of a storm water pollution prevention plan (SWPPP) that includes specific best management practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater from moving off-site into receiving waters. The BMPs fall into several categories—erosion control, sediment control, waste management, and good housekeeping—and are intended to protect surface water quality by preventing eroded soil and construction-related pollutants from migrating off-site from the construction area. Routine inspection of all BMPs is required.

The SWPPP must be prepared before construction begins. The plan must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project area. The SWPPP must list the BMPs the Applicant

would use to limit stormwater runoff. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if any of the BMPs fail; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations and the washing and fueling of vehicles and equipment. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site after construction).

In the Project area, the Construction General Permit is implemented and enforced by the San Francisco Bay RWQCB, which administers the stormwater permitting program. Dischargers must electronically submit a notice of intent and permit registration documents to obtain coverage under the Construction General Permit. Dischargers are to notify the San Francisco Bay RWQCB of violations or incidents of noncompliance and must submit annual reports identifying deficiencies in the BMPs and explaining how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State Qualified SWPPP Developer, and implementation of the SWPPP must be overseen by a State Qualified SWPPP Practitioner.

3.11.2.2 Water Quality Control Plan for the San Francisco Bay Basin

The Project site is located within the jurisdiction of Region 2, the San Francisco Bay RWQCB, which establishes regulatory standards and water quality objectives in the *Water Quality Control Plan for the San Francisco Bay Basin*, commonly referred to as the Basin Plan (San Francisco Bay RWQCB 2019). The Basin Plan identifies existing and potential beneficial uses for surface water and groundwater and provides numerical and narrative water quality objectives designed to protect those uses. Projects must not result in adverse effects on designated beneficial uses. The Petaluma River has the following listed beneficial uses:

- **Cold Freshwater Habitat (COLD)**—Uses of water that support cold water ecosystems, including but not limited to preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

- **Estuarine Habitat (EST)**—Uses of water that support estuarine ecosystems, including but not limited to preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds), and the propagation, sustenance, and migration of estuarine organisms.
- **Fish Migration (MIGR)**—Uses of water that support habitats necessary for migration, acclimatization between freshwater and salt water, and protection of aquatic organisms that are temporary inhabitants of waters within the region.
- **Preservation of Rare and Endangered Species (RARE)**—Uses of waters that support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.
- **Fish Spawning (SPWN)**—Uses of water that support high-quality aquatic habitats suitable for reproduction and early development of fish.
- **Warm Freshwater Habitat (WARM)**—Uses of water that support warmwater ecosystems, including but not limited to preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Wildlife Habitat (WILD)**—Uses of waters that support wildlife habitats, including but not limited to the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.
- **Water Contact Recreation (REC-1)**—Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include but are not limited to swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and uses of natural hot springs.
- **Non-Contact Water Recreation (REC-2)**—Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where water ingestion is reasonably possible. These uses include but are not limited to picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- **Navigation (NAV)**—Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

3.11.2.3 Sonoma County General Plan

The following policies from the Water Resources Element of the Sonoma County General Plan (Sonoma County 2008d) pertain to the Project's evaluation of hydrology and water quality.

Policy WR-1g: Minimize deposition and discharge of sediment, debris, waste and other pollutants into surface runoff, drainage systems, surface water bodies, and groundwater.

Policy WR-1h: Require grading plans to include measures to avoid soil erosion and consider upgrading requirements as needed to avoid sedimentation in stormwater to the maximum extent practicable.

3.11.2.4 City of Petaluma General Plan

The following policy from the Water Resources Element of the City of Petaluma General Plan pertains to the Project's evaluation of hydrology and water quality (City of Petaluma 2021a).

Policy 8-P-38: All development activities shall be constructed and maintained in accordance with Phase 2 National Pollutant Discharge Elimination System (NPDES) permit requirements.

3.11.3 Impact Analysis

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less than Significant with Mitigation

Project construction would involve ground-disturbing upland earthwork including limited earthmoving, trenching, and grading. During construction, heavy equipment such as bulldozers, graders, earthmovers, heavy trucks, trenching equipment, and other machinery would be used to move upland soil. Such machinery could contribute pollutants to stormwater runoff in the form of sediment and other pollutants such as fuels, oil, lubricants, hydraulic fluid, or other contaminants. Site work could result in runoff conditions. Sediment, silt, and construction debris, if mobilized during construction, could be transported to receiving waters such as the Petaluma River. In the absence of erosion and runoff controls, exceedances of water quality standards could result.

MM HYD-1 would ensure that a SWPPP would be developed and implemented as part of the Project, consistent with requirements of the state NPDES Construction General Permit. The SWPPP would include BMPs designed to control and reduce run-on, runoff, and soil erosion during construction, and post construction site monitoring. In addition, the Construction General Permit requires BMPs to prevent the release of motor fuels and oils from equipment. The BMPs may include stormwater runoff quality control measures, watering guidance for dust control, dewatering procedures, and the installation of silt fences, straw wattles, and other protective features, as needed. Implementing these BMPs would limit sediment and other pollutants from entering the Petaluma River and impacts of upland construction on water quality would be limited.

MM HYD-1: Stormwater Pollution Prevention Plan. PG&E and/or their selected contractor shall develop and implement a Stormwater Pollution Prevention Plan (SWPPP) consistent with the Statewide NPDES Construction General Permit (Order No. 2022-0057 DWQ, or current effective order). The SWPPP shall be provided to CSLC at least 30 days prior to construction ground disturbing activities. At a minimum, the SWPPP shall include measures to:

- Establish standard best management practices, such as the use of silt fencing and straw wattles within the disturbance footprints at each terrestrial excavation location.
- Install and maintain fiber rolls and sediment basins (as applicable) to limit unauthorized discharges of pollutants into surface waters.
- Preserve existing vegetation, and establish effective soil cover to the extent feasible (e.g., through geotextiles, straw mulch, native species hydroseeding) for inactive areas and finished slopes to prevent sediments from being dislodged by wind, rain, or flowing water.
- Establish good housekeeping measures such as: daily site clean-up/trash removal; covering spoils piles; limiting construction vehicle/equipment storage and maintenance to specified areas; and maintaining hazardous materials handling procedures to prevent the release of wastes and hazardous materials used at the site.
- Limit fugitive dust in a manner that maintains adequate soil moisture while also not generating conditions of puddling or runoff.

- Implement spill prevention and control measures to identify the proper storage and handling techniques of fuels and lubricants, and the procedures to follow in the event of a spill.

Surface waters could be directly affected by the proposed HDD process during construction if inadvertent fluid migrations (frac-outs) occur. As described in greater detail in the HDD Execution Plan in Appendix B (Brotherton Pipeline 2022), the drilling fluid used would be composed of nontoxic compounds such as bentonite clay, among other measures. To avoid potential frac-outs to the extent feasible, the HDD contractor would monitor pressure in the drilling operation using electronic sensors and would mathematically model the appropriate drilling fluid volume to maintain appropriate pressure. In addition, the HDD contractor would implement an Inadvertent Release Contingency Plan (**MM HAZ-2**), and the HDD construction crew would include appropriately trained personnel and the equipment necessary to minimize any impacts from potential frac-outs. Terrestrial monitoring would detect frac-outs to engage containment activities. Drilling fluid is proposed in the draft plan for containment within a bermed area near the drilling rig to prevent fluid releases, and the rig would use a drilling fluid reclamation system. The Inadvertent Release Contingency Plan would be implemented to contain drilling fluid and prevent water quality contamination.

During Phase 2, the Project would temporarily disturb less than 0.25 acre of the substrate within the Petaluma River by using a barge-mounted dipper dredge to remove up to 1,500 cubic yards of overburden material from above the existing subsurface pipelines. This activity could generate turbidity and degrade water quality in the Petaluma River by releasing silt and any contaminants present within the dredged material. This impact on water quality in the Petaluma River could be significant. To reduce potentially significant water quality impacts, **MM BIO-4**: Turbidity Monitoring Plan (Section 3.4, *Biological Resources*) would be implemented. The Turbidity Monitoring Plan requires monitoring of turbidity levels and the use corrective measures to reduce turbidity during construction. Implementing **MM BIO-4** would reduce the impact of the proposed in-water construction work to a less than significant level.

Once constructed, no additional ground disturbance or surface activities would occur that could contribute to water quality impacts. Impacts on water quality during Project operation would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact

The Project would consist of installing a replacement natural gas pipeline, which would cross under the Petaluma River. The Project would not introduce additional impervious surface or alter existing groundwater recharge basins in the Project vicinity, and therefore would not interfere with groundwater recharge in this respect. Additionally, the Project does not propose to withdraw or use groundwater as part of the Project, and thus would not decrease the groundwater supply. Because the Project would not decrease groundwater supplies or interfere with groundwater recharge in the Petaluma Valley groundwater basin, the Project would not impede sustainable groundwater management. Therefore, no impact would occur.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:

i) Result in substantial erosion or siltation on or off site;

Less than Significant with Mitigation

The Project proposes to install a replacement natural gas pipeline that would cross under the Petaluma River. The process would not introduce new impervious surfaces in the Project site. As discussed under Criterion a), the Project would include ground-disturbing earthwork including earthmoving, trenching, grading, and HDD. These activities could increase the susceptibility of soils on the Project site to erosion or siltation on- or off-site. If not controlled and managed, the impact of soil erosion could be significant. As also discussed above, the Project would implement mitigation to ensure preparation of a SWPPP (**MM HYD-1**), consistent with the NPDES Construction General Permit requirements. The SWPPP would include BMPs designed to control and reduce soil erosion. The BMPs may include dewatering procedures, stormwater runoff quality control measures, watering for dust control, and the construction of silt fences, as needed. During construction-related activities, the soil would be compacted to further reduce soil erosion. With the implementation of **MM HYD-1** the Project impacts to water quality due to substantial erosion or siltation would be less than significant.

Siltation and erosion is discussed under a) (above). The in-water work to remove the existing pipelines during Phase 2 would be limited to the existing and proposed easements and would not alter the course of the Petaluma River or otherwise alter drainage patterns. Once constructed, the staging areas on the north and south sides of the river would be restored to their preconstruction condition. With no major changes to the existing drainage pattern proposed, the impact relative to erosion or siltation would be less than significant.

ii) Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;

Less than Significant Impact

As discussed above under Criterion b), the Project would not introduce new impervious surfaces. Therefore, Project activities would not increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The impact would be less than significant.

iii) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

Less than Significant Impact

As discussed above under criterion b), the Project would not introduce new impervious surfaces. Therefore, Project activities would not create or contribute runoff water that would exceed the capacity of the existing stormwater drainage system. Additionally, because the Project does not propose to store any hazardous materials or other pollutants, the Project would not contribute to any polluted runoff. The impact would be less than significant.

iv) Impede or redirect flood flows?

Less than Significant Impact

As discussed in Section 3.11.1.3, *Flooding*, the Project is within the 100-year floodplain as designated on the FEMA FIRM for the area. However, the Project would not introduce new impervious surfaces or appreciably change the existing drainage pattern as part of the pipeline installation. The impact related to flood flows would be less than significant.

D) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less than Significant Impact

As discussed in Section 3.11.1.3, *Flooding*, the Project is within the 100-year floodplain as designated on the FEMA FIRM for the area. However, the Project does not propose to store any hazardous materials or other pollutants that could be introduced into the Petaluma River during a flooding event. Additionally, as discussed in Section 3.11.1.4, *Tsunami and Seiche*, the Project is not within a tsunami or seiche hazard area. Therefore, the impact related to flood hazard, tsunami, or seiche zones would be less than significant.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant with Mitigation

As discussed above under criterion b), the Project would not substantially increase impervious surface area; thus, the existing groundwater recharge capability would be maintained with the Project. The Project would not require the use of surface water or groundwater resources. Therefore, the Project would be consistent with sustainable management of groundwater resources.

