APPENDIX A

Major Federal and State Laws, Regulations, and Policies Potentially Applicable to the Project

Frequently Used Abbreviations
(see also List of Abbreviations and Acronyms in Table of Contents)

Abbreviation	Definition
§	Section
AB	Assembly Bill
ACOE	Army Corps of Engineers
Cal. Code Regs.	California Code of Regulations
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
ch.	Chapter
CO	Carbon Monoxide
CO_2, CO_2e	Carbon Dioxide, Carbon Dioxide Equivalent
CSLC	California State Lands Commission
div.	Division
EO	Executive Order
FCAA	Federal Clean Air Act
FESA	Federal Endangered Species Act
Fed. Reg.	Federal Register
Fish & G. Code	Fish and Game Code
GHG	Greenhouse Gas
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards

Abbreviation	Definition
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NISA	National Invasive Species Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
PERP	Portable Equipment Registration Program
P.L.	Public Law
PM	Particulate Matter
Pub. Resources Code	Public Resources Code
RWQCB	Regional Water Quality Control Board
subd.	Subdivision
SB	Senate Bill
SOx	Sulfur Dioxide
SWRCB	State Water Resources Control Board
tit.	Title
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

Appendix A identifies major federal and state laws, regulations and policies potentially applicable to the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project.[1] Local and regional laws, regulations and policies are presented in Appendix B.

MULTIPLE ENVIRONMENTAL ISSUES

Multiple Environmental Issues (Federal)

There are no major federal laws, regulations, and policies potentially applicable to this Project.

Multiple Environmental Issues (State)

California Environmental Quality Act (CEQA; Pub. Resources Code § 21000 et seq.)

CEQA requires state and local agencies to identify significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a "project" that must receive some discretionary approval (i.e., the agency has authority to deny the requested permit or approval) which may cause either a direct physical change, or a reasonably foreseeable indirect change, in the environment.

California State Lands Commission (CSLC) and the Common Law Public Trust

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways, as well as certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust. As general background, 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,

[1] Environmental issue areas are found in State California Environmental Quality Act Guidelines Appendix G (https://www.califaep.org/statute_and_guidelines.php).

and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the ordinary high-water mark as generally shown by the mean high tide line, except for areas of fill or artificial accretion. The CSLC's jurisdiction also includes a section of tidal and submerged land 3 nautical miles wide adjacent to the coast and offshore islands, including bays, estuaries, and lagoons; the waters and underlying beds of more than 120 rivers, lakes, streams, and sloughs; and 1.3 million acres of "school lands" granted to the State by the federal government to support public education. The CSLC also has leasing jurisdiction, subject to certain conditions, over mineral extraction from state property owned and managed by other state agencies (Pub. Resources Code, § 68910, subd. (b)), and is responsible for implementing a variety of state regulations for activities affecting these Public Trust Lands, including implementation of CEQA.

CSLC Oil & Gas Provisions (Pub. Resources Code, div. 6, part 2, ch. 3; Cal. Code Regs., tit. 2, div. 3, ch. 1)

The CSLC issues and administers oil and gas leases covering tide and submerged lands in accordance with Public Resources Code, division 6 (e.g., see § 6829 [methods of operation and standard requirements for conducting operations properly; prevention of waste; protection of worker safety and health; and liability of lessees for personal injuries and property damage], § 6829.2 [possible arresting or amelioration of land subsidence]; §§ 6873.2 and 6873.5 [carrying out CEQA requirements]). CSLC regulations pertaining to oil and gas leases, exploration permits, and operating requirements on tide and submerged lands under the CSLC's jurisdiction (Articles 3 through 3.6) no longer apply to the tide and submerged lands subject to the Project. All oil and gas wells at Rincon Island and the Onshore Facility are fully plugged and abandoned.

AESTHETICS

Aesthetics (Federal)

There are no major federal laws, regulations, and policies potentially applicable to this Project.

Aesthetics (State)

California Scenic Highway Program (Sts. & Hy. Code § 260 et seq.)

The purpose of California's Scenic Highway Program, which was created by the Legislature in 1963 and is managed by the California Department of Transportation

(Caltrans), is to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. State highways identified as scenic, or eligible for designation, are listed in Streets and Highways Code section 260 et seq. A highway's status changes from eligible to officially designated when a local governmental agency has implemented a corridor protection program for an eligible highway that meets the standards of an official scenic highway.

AGRICULTURE AND FORESTRY RESOURCES

Agriculture and Forestry Resources (Federal)

There are no major federal laws, regulations, and policies potentially applicable to this Project.

Agriculture and Forestry Resources (State)

California Farmland Mapping and Monitoring Program

The California Department of Conservation's FMMP provides a classification system for farmland based on technical soil ratings and current land use. The minimum land use mapping unit is 10 acres unless specified; smaller units of land are incorporated into the surrounding map classifications.

For the purposes of this environmental analysis, the term "Farmland" refers to the FMMP map categories Prime Farmland, Unique Farmland and Farmland of Statewide Importance (hereafter collectively referred to as "Farmland"). Generally, any conversion of the land from one of these categories to a less quality category or a non-agriculture use would be considered to be an adverse impact. These map categories are defined as follows.

> **Prime Farmland:