The Project would include soil-disturbing activities during construction and would be subject to the terms and conditions of the Construction General Permit.

MM HYD-1 would ensure that a SWPPP is prepared in advance of construction and implemented as required. As discussed under Criterion a) and described in Section 3.4, *Biological Resources*, without additional measures in place to contain the silt, sediment, and other contaminants during pipeline removal, a potentially significant impact could occur, which would compromise existing beneficial uses identified in the Basin Plan. **MM BIO-4**, which would monitor turbidity in the Petaluma River, is required to address this impact. **MM HAZ-2** would require finalization of the Inadvertent Release Contingency Plan. With adherence to these mitigation measures including the conditions stipulated by the SWPPP and the permits in place for the Project site, the Project would not result in water quality violations or conflicts with the Basin Plan. Project impacts relative to the water quality control plan and sustainable groundwater management plan would be reduced to a less than significant level with mitigation.

3.11.4 Mitigation Summary

Implementation of the following MMs would reduce potential Project-related impacts on hydrology and water quality to less than significant.

MM HYD-1: Stormwater Pollution Prevention Plan.

MM HAZ-2: Inadvertent Release Contingency Plan (see Section 3.10, *Hazards and Hazardous Materials*).

MM BIO-4: Turbidity Monitoring Plan (see Section 3.4, *Biological Resources*).

3.12 LAND USE AND PLANNING

LAND USE AND PLANNING – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.12.1 Environmental Setting

The Project site consists of the Petaluma River channel and two upland work areas, both located within Sonoma County. The northern work area is north of the Petaluma River within and adjacent to Shollenberger Park in the city of Petaluma, designated by the City of Petaluma General Plan as Open Space/Park and Civic Facilities (City of Petaluma 2022a). The southern work area, south of the Petaluma River, is zoned as Land Extensive Agriculture. Both work areas are within the 100-year floodplain (Permit Sonoma 2022).

3.12.2 Regulatory Setting

No federal or state regulations pertaining to land use and planning are relevant to the Project. At the local level, the following land use and planning guidance from the Sonoma County General Plan (Sonoma County 2008a) and City of Petaluma General Plan (City of Petaluma 2021a) is relevant to the Project.

3.12.2.1 Sonoma County General Plan

Policy for Land Extensive Agricultural Areas

Purpose and Definition. This category shall enhance and protect lands capable of and generally used for animal husbandry and the production of food, fiber, and plant materials. Soil and climate conditions typically result in relatively low production per acre of land. The objective in land extensive agricultural areas shall be to establish and maintain densities and parcel sizes that are conducive to continued agricultural production.

Permitted Uses:

1. Agricultural production, agricultural support uses, and visitor serving uses as provided in the Agricultural Resources Element.
2. Agricultural Employee Housing. Farm worker, farm family, and other employee housing as defined in the Agricultural Resource Element.
3. Other Resource Uses. Surface mining operations consistent with the Aggregate Resources Management Plan. Operations are subject to standards of the Surface Mining and Reclamation Ordinance.
4. Residential Uses. In addition to the permitted residential densities below, existing campgrounds or recreational vehicle parks may be used for long term residential occupancy only as part of a pilot program.
5. Other Uses. Other uses consistent with the Agricultural Resources Element as provided in the Development Code.

3.12.2.2 City of Petaluma General Plan

Goal 1-G-2: Land Use. Maintain a balanced land use program that meets the long-term residential, employment, retail, institutional, education, recreation, and open space needs of the community.

3.12.3 Impact Analysis

a) Physically divide an established community?

No Impact

The nearest community to the Project site (within the city of Petaluma) is immediately northwest of the northern work area. Shollenberger Park would be temporarily closed during the Project's construction period, but the Project would not permanently affect or otherwise divide the community. The Project would not involve the installation of any new buildings, fences, or roadways, nor would it obstruct roadways or bicycle paths that currently connect the community. The temporary closure of the park for public safety during construction would temporarily limit community access to the park, but no permanent aboveground structures (fences or other impediments) that could physically divide an established community would be installed in the park. Therefore, no impact would occur.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact

New pipeline segments would be installed adjacent to the existing line, and welding and pipe-stringing are proposed to occur on the south side of the Petaluma River within the limits of construction for the Project. The temporary use during pipeline replacement construction would not conflict with existing permitted uses. No change to land use or zoning is proposed and there would be no conflicts with any land use plans, policies, or regulations. Therefore, no impact would occur.

3.12.4 Mitigation Summary

The Project would not result in significant impacts related to land use and planning; therefore, no mitigation is required.

3.13 MINERAL RESOURCES

MINERAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<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"/>

3.13.1 Environmental Setting

Multiple information sources were consulted to determine the presence or absence of mineral resources in the study area. These sources included the Mineral Resources Data System (MRDS), administered by the U.S. Geological Survey (USGS). The MRDS provides data describing mineral resources, including deposit name, location, commodity, deposit description, production status, and references, and can be used to confirm the presence or absence of existing surface mines, closed mines, occurrences/prospects, and unknown or undefined mineral resources. According to available MRDS data, there are no significant mineral resources at the Project site or in the area (USGS 2022).

The California Geological Survey (CGS) maps and regulates the locations of potential mineral resources in California consistent with the Surface Mining and Reclamation Act. To protect these potential mineral resources, CGS has classified the regional significance of mineral resources into Mineral Resources Zones (MRZs) and mapped them. A designation of MRZ-2 indicates an area where adequate information indicates that significant mineral deposits are present, or there is a high likelihood of their presence and development should be controlled (Miller et al. 2005). The Project site is not within an area that has been designated as MRZ-2 (Miller et al. 2005).

The California Geologic Energy Management Division (CalGEM)¹⁸ provides oversight of the oil, natural gas, and geothermal industries, and regulates the drilling, operation, and permanent closure of energy resource wells. CalGEM's online mapping application, Well Finder, was reviewed to determine the presence of any oil, gas, or geothermal resources on and around the Project site. Well Finder data indicate that there are no significant resources at or near the Project site (CalGEM 2022).

3.13.2 Regulatory Setting

Federal and state laws and regulations pertaining to mineral resources that are relevant to the Project are identified in Appendix A. At the local level, the following objectives from the Open Space and Resource Conservation Element of the Sonoma County General Plan are applicable to the Project (Sonoma County 2008).

3.13.2.1 Sonoma County General Plan

Objective OSRC-13.1: Use the [Aggregate Resources Management] ARM Plan to establish priority areas for aggregate production and to establish detailed policies, procedures, and standards for mineral extraction.

Objective OSRC-13.2: Minimize and mitigate the adverse environmental effects of mineral extraction and reclaim mined lands.

3.13.3 Impact Analysis

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

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

According to the review of available data from USGS, CGS, CalGEM, and Sonoma County, there are no significant mineral resources at the Project site, nor would the Project result in the loss of availability of any mineral resource in the area. Additionally, Project activities would not result in the loss of availability

¹⁸ Formerly known as the California Division of Oil, Gas, and Geothermal Resources.

of any known mineral resources or locally important mineral resources. Therefore, no impact on mineral resources would occur.

3.13.4 Mitigation Summary

The Project would not result in significant impacts on mineral resources; therefore, no mitigation is required.

3.14 NOISE

NOISE – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generate excessive ground-borne vibration or ground-borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.14.1 Environmental Setting

3.14.1.1 Noise Background

Sound is energy transmitted by pressure waves through a medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not

consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The *sound pressure level*, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when potential noise impacts are assessed, sound is measured using an electronic filter that deemphasizes frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies relative to mid-range frequencies. This method of frequency weighting is referred to as *A-weighting* and is expressed in units of A-weighted decibels (dBA).

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A *noise level* is a measure of noise at a given instant in time. However, noise levels rarely persist consistently over a long period of time. In fact, community noise varies continuously with time with respect to the contributing sound sources of the community noise environment.

Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. Background noise levels change throughout a typical day, but they do so gradually, corresponding to the addition and subtraction of distant noise sources and atmospheric conditions. The addition of short-duration, single-event noise sources (e.g., flyovers by helicopters and other aircraft, horns, sirens) makes community noise constantly variable throughout a day.

These successive additions of sound to the community noise environment cause the community noise level to vary from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The following noise descriptors are discussed in this analysis:

Leq: The *equivalent sound level*, which is used to describe noise over a specified period of time in terms of a single numerical value. The L_{eq} is

the constant sound level that would contain the same acoustic energy as the varying sound level during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.

Effects of Noise on People

There is no universally acceptable way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important means of predicting a human reaction to a new noise environment is to identify how the new noise compares to the existing noise levels to which one has adapted: the so-called "ambient noise" level. In general, the more a new noise exceeds the previous ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise levels, the following relationships occur (Caltrans 2013):

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived.
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference when the change in noise is perceived but does not cause a human response.
- A change in level of at least 5 dB is required before any noticeable change in human response would be expected.
- A 10-dB change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. A ruler is a linear scale: It has marks on it corresponding to equal quantities of distance. One way of expressing this is to say that the ratio of successive intervals is equal to 1. A logarithmic scale is different, in that the ratio of successive intervals is not equal to 1. Each interval on a logarithmic scale is some common factor larger than the previous interval. A typical ratio is 10, so that the marks on the scale read 1, 10, 100, 1,000, 10,000, etc., doubling the variable plotted on the x-axis. The human ear perceives sound in a nonlinear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive

fashion; rather, they combine logarithmically. For example, if two identical noise sources were to produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Sound level naturally decreases with more distance from the source. This basic attenuation rate is referred to as the *geometric spreading loss*. The basic rate of geometric spreading loss depends on whether a given noise source can be characterized as a point source or a line source. Point sources of noise, including stationary mobile sources such as idling vehicles or on-site construction equipment, attenuate (lessen) at a rate of 6 dB per doubling of distance from the source. In many cases, noise attenuation from a point source increases by 1.5 dB, from 6 dB to 7.5 dB, for each doubling of distance as a result of ground absorption and reflective wave canceling. These factors are collectively referred to as *excess ground attenuation*. The basic geometric spreading loss rate is used where the ground surface between a noise source and a receiver is reflective, such as parking lots or a smooth body of water. The excess ground attenuation rate (7.5 dB per doubling of distance) is used where the ground surface is absorptive, such as soft dirt, grass, or scattered bushes and trees.

Widely distributed noises such as a street with moving vehicles (a “line” source) typically would attenuate at a lower rate, approximately 3 dB for each doubling of distance between the source and the receiver. If the ground surface between source and receiver is absorptive rather than reflective, the nominal rate increases by 1.5 dB, to 4.5 dB for each doubling of distance. Atmospheric effects, such as wind and temperature gradients, can also influence noise attenuation rates from both line and point sources of noise. However, unlike ground attenuation, atmospheric effects are constantly changing and difficult to predict.

3.14.1.2 Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration.

The *peak particle velocity* (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts on buildings. Although PPV is appropriate for evaluating building damage, it is less suitable for evaluating human response. Sensitive receptors to vibration include people (especially residents, the elderly, and sick people),

structures (especially older masonry structures), and vibration-sensitive equipment.

Human response is better related to the average vibration amplitude. The *root mean square (RMS) amplitude* is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (shown in vibration decibels [VdB]) is commonly used to express RMS. The decibel notation acts to compress the range of numbers required to describe vibration, as numbers can differ over several orders of magnitude. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration (FTA 2018). Vibration decibels are established relative to a reference quantity, typically 1×10^{-6} inches per second (in/sec).

3.14.1.3 Sensitive Receptors

Human response to noise varies considerably from one individual to another. At various levels, noise can interfere with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered the most sensitive to noise. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate, are also sensitive to noise. Commercial and industrial sites are generally considered the least noise-sensitive locations.

The area surrounding the Project site includes primarily open space land uses. No sensitive receptors are located in the immediate vicinity of the Project site. The closest residences are the Azure Apartment Homes, approximately 2,700 feet northwest of the northern work area. The River Montessori Charter School and Cypress Secondary School are located approximately 0.5 mile from the Project's northern work area. The Spring Hill School is located approximately 1.5 miles east of the Project's southern work area.

3.14.2 Regulatory Setting

Federal and state laws and regulations pertaining to noise that are relevant to the Project are identified in Appendix A. At the local level, the following goal, policies, and programs from the general plans and municipal codes of Sonoma County and the City of Petaluma are applicable to the project.

3.14.2.1 Sonoma County General Plan

The Noise Element of the Sonoma County General Plan (Sonoma County 2012) includes the following applicable goal:

Goal NE-1: Protect people from the harmful effects of exposure to excessive noise and to achieve an environment in which people and land uses may function without impairment from noise.

The intent of this goal is to protect persons from existing or future excessive levels of noise that interfere with sleep, communication, relaxation, health, or legally permitted use of property. Noise-sensitive areas include residences, schools, hospitals, other medical care facilities, and other uses deemed noise sensitive by the local jurisdiction.

The current version of the Sonoma County General Plan does not specifically address intermittent or short-term construction noise.

Sonoma County Municipal Code

The Sonoma County Municipal Code does not contain any noise standards that would apply to the Project.

City of Petaluma General Plan

The Health and Safety Element of the City of Petaluma General Plan (City of Petaluma 2021a) contains the following policy and program applicable to the Project:

Policy 10-P-3: Protect public health and welfare by eliminating or minimizing the effects of existing noise problems, and by minimizing the increase of noise levels in the future.

Program D: Continue to require control of noise or mitigation measures for any noise-emitting construction equipment or activity. The City's Noise Ordinance establishes controls on construction-related noise.

City of Petaluma Municipal Code

Chapter 17.31, Grading and Erosion Control, Section 17.31.250, General Regulations, Part C, states that work must be controlled to prevent causing a public nuisance due to dust, noise, vibration, etc. (City of Petaluma 1984).

3.14.3 Impact Analysis

a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact

The Project would generate noise during construction as discussed below. Once operational, the Project would not include any new on-site noise sources or additional vehicle trips for maintenance. Therefore, there would be no noise impacts once the Project is complete.

Construction of the Project is anticipated to occur over a 5-month period in 2023. Project construction activities are detailed in Section 2.2.2 of Chapter 2, *Project Description*, and would include the following:

- Mobilization and access road improvements (10 days).
- Upland trench excavation and replacement pipeline installation (42 days).
- Pipeline welding and fabrication (23 days).
- HDD/reaming (16 days).
- Replacement Pipeline Pullback (1 day).
- Strength testing (10 days).
- Clearance and tie-in (1 day).
- Existing Pipeline removal (10 days).
- Backfilling and site restoration, and demobilization (17 days).

Construction would occur up to 6 days a week and up to 16 hours a day, if necessary for continuity of HDD processes. Work would not occur on Sundays or holidays.

Construction would involve the use of equipment such as air compressors, air dryers, sideboom pipelayers, excavators with and without mounted vibrators for sheet pile installations, flatbed trucks, water trucks, dump trucks, loaders, graders, rollers, welding rigs, an HDD rig, mud pumps, and vacuum trucks. This equipment would generate substantial noise in and adjacent to construction areas. Construction within the Petaluma River would involve the use of a barge-mounted dipper dredge, barges to transport spoils, two barge-mounted cranes, and a tugboat. Noise impacts from construction would depend on the type of

activity being undertaken and the distance to the sensitive receptor locations. Construction noise impacts are most severe if work takes place during the noise-sensitive hours (early morning, evening, or nighttime), in areas immediately adjoining noise-sensitive land uses, or when construction continues for extended periods of time.

Table 3.14-1 identifies the noise levels typically produced by the types of construction equipment that are expected to be used during Project construction.

Table 3.14-1. Typical Noise Levels from Construction Equipment

Type of Equipment	L_{\max} at 50 feet, dBA	Acoustical Usage Factor (%)	L_{eq} at 50 feet, dBA
Air Compressor	80	40	76
Auger Drill Rig	85	20	78
Backhoe	80	40	76
Compactor	80	20	73
Crane	85	16	77
Dozer	85	40	81
Dump Truck	84	40	80
Excavator	85	40	81
Excavator Mounted Vibrator	101	20	94
Flatbed Truck	84	40	80
Front-End Loader	80	40	76
Grader	85	40	81
Pickup Truck	75	40	71
Pumps	77	50	74
Scraper	85	40	81
Welders	73	40	69
All Other Equipment > 5 hp	85	50	82

NOTES: dBA = A-weighted decibels; hp = horsepower; L_{\max} = the instantaneous maximum noise level measured during the measurement period of interest; L_{eq} = the equivalent sound level over a specified period of time; acoustical usage factor = the fraction of time that the equipment operates at full power and generates noise at the maximum level.

SOURCE: Federal Highway Administration (FHWA) 2017.

The operation of each piece of off-road equipment at the Project site would not be constant throughout the day; equipment would be turned off when not in use, and when in use each piece of construction equipment operates at an average fraction of the full power (i.e., its loudest condition). This is accounted for in the acoustical usage factor for each type of equipment, also shown in Table 3.14-1. Over a typical workday, equipment would operate at different locations on the Project site and would not always operate concurrently. Because Sonoma County does not specify any construction noise standards in its general plan or municipal code, U.S. EPA's speech interference standards have been used. A speech interference threshold, in the context of impact duration and time of day, is used to identify substantial increases in noise from temporary construction activities.

This analysis assumes noise peaks generated by construction equipment could result in speech interference in nearby buildings if the noise level in the interior of the buildings exceeds 45 dBA. A typical building can reduce noise levels by approximately 25 dBA with the windows closed (EPA 1974). This noise reduction could be maintained only on a temporary basis in some cases, since it assumes windows must remain closed at all times. Assuming a 25 dBA reduction with the windows closed, an exterior noise level of 70 dBA L_{eq} would maintain an acceptable interior noise environment of 45 dBA during the day and evening hours. In addition to the magnitude of noise, the duration of exposure at any given noise-sensitive receptor is an important factor in determining the significance of an impact. Generally, temporary construction noise that occurs during the day for a relatively short period of time would not be significant because most people of average sensitivity who live in suburban or rural agricultural environments are accustomed to a certain amount of construction activity or heavy equipment noise from time to time. Therefore, an exterior noise level that exceeds 70 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) is used as the threshold for substantial construction noise.

Based on available data, an interior nighttime level of 35 dBA is considered acceptable for sleeping (EPA 1974). Assuming a 25 dBA reduction with the windows closed, an exterior noise level of 60 dBA would maintain an acceptable interior noise environment of 35 dBA at night. Therefore, a significant impact would occur if the Project were to generate exterior noise levels above the 60 dBA L_{eq} sleep interference threshold during the nighttime hours (10:00 p.m. to 7:00 a.m.) for one or more nights.

The daytime construction noise levels to which the closest sensitive receptors would be exposed were estimated in a manner consistent with FTA's recommended methodology (FTA 2018). Specifically, the two noisiest pieces of equipment used for Project construction were assumed to operate simultaneously at the Project site boundary closest to the nearest sensitive receptor. Because the excavator mounted vibrator (used for sheet pile installation) is the noisiest piece of construction equipment proposed for use by the Project, daytime noise levels were estimated assuming the simultaneous operation of an excavator mounted vibrator and an excavator. Using the geometric spreading loss basic attenuation rate (i.e., a loss of 6 dBA with each doubling of distance) and the combined L_{eq} reference noise levels for these two loudest pieces of equipment at 50 feet, the noise level at the nearest sensitive receptors approximately 2,700 feet from this activity would be up to 59 dBA L_{eq} , well below the speech interference standard of 70 dBA for daytime and below the nighttime sleep interference threshold of 60 dBA. Therefore, noise impacts from construction equipment used at the Project site would be less than significant.

In addition to construction equipment, construction vehicles transporting workers and materials to and from the Project site would generate noise. During peak construction activities, up to 40 workers would be on-site, generating up to 80 trips per day, and up to 20 additional truck trips per day would occur to deliver construction materials. These trips would be distributed throughout the day and are not likely to result in a perceptible increase in roadside noise levels. A doubling of traffic generally results in a 3 dBA increase in the associated noise level; a 3 dBA increase in noise is barely perceptible to the human ear (Caltrans 2020). Therefore, the addition of 80 worker trips and 20 truck trips distributed throughout the day would not cause a perceptible increase in traffic noise levels along roadway segments leading to the Project site. Construction vehicle trips to and from the Project site would also occur during the less noise-sensitive daytime hours. Therefore, the impact would be less than significant.

The Project would not increase operation and maintenance activities at the site and therefore would not result in an increase in associated noise levels over existing conditions. There would be no impact during Project operations.

b) Generate excessive ground-borne vibration or ground-borne noise levels?

Less than Significant Impact

Construction activity can result in varying degrees of groundborne vibration, depending on the type of soil, equipment, and methods employed. The

operation of construction equipment can cause ground vibrations that spread through the ground and diminish in strength with distance. Buildings on the soil near the construction site respond to these vibrations with varying results, ranging from no perceptible effects at the lowest levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight damage at the highest levels. Although ground vibrations from construction activities do not often reach levels that can damage structures, fragile buildings must receive special consideration.

There are no structures of historical significance in the vicinity of the Project site (see Section 3.5, *Cultural Resources*, for additional details about historic resources). The nearest non-residential structure is located approximately 350 feet west of the Project alignment in the city of Petaluma.

As detailed in Appendix A, FTA and the California Department of Transportation (Caltrans) have adopted standards that are used to evaluate potential impacts of vibration on sensitive receiving land uses. FTA identifies 0.2 in/sec PPV as the level at which vibration has the potential to damage conventionally constructed buildings. Caltrans identifies 0.24 in/sec PPV as the level at which vibration is distinctly perceivable by humans.

Construction vibration may generate perceptible vibration when impact equipment or heavy earthmoving equipment is used. Table 3.14-1 identifies the construction equipment likely to be used during Project construction. According to FTA, the types of construction equipment that generate the most vibration are impact and sonic (vibratory) pile drivers, vibratory rollers, drill rigs, bulldozers, loaded trucks, and jackhammers. Of the equipment types listed in Table 3.14-1, excavator mounted vibrators would generate the highest levels of vibration. Using groundborne vibration levels for the standard types of construction equipment published by FTA, the operation of an excavator mounted vibrator for sheet pile installation would generate a vibration level of up to 0.734 in/sec PPV at 25 feet (FTA 2018). The attenuated vibration level at the nearest structure would be 0.04 in/sec, which would be well below the vibration thresholds of 0.2 in/sec for building damage and 0.24 in/sec for human annoyance. Therefore, operation of construction equipment would result in less than significant vibration impacts at nearby structures. Vibration impacts from other equipment used would be lower. Further, the operation and location of each piece of construction equipment at the Project site would not be constant throughout the day and over the construction period; equipment would operate at different locations within the site and would not always operate

concurrently. Consequently, vibration levels during most of the construction period at the nearest off-site residences would be much lower. Therefore, groundborne vibration impacts during construction would be less than significant.

Once the Project is complete, there would not be any new sources of vibration. Therefore, ongoing impacts related to groundborne noise and vibration would not occur.

c) Be located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?

Less than Significant Impact

Portions of the Project would be located within 2 miles of an airport. Petaluma Municipal Airport is approximately 1.8 miles north-northwest of the northern work areas off Shollenberger Park Road. However, the proposed Project would not involve the development of noise-sensitive land uses that would be exposed to excessive aircraft noise. Workers that would construct the Project may be exposed to periodic short-term aircraft overflight noise associated with this airport; however, the average construction activity noise levels that the workers would be exposed to would be far greater than the average overflight noise levels that they would be exposed to. Therefore, impacts related to exposing workers to excessive noise levels from an airport would be less than significant.

3.14.4 Mitigation Summary

The Project would not result in significant impacts related to noise and vibration; therefore, no mitigation is required.

3.15 POPULATION AND HOUSING

POPULATION AND HOUSING – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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"/>

3.15.1 Environmental Setting

According to the U.S. Census Bureau, Sonoma County had a population of about 489,000 in 2020. This reflects an increase of about one percent from the county's population in 2010 (U.S. Census Bureau 2022a). In addition, the city of Petaluma had a population of about 60,000 in 2020. This reflects an increase of about 3.5 percent from the city's population in 2010, representing a much greater rate of population increase than in the county as a whole over the same time period (U.S. Census Bureau 2022b). The Project site is largely surrounded by agricultural land, although some housing is located less than a mile to the west (Sonoma County PRMD 2022).

3.15.2 Regulatory Setting

No federal, state, or local laws related to population and housing are applicable to the Project. Because the Project is a pipeline replacement project and does not involve a change in land use, no local goals, objectives, or policies related to population and housing are applicable to Project activities.

3.15.3 Impact Analysis

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 Project does not propose new homes or businesses, and therefore would not induce population growth directly. The Project consists of replacing a portion of an existing natural gas pipeline, and it would neither increase natural gas service capacity nor extend natural gas service into new areas. Therefore, the Project would not induce growth indirectly. No impact would occur.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact

The Project would not displace any housing or create long-term demand for housing. Construction workers and other field personnel involved with pipeline replacement may slightly increase the demand for temporary housing (e.g., hotels or rental housing). However, the demand would be temporary (a few months) and limited, based on the small number of personnel involved with Project activities during any given phase. The Project would not generate a need for additional housing, generate new permanent jobs in the region, or displace existing housing or owners/tenants. Therefore, no impact would occur.

3.15.4 Mitigation Summary

The Project would not result in significant impacts related to population and housing; therefore, no mitigation is required.

3.16 PUBLIC SERVICES

PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project 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 type="checkbox"/>	<input checked="" type="checkbox"/>
Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

3.16.1 Environmental Setting

3.16.1.1 Fire Protection

The Project site is within the jurisdiction of the City of Petaluma Fire Department, is located within a California Department of Forestry and Fire Protection Local Responsibility Area and is surrounded by areas of moderate to high fire hazard severity (CAL FIRE 2022b). The City of Petaluma Fire Department has three stations and covers 184 square miles of land. There are 58 paid personnel on staff, who operate three engines, one aerial ladder truck, and two paramedic advanced life support ambulances (City of Petaluma Fire Department 2022). Station 1 is the closest fire station to the Project site. The station is located at 198 East D Street, approximately 2.2 miles to the northwest.

3.16.1.2 Police Protection

The Project site is served by the City of Petaluma Police Department and is located in District 15 of the service area. District 15 is served by two officers, one traffic officer, one beat sergeant, one lieutenant, one deputy chief, and one chief (City of Petaluma Police Department 2022). The California Highway Patrol also provides police protection to the Project site.

3.16.1.3 Schools

The area surrounding the Project site is served by Petaluma City Schools, which has a total of 16 elementary and secondary schools serving 7,200 students (Petaluma City Schools 2022).

3.16.1.4 Parks

The nearest park to the Project site is Shollenberger Park, which is located directly north of the site and would act as the northern work area for Project construction. In addition, Riverview Park is located approximately 1.2 miles to the west, and Del Oro Park is located approximately 1.1 miles to the north. Impacts on parks are discussed in Section 3.17, *Recreation*.

3.16.2 Regulatory Setting

Because the Project is a pipeline replacement project, does not involve a change in land use, and would not introduce new residents or structures. No local goals, policies, or regulations related to public services are applicable to the Project.

3.16.3 Impact Analysis

a) Would the Project 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, or other public facilities?

No Impact

The Project is a short-term pipeline replacement project and does not propose the construction of any residences, buildings, or other land uses that would require public services. The Project would not generate a need for any new government facilities or public services during or after the completion of Project activities. Once the Project is complete, the Project site, access roads, and the Petaluma River would be returned to pre-Project conditions. Therefore, no impact would occur.

3.16.4 Mitigation Summary

The Project would not result in significant impacts on public services; therefore, no mitigation is required.

3.17 RECREATION

RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 interfere with existing use of recreational fishing and boating opportunities?*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE:

* CSLC has chosen to analyze this impact in addition to the impact analyses set forth in CEQA Guidelines Appendix G. Although the use of the Appendix G checklist meets the requirements for an initial study, "public agencies are free to devise their own format." (CEQA Guidelines Section 15063[f].)

3.17.1 Environmental Setting

Project construction would occur in identified work areas north and south of the Petaluma River, including within portions of Shollenberger Park. Shollenberger Park is the largest city-owned park in Petaluma at more than 160 acres, and is the city's most frequently visited park, with more than 150,000 visits per year (City of Petaluma 2022b; Templeton 2020). The park provides several miles of popular paved and graveled paths, most of which are wheelchair-accessible; a fishing pier; bird-watching opportunities; and views of the Petaluma River.

The Petaluma River runs from the northwest side of Petaluma eastward through Shollenberger Park to San Pablo Bay. The river offers a variety of recreational activities such as birdwatching, boating, and fishing. There are no boat ramps or beaches at or near the Project site; the Petaluma Marina is located about

3,000 feet northwest of the Project site, and the Lakeville Landing Marina is located about 3 miles to the southeast.

According to the City of Petaluma General Plan, Petaluma provided approximately 5.1 acres of developed parks (community parks, neighborhood parks, pocket parks, and urban separators) per 1,000 residents as of 2005. By 2025, at the buildout of the City of Petaluma General Plan, more than 1,400 acres of land—19.5 acres per 1,000 residents—will be designated for recreation (developed parks and undeveloped open space) (City of Petaluma 2021a). As of 2021, the City of Petaluma owned and operated 56 parks, open spaces, and recreational facilities (City of Petaluma 2021c).

In addition, there are several regional parks in Petaluma owned and maintained by the Sonoma County Regional Parks Department. Helen Putnam Regional Park, southwest of Petaluma, offers a 6-mile trail system used for hiking, biking, and equestrian activities (Sonoma County 2022a). Tolay Lake Regional Park, 8 miles southeast of downtown Petaluma, is the largest regional park in Sonoma County, with 3,400 acres. It provides an expansive trail network for hiking and mountain biking, horse facilities, and picnic tables (Sonoma County 2022b).

3.17.2 Regulatory Setting

Federal and state laws and regulations pertaining to recreation that are relevant to the Project are identified in Appendix A. At the local level, the following policies of the City of Petaluma General Plan related to recreation are applicable to the Project. Because the portion of the site in unincorporated Sonoma County is private land and not utilized for public recreational purposes, there are no Sonoma County General Plan policies that would be applicable to the Project.

3.17.2.1 City of Petaluma General Plan

Policy 1-P-44: Develop the Petaluma River as a publicly accessible green ribbon, fronted by streets, paths, access points, and open spaces, by implementing the Petaluma River Access and Enhancement Plan within the context of the PRC [Petaluma River Corridor] Design Standards.

Policy 1-P-45: Development along the River shall include the creation and maintenance, in perpetuity, of public access sites. Amenities provided may include ramps, steps, docks or other means of access to the water.

Policy 6-P-6: Achieve and maintain a park standard of 5 acres per 1,000 residents (community park land at 3 acres per 1,000 population and neighborhood park land at 2 acres per 1,000 population) and an open space/urban separator standard of 10 acres per 1,000 population, in order to enhance the physical environment of the city and to meet the recreation needs of the community.

- A. Revise the City's park in lieu fees/dedication requirements to achieve the General Plan standard of 5 acres per 1,000 residents (community park land at 3 acres per 1,000 population and neighborhood park land at 2 acres per 1,000 population).

3.17.3 Impact Analysis

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?

Less than Significant with Mitigation

An increase in the use of recreational facilities is typically associated with a substantial increase in population or a substantial reduction in the availability of existing parks or other recreational facilities. The Project would not result in any population growth in the area, as described in Section 3.15, *Population and Housing*, and therefore would not permanently increase the use of any existing recreational facilities.

The Project's northern work area would temporarily occupy approximately 14 acres in the southeast corner of Shollenberger Park. The use of this work area and the need to use park access roads for construction would require the temporary closure of the park. Closing Shollenberger Park for 5 months would temporarily increase the use of surrounding parks in the area. The park experiences more than 150,000 visits per year, or an average of approximately 400 visits per day. (As is the case for most local parks, use is likely greater on weekends than on weekdays.) Assuming that these visits are spread equally throughout the year, a 5-month closure of the park would displace nearly 63,000 visits.

Shollenberger Park is used mostly for passive recreational uses such as walking, bicycling, and nature viewing. People who would normally visit Shollenberger Park may be displaced to regional parks such as Helen Putnam and Tolay Lake because these parks offer similar passive recreational opportunities and trails.

The Ridge Trail at Helen Putnam Regional Park has a paved option that connects its parking lot with Cattail Pond, but this trail does not meet Americans with Disabilities Act (ADA) accessibility standards because it is very steep (Sonoma County 2022a). At Tolay Lake Regional Park, several trails meet ADA accessibility standards for width and slope (Sonoma County 2022b). Several other options for walking and bicycling trails are available in the Petaluma area, and it is anticipated that most visitors displaced from Shollenberger Park would use these alternative trails during the closure.

It is unlikely that all Shollenberger Park users would decide to use the same alternative recreational sites. However, even if visitors were to disperse to other parks in the area, the temporary increase in use could be noticeable and cause physical deterioration of those resources. For example, increased use of parking lots could displace some vehicles to roadside parking; demands for restroom, garbage, and pet waste removal services could increase, and park facilities could experience increased wear and tear. This impact would be significant.

MM REC-1 would be implemented to reduce this significant impact. In consultation with the city and county parks departments, this mitigation measure requires the development of a plan to increase services at other Petaluma-area parks throughout the construction-related closure of Shollenberger Park. Implementation of **MM REC-1** would reduce the impact to a less than significant level because providing additional services at Petaluma-area parks would prevent substantial deterioration of these parks during Project construction.

MM REC-1: Increased Services to Area Parks. At least 30 days before the closure of Shollenberger Park, PG&E shall submit a plan for temporarily increased services at Petaluma-area parks to CSLC, the City of Petaluma Parks and Recreation Department, and Sonoma County Regional Parks. The plan shall cover the duration of the closure of Shollenberger Park and shall identify PG&E's commitments (financial or otherwise) to ensure that substantial deterioration does not occur as a result of displaced visits from Shollenberger Park. The Plan shall also identify put-in and take-out locations for river recreation and boating during Phase 2 river closure. The plan (to be finalized with consultation of City and County Parks) may identify but not be limited to the following elements:

- Increased restroom servicing schedules
- Increased solid waste and recycling service
- Increased provision of pet waste bags and waste receptacles

- Signage to manage increased parking pressure and notify the public of alternate park locations as well as put-in and take-out locations for river recreation and boating.

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?

No Impact

The Project would not include the construction of any recreational facilities; however, the northern work area would be located at the southeast corner of Shollenberger Park. During construction, the northern work area would be used to set up a drilling rig, and Shollenberger Park Road would be widened in several locations to accommodate large equipment; therefore, Shollenberger Park would need to be temporarily closed during these activities. After construction, work areas and access roads would be restored to preconstruction conditions. Under normal circumstances, maintenance of the Project would not increase the number of on-site staff members.

Because the Project would not cause an increase in population and the construction-related closure of Shollenberger Park would be temporary, the Project would not require the construction or expansion of recreational facilities. Additionally, because Shollenberger Park would be restored to its preconstruction conditions, the Project would not have an adverse physical effect on the environment. Therefore, no impact would occur.

c) Would the project interfere with existing use of recreational fishing and boating opportunities?

Less than Significant with Mitigation

The process of dredging overburden and removing the existing 12-inch-diameter pipeline segments from the Petaluma River (see Section 2.2.2 in Chapter 2, *Project Description*) during Phase 2 would limit the public use of this stretch of the river because the river would be impassable in this location while these activities occur. This is the only phase of the Project that would require the closure of the Petaluma River, and during this time, recreational activities on the river within the work area would be restricted for about 10 days. Specifically, boating access would be restricted between points north (e.g., Petaluma Marina, downtown Petaluma Turning Basin) and south (e.g., Lakeville Marina, San Pablo Bay) of the work area. Therefore, the impact could be significant.

MMs REC-1 and REC-2 would be implemented to reduce this impact. These MMs would notify the public of identify put-in and take-out locations for river recreation and boating during Phase 2 river closure and require that local mariners be notified at least 15 days before the start of any Petaluma River closures. This would provide local marinas and mariners with adequate notice and ensure caution around the work area buffer. Implementing **MM REC-2** would reduce the impact to a less than significant level because mariners would have advance notice of closures, allowing them to reschedule and/or change the location of recreational boat use and avoid potentially dangerous conditions.

MM REC-2: Advance Notice to Mariners. All in-water activity shall be described in a Local Notice to Mariners to be submitted to the U.S. Coast Guard at least 15 days prior to Phase 2 activities. The Notice shall include:

- Type of operation (i.e., dredging, diving operations, construction).
- Location of operation, including latitude and longitude and geographical position, if applicable.
- Duration of operation, including start and completion dates (if these dates change, the U.S. Coast Guard needs to be notified).
- Vessels involved in the operation.
- VHF-FM radio frequencies monitored by vessels on the scene.
- Point of contact and 24-hour phone number.
- Chart Number for the area of operation.

3.17.4 Mitigation Summary

Implementation of the following MMs would reduce potential Project-related impacts on recreation to less than significant.

MM REC-1: Increased Services to Area Parks.

MM REC-2: Advance Notice to Mariners.

3.18 TRANSPORTATION

TRANSPORTATION – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.18.1 Environmental Setting

The north end of the Project site is accessed from the Shollenberger Park access point off of Shollenberger Park Road. Access to the south side of the Project site is provided via a private road that extends east from Petaluma Boulevard South. The nearest highways to the Project site are U.S. Highway 101, approximately 0.3 mile to the southwest, and State Route 116, approximately the same distance from the Project site to the northeast.

There are no designated bikeways in the immediate vicinity of the Project site. According to the Sonoma County Bicycle and Pedestrian Plan, the closest bikeways are an existing Class I bike route on Casa Grande Road approximately 0.8 miles northwest of the Project site, and a proposed Class II bike route on Adobe Road approximately 2.7 miles to the north (Sonoma County 2010).

The roads described above currently provide access for routine monitoring and inspection of the existing natural gas pipeline associated with the Project and would continue to be used after the Project is implemented.

3.18.2 Regulatory Setting

Federal and state laws and regulations that pertain to transportation and are relevant to the Project are identified in Appendix A. At the local level, the following policies related to transportation are applicable to the Project.

3.18.2.1 Sonoma County General Plan

Applicable policies from the Circulation and Transit Element of the Sonoma County General Plan (Sonoma County 2008c) are listed below.

Policy CT-1j: Where practical, locate and design improvements and new circulation and transit facilities to minimize disruption of neighborhoods and communities, disturbance of biotic resource areas, destruction of trees, and noise impacts.

Policy CT-1q: Monitor the effectiveness of the planned circulation and transit system on an ongoing basis. Cooperate with the Cities through the SCTA [Sonoma County Transportation Authority] to establish and maintain an ongoing countywide traffic modeling program that:

- 1) Maintains a coordinated land use database on an annual basis for cumulative impact analysis of the circulation and transit system,
- 2) Assesses the LOS [level of service] and how well-planned improvements are keeping pace with countywide growth and development,
- 3) Establishes the nexus for allocating fair share funding of regional and subregional improvements,
- 4) Identifies the impacts of projects and appropriate mitigation measures on the circulation and transit system,
- 5) Assists in the planning of detailed operation improvements in individual communities, and
- 6) Is capable of modeling weekend and off-peak travel demand in order to plan for tourism and special event traffic.

Consider the use of moratoria or other growth management measures in areas where the monitoring program shows that the LOS [level of service] objectives are not being met due to lack of improvements.

3.18.2.2 Sonoma County Comprehensive Transportation Plan

The Sonoma County Comprehensive Transportation Plan (CTP) examines the current state of transportation in the county, looks at future needs and goals, and provides information on how these needs and goals can be met. The CTP is updated frequently enough to ensure that the plan is still relevant and useful and represents the current transportation needs and goals of the SCTA and Sonoma County jurisdictions. The current CTP was updated in September 2021.

3.18.2.3 City of Petaluma General Plan

The mobility element of Petaluma General Plan identifies long range transportation needs for the City of Petaluma (City of Petaluma 2008). The following policy is relevant to the Project's transportation analysis.

5-P-5: Consider impacts on overall mobility and travel by multiple travel modes when evaluating transportation impacts.

3.18.3 Impact Analysis

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant Impact

The Project would not involve any new or modified land uses that would generate long-term vehicle trips or other features that may affect the local or regional circulation system. The Project would create a temporary source of new vehicle trips on Shollenberger Park Road and Petaluma Boulevard South during the construction period. However, these trips would take place for only a few months, and the number of Project-related vehicle trips that would occur after construction is anticipated to be comparable to the number associated with inspection of the previous pipeline. The impact related to a conflict with a program, plan, ordinance, or policy addressing the Sonoma County circulation system would be less than significant.

b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

Less than Significant Impact

CEQA Guidelines Section 15064.3(b) indicates that vehicle miles traveled is the most appropriate measure for identifying transportation impacts. In December 2018, the Governor's Office of Planning and Research (OPR) provided an

updated technical advisory to help evaluate transportation impacts under CEQA. In particular, the technical advisory screening threshold for small projects states that projects generating or attracting fewer than 110 one-way automobile trips per day may generally be assumed to cause a less than significant transportation impact (OPR, 2018).

At any given time during Project activities, no more than 40 construction workers would travel daily to the Project area (see Table 2-1 in Section 2.2.3, *Equipment and Workforce*). This would equate to up to 80 vehicle trips per day (round-trip), which is below the technical advisory's screening threshold for a significant impact. In addition, temporary increased traffic levels would result when Project equipment transports materials to and from the staging areas during construction. The number of peak trips occurring during any one day would be less than the number identified in the technical advisory's guidance. Therefore, the impact would be less than significant.

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

Less than Significant with Mitigation

Temporary staging and work areas along Project access roads would not include permanent features that would increase roadway hazards due to design or incompatible uses. Although proposed access road improvements would include construction activity that would affect roadway functioning, such activity would be temporary and would not increase hazards or incompatible uses. Additionally, riverine Project components would not permanently interfere with Petaluma River usage. As discussed in Chapter 2, *Project Description*, during dredging and the pipeline removal effort, notification and control of river traffic would be required to ensure the safety of construction while also maintaining access for water users. A notification MM for mariners (**MM-REC-2**) would be implemented to reduce effects as discussed in Section 3.17, *Recreation*. Therefore, the Project would not increase hazards due to incompatible uses, and the impact would be temporary and less than significant with mitigation.

d) Result in inadequate emergency access?

Less than Significant with Mitigation

Shollenberger Park Road and Petaluma Boulevard South provide emergency access for local communities. Both roads would be temporarily utilized during

construction to access the north work area (see Section 2.2.2.1 in Chapter 2, *Project Description*). Although no roadways would be closed during Project construction, lane closures could adversely affect emergency access. This impact would be potentially significant.

MM T-1: Traffic Control Plan would be implemented to reduce this impact. This mitigation measure would require that roadway ingress and egress be maintained to facilitate emergency access, by requiring the placement of signage indicating any temporary lane closures and rerouting, as well as the presence of flaggers in both directions to safely direct emergency access through the construction areas. Implementing **MM T-1** would reduce the impact to a less than significant level.

MM T-1: Traffic Control Plan. Before the start of Project construction activities, a traffic control plan shall be submitted to CSLC and the City of Petaluma for review and approval. The plan shall include measures such as appropriate signage, traffic cones, and flaggers to allow for emergency vehicle and property access during Project construction.

3.18.4 Mitigation Summary

Implementation of the following MMs would reduce potential Project-related impacts on transportation to less than significant.

MM T-1: Traffic Control Plan.

MM REC-2: Advance Notice to Mariners (Section 3.17, *Recreation*).

3.19 UTILITIES AND SERVICE SYSTEMS

UTILITIES AND SERVICE SYSTEMS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.19.1 Environmental Setting

For the purposes of this analysis, the study area is defined as all relevant utility or service systems (water supply, wastewater, stormwater, solid waste disposal, gas and electrical, and telecommunication utilities) that would provide service to the Project site. The Project would not include activities or permanent components that would require new or expanded water, wastewater treatment, stormwater drainage, electrical power, or telecommunications facilities; therefore, these service systems are not discussed in this section.

3.19.1.1 Solid Waste

A number of landfills are feasible for use by the Project during construction. The nearest landfill to the Project site is the Redwood Landfill in Novato, California, approximately 5 miles to the southwest. The Redwood Landfill accepts nonhazardous materials and is permitted to accept 2,310 tons of material daily (Redwood Landfill 2022). The Redwood Landfill has a remaining capacity of 26 million tons and is expected to reach its permitted capacity in 2036 (CalRecycle 2022).

The Central Landfill, owned and operated by Sonoma County, is located in the city of Petaluma, approximately 10 miles north of the Project site. The landfill accepts both hazardous and nonhazardous waste, including sludge (biosolids), construction and demolition debris, among other wastes. This landfill has a maximum permitted throughput of 2,500 tons per day and a maximum permit capacity of 32,650,000 cubic yards. Remaining capacity is estimated to be 9,181,519 cubic yards (CalRecycle 2019).

3.19.2 Regulatory Setting

Federal and state laws and regulations pertaining to utilities and service systems and relevant to the Project are identified in Appendix B. The local general plan goals are provided as follows.

3.19.2.1 Sonoma County General Plan

The Sonoma County General Plan's Public Facilities and Services Element contains the following objective related to utilities and service systems that is applicable to the Project (Sonoma County 2008b).

Objective PF-2.10: Locate and design public utility transmission, distribution, and maintenance facilities to minimize adverse effects on natural and scenic resources.

3.19.2.2 City of Petaluma General Plan

Goal 7-G-1: Public Facilities and Services. Ensure adequate public facilities and services exist and are maintained to meet the needs of the community for an array of high quality services and programs.

3.19.3 Impact Analysis

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant Impact

The Project would include the replacement of existing natural gas pipeline facilities with new pipelines and associated infrastructure to make necessary safety improvements, prevent natural gas leaks, and ensure ongoing service reliability. The environmental effects of the Project's relocation and construction of natural gas facilities is discussed and analyzed in the various resource sections of this MND along with specific measures to reduce potential impacts. Construction of the Project would require minimal water use during construction (i.e., for dust control, backfill compaction, and operation of sanitary facilities). However, this water would be trucked to the site during construction. The Project would not include activities or permanent components that would require new or expanded water, wastewater treatment, stormwater drainage, electric power, or telecommunications facilities. As described in Chapter 2, Section 2.2.2, all underground utilities would be located and verified before soil disturbance in accordance with PG&E's Dig-In Prevention Policy.

As no new or expanded utilities would be required, no significant effects would result, and impacts would be less than significant.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less than Significant Impact

Water demand for construction activities would be temporary and short term. Project construction, anticipated to last 5 months, would require the temporary use of water for dust control, and other purposes as described in Chapter 2, *Project Description*. The Project would involve installation of a replacement natural gas pipeline and is not a commercial or residential project that would require ongoing supplies. There is no long-term water demand associated with the Project. Water requirements for the Project are limited to construction activities (noted in Table 2-1) and could be accommodated using recycled water trucked to site from the adjacent Ellis Creek recycled water facility. Ground-disturbing activities on either side of the pipeline and the staging areas have the potential to generate dust, and these areas would be watered two times per day during dry-weather conditions. The Project would consist of installation of a replacement natural gas pipeline that would not generate ongoing water demand following the 5-month duration of construction. For this reason, water supply would be available to serve the Project's construction and reasonably foreseeable future development during normal, dry, and multiple dry years. The impact would be less than significant.

c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

No Impact

During Project construction, it is anticipated that portable sanitation facilities would be provided on-site for workers and would be emptied and/or replaced regularly, and sanitary waste would be disposed of properly at the Ellis Creek Water Recycling Facility or a comparable facility capable of receiving such waste. The Ellis Creek Water Recycling Facility has a capacity of 3–4 million gallons per day (City of Petaluma 2022e) and could accept waste generated by workers during the 5-month construction period. The Project involves installation of a replacement gas pipeline and would not include the ongoing generation of wastewater. The Project would not require new wastewater service connections during construction. Because the Project would not require the ongoing wastewater treatment, it would not cause any capacity

exceedances. Therefore, no impact on the wastewater treatment provider would occur.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact

The Project is not a development project, and waste would be limited, consisting mainly of HDD spoils, construction debris, and other miscellaneous wastes. Other than removal of valve lots and a segment of the existing natural gas pipeline, no demolition is proposed as part of the Project. The minimal spoils generated during the HDD process would be transported off-site for disposal at an approved disposal location, as described in Section 2.2.2.1 in Chapter 2. The nearest landfills to the Project site are the Redwood Landfill in Novato and the Central Landfill in Petaluma. These landfills have adequate remaining capacity to accept solid waste from the Project (CalRecycle 2022). Solid waste would be handled in conformance with Sonoma County solid waste management standards and the California Green Building Standards Code (CALGreen Code), which requires that nonresidential building projects recycle and/or salvage for reuse a minimum of 65 percent of their nonhazardous construction and demolition waste. Therefore, the Project would not contribute significantly to the impairment of solid waste reduction goals or generate waste such that state or local standards would be exceeded. This impact would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact

The Project would be required to comply with the CALGreen Code and the California Integrated Waste Management Act (Appendix A). As described in Chapter 2, *Project Description*, waste generated during construction would be transported to an approved disposal facility or otherwise recycled. After construction, the Project would not generate new solid waste. Solid waste would be disposed of in accordance with federal, state, and local laws and regulations as required. Therefore, the Project would not result in any conflicts with statutes and regulations regarding solid waste, and no impact would occur.

3.19.4 Mitigation Summary

The Project would not result in significant impacts related to utilities and service systems; therefore, no mitigation is required.

3.20 WILDFIRE

WILDFIRE - If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.20.1 Environmental Setting

The Project site is not located in a State Responsibility Area (SRA) or in lands classified by CAL FIRE as very high fire hazard severity zones (CAL FIRE 2022a). The nearest SRA is about 1,000 feet west of the Project site, and the nearest very high fire hazard severity zone is north of the city of Sonoma, approximately 10 miles northeast of the Project site. Fire protection in the vicinity of the Project site is provided by the Petaluma Fire Department. The nearest fire station is approximately 2.25 miles north of the Project site, at Station 3.

The slope of the Project site is nearly flat. The Project site and its surroundings are made up of marshlands, undeveloped uplands, and open water.

3.20.2 Regulatory Setting

Federal and state laws and regulations pertaining to wildfire that are relevant to the Project are identified in Appendix A. At the local level, the following is relevant.

3.20.2.1 Sonoma County General Plan

The following goal and objectives from the Public Safety and Services Element of the Sonoma County General Plan are included for informational purposes (Sonoma County 2008b).

Goal PS-3: Prevent unnecessary exposure of people and property to risks of damage or injury from wildland and structural fires.

Objective PS-3.1: Continue to use complete data on wildland and urban fire hazards.

Objective PS-3.2: Regulate new development to reduce the risks of damage and injury from known fire hazards to acceptable levels.

Objective PS-3.3: Use the Sonoma County Hazard Mitigation Plan to help reduce damages from wildland fire hazards.

3.20.2.2 Petaluma Fire Department Weed Abatement Program

The Petaluma Fire Department's Weed Abatement Program requires private and public properties, including the Project site, to cut down weeds, grass, vines, and other growth capable of endangering the property. The Program also requires property owners to create a defensible space to help minimize fire damage and provide a space or fuel break where firefighters can defend against wildfire. The following guideline is relevant to wildfire (City of Petaluma 2022c):

Parcels five (5) acres or less must have all combustible growth cut or removed. Larger parcels shall maintain a minimum disked perimeter around the property, turning the soil in such a way as to bury all vegetation. Where larger parcels are being disked, additional fuel breaks may be required to divide the property into smaller areas that would separate large amounts of fuel. The disked trail should be a minimum of 30' wide. A defensible

space of 30'-100', depending on grade and other factors, around all structures, either man-made or natural, in which material is capable of allowing fire to spread unchecked, must be cleared, treated or modified to slow the rate and intensity of an approaching fire.

3.20.2.3 PG&E Wildfire Prevention Measures

PG&E has proposed to implement PG&E's standard wildfire prevention measures as part of the Project. PG&E's standard wildfire prevention contract requirements establish precautions for PG&E employees, suppliers, contractors, and third-party employees to follow when traveling to, performing work in, or operating outdoors on any forest, brush, or grass-covered land (PG&E 2021).

The contract requirements are based on PG&E's TD-1464S standard and federal, state, and local fire regulations and permits. However, if a state or local fire regulation or permit contains provisions more stringent than PG&E's standard, the more stringent provisions must be followed. The specific best management practices to be implemented depend on the work location's daily score on the Utility Fire Potential Index, a rating used by fire agencies in California to determine the daily risk of fire and its likely behavior. The index's calculation and scale from "R1" to "R5-Plus" consider fuel moisture, humidity, wind speed, air temperature, and historical fire occurrence. "R1" is very little or no fire danger, and "R5-Plus" is the greatest level of fire danger where rapidly moving, catastrophic wildfires are possible. The daily rating defines the protocols to be followed in the field and can limit the allowable types of work or require additional fire protection measures such as water trucks and a dedicated fire watch.

3.20.3 Impact Analysis

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than Significant with Mitigation

No specific evacuation routes are delineated in the Petaluma Emergency Operation Plan (City of Petaluma 2022d) or the City of Petaluma General Plan (City of Petaluma 2021a). In the event of a fire, emergency evacuation routes for residents would be identified and coordinated by local law enforcement and emergency service responders as needed (City of Petaluma 2022d).

Project construction would result in a temporary increase in vehicle trips for hauling and transporting equipment and materials to and from the Project site. As described previously, vehicle trips would be limited to pre-designated routes to minimize the contribution of Project construction traffic to roadway congestion in the Project area. The temporary closure of Shollenberger Park would be required during construction. No roadways would be closed; however, lane closures could adversely affect emergency access. The impairment of emergency response or evacuation would be a potentially significant impact.

As described in Section 3.18, **MM T-1** would be implemented to reduce the impact. This mitigation measure requires that roadway ingress and egress be maintained to facilitate emergency and property access, by requiring the placement of signage indicating any temporary lane closures and rerouting, as well as the presence of flaggers in both directions to safely direct vehicles and help to reduce traffic and circulation impacts. These measures would guide and assist vehicles evacuating the area in the event of an emergency during Project construction. Implementing **MM T-1** would ensure that the Project would not significantly impair an adopted emergency response or evacuation plan, and thus would reduce the impact to a less than significant level.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than Significant with Mitigation

The Project would replace approximately 1,900 feet of natural gas pipeline in a trenched and subsurface position within PG&E's existing right-of-way adjacent to and under the Petaluma River. The Project is in a local responsibility area and is not identified as in or near a very high fire hazard severity zone, according to CAL FIRE (2022a). The Project site does not contain substantial fuel (vegetation) and is not located in an area with steep slopes or particularly high-speed winds that would increase wildfire risk.

Staging for the Project and a portion of the construction would occur within Shollenberger Park, which is owned and managed by the City of Petaluma. The park is and would continue to be managed in accordance with Petaluma's Weed Abatement Program, and weeds, grass, vines, and other growth capable of endangering the property would be cut down (City of Petaluma 2022c). The existing site also contains defensible space for firefighters to defend against fires in accordance with the program. For discussions of emergency response plans,

emergency evacuations, and fire risk, see Section 3.10, *Hazards and Hazardous Materials*, and Section 3.18, *Transportation*.

Project construction would involve HDD, excavation, installation of equipment, and the use of equipment and trucks for installation and construction. The use of these types of equipment has the potential to generate sparks, a potential ignition source. Because of the relatively low-risk location of the Project and the implementation of PG&E Wildfire Prevention Measures, the risk of sparks from construction exacerbating fire risk would be limited. However, if a fire were to ignite in marshland as a result of the Project, it could be difficult to put out, potentially resulting in a significant impact.

MM WF-1 would be implemented to reduce this impact. This mitigation measure requires the implementation of safety measures to prevent fires in marshlands during Project construction. Implementation of **MM WF-1** would reduce this potentially significant impact associated with exacerbating fire risk to a less than significant level.

MM WF-1: Site-Specific Wildfire Safety Plan. 30-days prior to start of Project construction activities, PG&E and/or its contractors shall prepare and submit a site-specific safety plan to CSLC and the City of Petaluma Fire Department for review and approval. The plan shall identify marshlands as potentially high fire risk areas due to the difficulty of fighting fires in such areas. Among other elements, the plan shall include construction fire prevention measures such as using spark arrestors, prohibiting the dragging of chains or materials from trucks, limiting hot work during high winds, and prohibiting smoking by workers or visitors to the site. The plan shall also identify immediate actions to take in the event of an ignition to prevent the uncontrolled spread of a fire.

The Project would use water pumps and an emergency generator, which would be installed and operated in accordance with California Fire Code requirements and would not exacerbate fire risk. With implementation of **MM WF-1**, requiring preparation and implementation of the site-specific safety plan, impacts under this criterion would be less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment?

No Impact

The Project would include the purging and cleaning of existing natural gas from the pipelines through 2 relief valves north and south of the Project site, as described in Section 2.2.2.2. Consistent with PG&E procedures for public safety, PG&E would implement noticing, special scheduling, silencers, carbon filtration, or other methods of odor reduction for public safety and to reduce potential noise and odor nuisances. Because these activities would not involve the installation or maintenance of new access roads, fuel breaks, emergency water sources, other natural gas lines, or utilities that would exacerbate fire risk or result in temporary ongoing impacts on the environment. Therefore, no impact would occur.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact

The Project site is on relatively flat land; therefore, there are no substantial slopes in the vicinity. If a fire were to affect the Project site or surrounding areas, there would be no risk of post-fire slope instability or fire-related changes in runoff or drainage on slopes (which in turn could lead to flooding or landslides). Consequently, the likelihood of the Project to expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes would be minimal. PG&E is also committed to restoring the Project site after construction, as described in Chapter 2, *Project Description*. Therefore, no impact would occur.

3.20.4 Mitigation Summary

Implementation of the following MMs would reduce potential Project-related impacts on wildfire to less than significant.

MM WF-1: Site Specific Wildfire Safety Plan.

MM T-1: Traffic Control Plan (see Section 3.18, *Transportation*).

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to MMs or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per State CEQA Guidelines, § 15065).

MANDATORY FINDINGS OF SIGNIFICANCE –	Potentially Significant Impact	Less Than Significant with Mitigation	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, 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

MANDATORY FINDINGS OF SIGNIFICANCE –	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.21.1 Impact Analysis

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 with Mitigation

As discussed in Section 3.4, *Biological Resources*, numerous field protocols (adapted from the Bay Area HCP) and other construction measures for impact avoidance have been incorporated into the Project. With implementation of the field protocols and HCP resource avoidance measures identified in **MM BIO-1**, the Project would not result in significant impacts. The Project would not adversely affect fish or wildlife habitat; nor would the Project initiate direct effects that could cause a fish or wildlife population to drop below self-sustaining levels. Because the temporary disturbance generated during construction would be restored to pre-construction conditions, there would be no ongoing effects that could otherwise reduce the number or restrict the range of a threatened or endangered species. Implementation of **MMs BIO-1** through **BIO-8**, **MM HAZ-1**, and **MM HYD-1** would ensure that the temporary and localized effects on special status species would be limited and less than significant.

The potential impacts on cultural and tribal cultural resources would be greatly minimized through the implementation of MMs. Due to the location of the proposed Project, which is proposed in a marsh and under the Petaluma River, the potential for encountering cultural resources is relatively low. However, in the event that resources are inadvertently discovered during implementation of the Project, **MMs CUL-1/TCR-1, CUL-2/TCR-2, CUL-3/TCR-3, CUL-4/TCR-4, and**

CUL-5/TCR-5 would reduce significant effects, as described in Section 3.5, *Cultural Resources* and also applicable to Section 3.6, *Tribal Cultural Resources*.

b) Does the project have impacts that would be individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less than Significant Impact

As discussed in this MND, the Project has the potential to impact the following environmental resources: air quality, biological resources, cultural resources, tribal cultural resources, geology, hazards and hazardous materials, hydrology and water quality, recreation, transportation, and wildfire. However, discrete measures are proposed for all of these resources to reduce effects to less than significant levels.

A review of Projects proposed in the City of Petaluma, shows that there are various projects proposed that could temporally or geographically overlap with the proposed Project. The USACE is proposing to continue dredging the Petaluma River. Additional dredging is proposed at the Petaluma Marina for navigability. Immediately downstream of the Project, several upgrades are proposed to be constructed at the Ellis Creek Water Recycling Facility. Additional interpretive signage is proposed for installation at Shollenberger Park. Even though the timing for construction of these projects may overlap with the timing of the proposed Project, these projects would not result in long-term cumulative effects. Even when considered in the cumulative context, with the implementation of the recommended mitigation measures, the combined effects of these projects and the proposed Project would not result in cumulatively considerable impacts. Potential cumulative impacts would be less than significant.

c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant with Mitigation

The potential for the Project to impact human beings (directly or indirectly) is discussed throughout the MND, along with measures to reduce the impacts. As identified in the MND, the Project may affect resource areas such as recreation, including areas used or enjoyed by members of the public or those residing in

the Project vicinity. Also discussed in the MND are resources protective of public health and safety such as air quality, water quality, GHG emissions, noise, transportation, and wildfire. As described in Section 3.3, *Air Quality*, the Project would implement **MM AQ-1** containing standard measures consistent with BAAQMD requirements to limit fugitive dust and reduce emissions during construction. Similarly, various mitigation measures are included to protect water quality and biological species (**MMs BIO-1** through **BIO-8**, **MM HAZ-1**, and **MM HYD-1**). Public health and safety would be protected through implementation of **MM T-1** and **MM WF-1**. None of the resource areas analyzed in the MND identified a potentially significant impact that could not be mitigated to less than significant levels through the implementation of MMs. As discussed in the various resource sections of this MND, where direct and indirect effects to these resources are identified, specific MMs are proposed to reduce potential effects. Impacts would be less than significant with mitigation.

3.21.2 Mitigation Summary

Implementation of the following MMs would reduce the potential for Project-related impacts to less than significant.

MM AQ-1: Air Quality Construction Measures.

MM BIO-1: Environmental Training Program.

MM BIO-2: Biological Monitoring.

MM BIO-3: Special-Status Fish Protection.

MM BIO-4: Turbidity Monitoring Plan.

MM BIO-5: Nesting Bird Season Pre-Construction Surveys.

MM BIO-6: Western Pond Turtle Pre-Construction Surveys.

MM BIO-7: Protection of Terrestrial Marsh Species.

MM BIO-8: Avoidance and Minimization of Impacts on Wetlands.

MM CUL-1/TCR-1: Cultural Resources Awareness Training.

MM CUL-2/TCR-2: Cultural and Tribal Cultural Resources Management and Treatment Plan (CRMTP).

MM CUL-3/TCR-3: Cultural and Tribal Cultural Resources Monitoring.

MM CUL-4/TCR-4: Discovery of Previously Unknown Cultural or Tribal Cultural Resources.

MM CUL-5/TCR-5: Unanticipated Discovery of Human Remains.

MM HAZ-1: Project Work and Safety Plan.

MM HAZ-2: Inadvertent Release Contingency Plan.

MM HAZ -3: Pre- and Post-Project Bathymetric and Surficial Features Multi-Beam Debris Survey.

MM HAZ-4: Asbestos Handling Procedures.

MM HYD-1: Stormwater Pollution Prevention Plan.

MM REC-1: Increased Services to Area Parks.

MM REC-2: Advance Notice to Mariners.

MM T-1: Traffic Control Plan

MM WF-1: Site Specific Wildfire Safety Plan

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4.0 OTHER COMMISSION CONSIDERATIONS

In addition to the environmental review required pursuant to the California Environmental Quality Act (CEQA), a public agency may consider other information and policies in its decision-making process. This section presents information relevant to the California State Lands Commission's (CSLC's) consideration of the Project. The following considerations are addressed below:

- Climate change and sea level rise.
- Commercial and recreational fishing.
- Environmental justice.
- State tide lands and submerged lands possessing significant environmental values.

Other considerations may be addressed in the staff report presented at the time of the CSLC's consideration of the Project.

4.1 CLIMATE CHANGE AND SEA LEVEL RISE

Under existing conditions, the current depth of the existing steel natural gas line 021G is 6 to 8 feet below the bed of the Petaluma River (PG&E Applied Technology Services 2019). With implementation of the Project, the replacement pipeline would be at a depth of approximately 72 feet below the bed of the river, which is expected to improve conditions for maintenance dredging and navigability of the Petaluma River. Sea level rise as a function of global climate change is not expected to have any effect on the Project because the Project would consist of the installation of subsurface pipelines as a replacement for existing subsurface infrastructure, and flooding caused by sea level rise would not adversely affect the function of the Project.

The California Ocean Protection Council updated the *State of California Sea-Level Rise Guidance* in 2018 to provide a synthesis of the best available science on projections and rates of sea level rise. CSLC staff evaluated the "high emissions," "medium-high risk aversion" scenario to apply a conservative approach based on both current emissions trajectories and the lease location. The Point Reyes tide gauge was used for the projected sea level rise scenario. The Project area could see 0.8 foot of sea level rise by 2030, 2.0 feet by 2050, and 7.0 feet by 2100 (Ocean Protection Council 2018). The estimates for the nearby San Francisco tide gauge are substantially similar.

The range in potential sea level rise indicates the complexity and uncertainty of projecting these future changes, which depend on the rate and extent of ice melt, particularly in the second half of the century. The upland portions of the Project site are located within parcels protected by engineered levees and berms lining the Petaluma River and would not be subject to inundation under the 0.8-foot and 2.0-foot sea level rise scenarios (except during a 100-year storm surge). The parcel within which the southern work area would be located could be subject to inundation under the 2.0-foot sea level rise scenario during a 100-year storm surge and could be regularly inundated to a depth of 2 feet beginning with a 3.0-foot sea level rise scenario (Adapting to Rising Tides 2022). This is not anticipated to occur until approximately 2070 under the emissions scenario described above (Ocean Protection Council 2018); this inundation would not adversely affect the Project, as the replacement subsurface natural gas pipeline would be at a substantially greater depth below the riverbed than under existing conditions.

4.2 COMMERCIAL AND RECREATIONAL FISHING

4.2.1 Construction

As described in Section 3.17, *Recreation*, Project construction would limit the public use of the Petaluma River in the Project site vicinity because the river would be impassable in this location during removal of the existing pipeline. This is the only phase of the Project that would require the closure of the Petaluma River, and during this time, recreational activities within the work area would be restricted for about 10 days. Specifically, boating access would be restricted between points north (e.g., Petaluma Marina, downtown Petaluma Turning Basin) and south (e.g., Lakeville Marina, San Pablo Bay) of the work area. This would limit access to recreational and commercial fishing done from boats or from locations accessed by boat.

MM REC-2: Advance Notice to Mariners (Section 3.17, *Recreation*) would be implemented to reduce this impact. This mitigation measure requires that local mariners be notified at least 15 days before the start of any Petaluma River closures. This would provide local marinas and mariners with adequate notice and ensure caution around the work area buffer. Implementing **MM REC-2** would reduce the impact to a less than significant level because mariners would have advance notice of closures, allowing them to reschedule and/or change the location of recreational boat use and avoid potentially dangerous conditions.

4.3 ENVIRONMENTAL JUSTICE

In keeping with its commitment to environmental sustainability and access to all, California was one of the first states to codify the concept of environmental justice in statute. Beyond the fair-treatment principles described in statute, the CSLC staff and other environmental justice leaders would like to include individuals disproportionately affected by a proposed project's effects in the decision-making process for that project. The goal is that, through equal access to the decision-making process, everyone has equal protection from environmental and health hazards and can live, learn, play, and work in a healthy environment.

In 2016, SB 1000 was enacted to require local governments with disadvantaged communities, as defined in statute, to incorporate environmental justice into their general plans when two or more general plan elements (sections) are updated. The Governor's Office of Planning and Research (the lead state agency on planning issues) has worked with state agencies, local governments, and many partners to update the General Plan Guidelines to include guidance for communities on environmental justice (California Governor's Office of Planning and Research 2020).

Environmental justice is defined by California law as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Government Code Section 65040.12[c]). This definition is consistent with the Public Trust Doctrine principle that the management of trust lands is for the benefit of all people. The CSLC adopted an Environmental Justice Policy in December 2018 (Item 75, December 2018) to ensure that environmental justice is an essential consideration in CSLC's processes, decisions, and programs. Through its policy, CSLC reaffirms its commitment to an informed and open process in which all people are treated equitably and with dignity, and in which its decisions are tempered by environmental justice considerations. Among other goals, the policy commits CSLC to "Strive to minimize additional burdens on and increase benefits to marginalized and disadvantaged communities resulting from a proposed project or lease" (CLSC 2018).

4.3.1 U.S. Census Bureau Statistics

Table 4-1 presents income, employment, and race data for the regional and local study area in the Project vicinity, based on the most recently available information from the U.S. Census 2016 to 2020 American Community Survey

5-Year Estimates (U.S. Census Bureau 2021a, 2021b).²⁰ The Project site is located within Census Tract 1506.02, which includes the community of Lakeville and rural areas stretching from east of the city of Petaluma to San Pablo Bay (U.S. Census 2010).

Table 4-1. Environmental Justice Statistics, Income, and Population

Subject	California	Sonoma County	City of Petaluma	Census Tract 1506.12
Total population	38,346,023	496,801	60,865	5,090
Median household income	\$78,672	\$86,173	\$92,762	\$128,162
Percent below the poverty level*	12.6%	8.8%	6.6%	7.5%
Agriculture, forestry, fishing and hunting, mining	2.1%	2.4%	1.3%	3.7%
Construction	6.4%	8.1%	6.6%	12.3%
Manufacturing	9.0%	10.0%	7.6%	5.4%
Wholesale trade	2.8%	2.6%	2.8%	1.6%
Retail trade	10.4%	11.7%	10.3%	8.8%
Transportation and warehousing, and utilities	5.5%	3.9%	3.8%	6.9%
Information	2.9%	2.0%	3.2%	2.1%
Finance and insurance, and real estate and rental and leasing	6.0%	5.2%	6.7%	1.8%
Professional, scientific, and management, and administrative and waste management services	13.8%	12.1%	12.8%	9.4%
Educational services and health care and social assistance	21.2%	21.3%	23.8%	29.0%
Arts, entertainment, and recreation, and accommodation and food services	10.2%	10.4%	9.8%	11.9%

²⁰ American Community Survey estimates come from a sample population but collect more information and may be available sooner than data forms from the most recent full census of 2020. Because they are based on a sample of population, a certain level of variability is associated with the estimates. Supporting documentation on the American Community Survey's data accuracy and statistical testing can be found on the American Community Survey website in the Data and Documentation section available here: census.gov/programs-surveys/acs.

Table 4-1. Environmental Justice Statistics, Income, and Population

Subject	California	Sonoma County	City of Petaluma	Census Tract 1506.12
Other services, except public administration	5.1%	6.0%	5.8%	4.2%
Public administration	4.6%	4.4%	5.7%	3.0%

NOTE:

* Poverty threshold as defined in the American Community Survey is not a singular threshold but varies by family size. Census data provides the total number of persons for whom the poverty status is determined and the number of people below the threshold. The percentage is derived from this data.

SOURCES: U.S. Census Bureau 2021a, 2021b.

4.3.2 Population and Economic Characteristics

From a regional standpoint, the census tract containing the Project site has the highest median household income (\$128,162) compared to the State of California, Sonoma County, and the City of Petaluma. Residents of Census Tract 1506.12 are supported primarily by employment in educational services, health care, and social assistance (U.S. Census Bureau 2021a). With respect to populations living below the established poverty level, Sonoma County, the City of Petaluma, and Census Tract 1506.12 each have lower percentages (8.8 percent or less) than the State of California as a whole (12.6 percent). Census Tract 1506.12 falls between Sonoma County and the City of Petaluma in this metric, but does not substantially differ from those geographies, particularly when considering the larger margin of error (± 3.7 percent) estimated for the small sample size available in Census Tract 1506.12 compared to the larger geographies (between ± 0.1 and 1.3 percent).

4.3.3 California Office Of Environmental Health Hazard Assessment CalEnviroScreen Results

Census Tract 1506.12 has a CalEnviroScreen 4.0 percentile score of 25, meaning that it scores better than three-quarters (75 percent) of all census tracts statewide. For pollution burden, this tract scores in the 63rd percentile, meaning that it has a higher overall pollution burden than about two-thirds of all census tracts statewide. The tract's primary exposures to pollution come from pesticides and traffic (i.e., exhaust from vehicles containing a large number of toxic chemicals, including oxides of nitrogen, carbon monoxide, and benzene). For both of these pollution exposure indicators, this census tract scored worse than

two-thirds of all census tracts statewide, suggesting that these are the primary pollutant exposures of concern. The next highest exposure indicators were drinking water and toxic releases, for which this tract scored worse than only one-third of all census tracts statewide, suggesting that these are exposures of concern, but not disproportionately high compared to other areas of the state. For ozone, particulate matter, and lead from housing, this tract scored better than 85 to 90 percent of all tracts statewide, suggesting that these are minor exposures for this location.

According to CalEnviroScreen, about 81 percent of the residents of Census Tract 1506.12 are white, 11 percent are Latino, 4 percent are Asian American, and the remaining 4 percent are identified as “other/multiple races.”²¹

4.3.4 Conclusion

With more than 80 percent white residents and a median income nearly 150 percent that of Sonoma County, Census Tract 1506.12 does not represent a disadvantaged or low-income community, nor is it a disadvantaged community based on its CalEnviroScreen score (Figure 4-1). The Project would have no effect on pesticide use, and the extent to which Project construction would contribute to traffic pollution impacts is analyzed in Section 3.3, *Air Quality*. The Project would have a temporary effect on people dependent on commercial fishing; however, the impact would be less than two weeks and would not substantially hinder their economic livelihood. Implementing **MM AQ-1: BAAQMD Basic Construction Measures** would reduce these impacts to a less than significant level. The Project would not have a disproportionate adverse impact on a low-income or disadvantaged community.

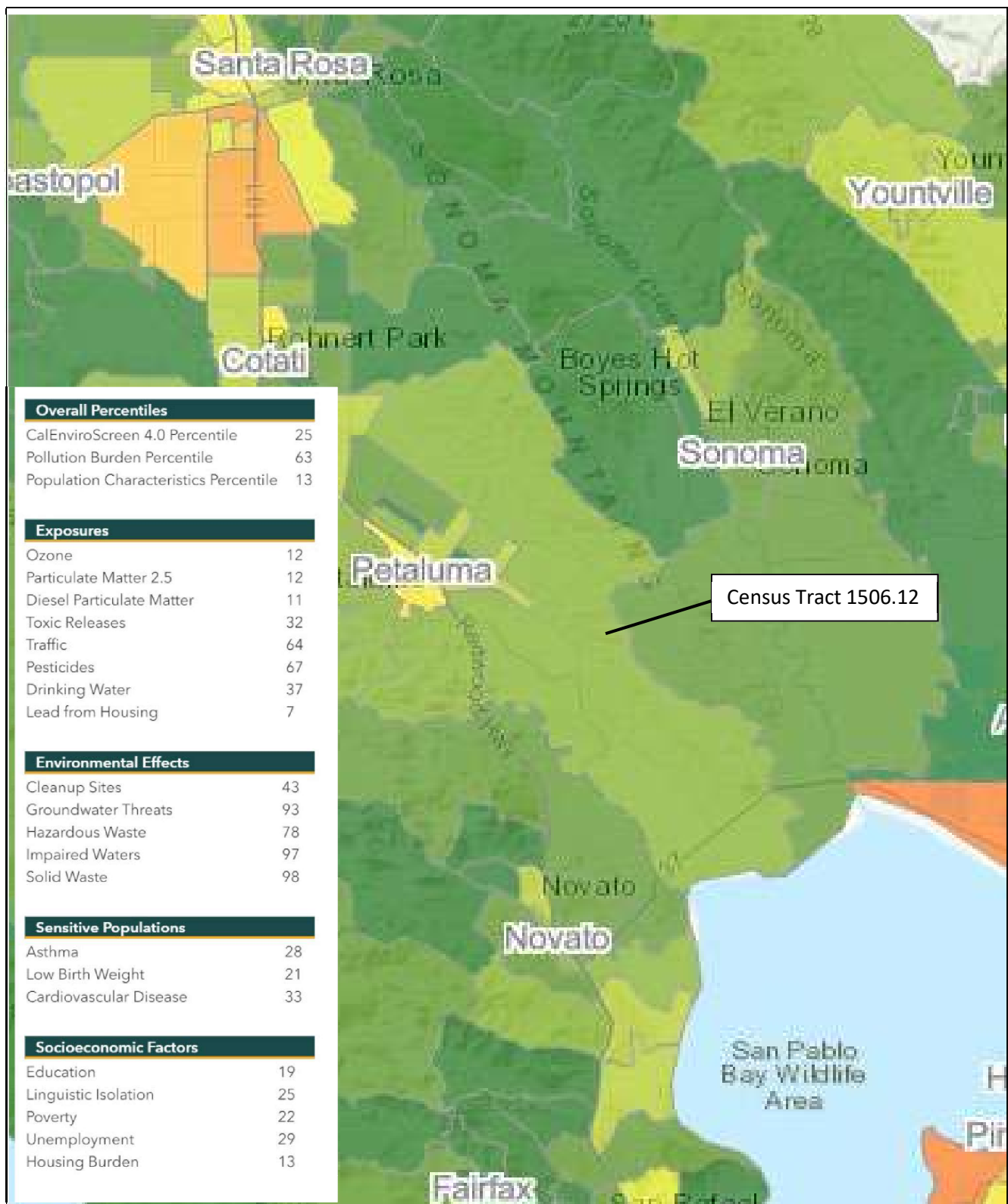
4.4 SIGNIFICANT LANDS INVENTORY

The Project includes submerged lands identified as possessing significant environmental values: The entire Petaluma River is listed within the CSLC’s Significant Lands Inventory, pursuant to Public Resources Code Section 6370 et seq. (CSLC 1975). The Petaluma River is in the Significant Lands Inventory as Parcel Number 21-095-000, which includes the submerged land in the Petaluma River within the ordinary high-water mark. The subject lands are classified in use category Class B, which authorizes limited use. Environmental values identified

²¹ Other categories used in CalEnviroScreen’s race and ethnicity results include Native American, Pacific Islander, and Black; none of these categories represented greater than 0.5 percent of the population of this tract.

for these lands include geological, biological (wildlife spawning and support), scenic, archaeological and historical, and recreational values.

Based on the CSLC staff's review of the Significant Lands Inventory and the CEQA analysis provided in this MND, the Project, as proposed, would not significantly affect those lands and is consistent with the use classification.



SOURCE: CalEnviroScreen 4.0

PG&E Gas Line 021G/R-708 Replacement Project

Figure 4-1
CalEnviroScreen 4.0
Results

5.0 MND PREPARATION SOURCES AND REFERENCES

This Mitigated Negative Declaration (MND) was prepared by the staff of the California State Lands Commission's (CSLC) Division of Environmental Science, Planning, and Management (DESPM), with the assistance of Environmental Science Associates (ESA). The analysis in the MND is based on information identified, acquired, reviewed, and synthesized with DESPM guidance and recommendations.

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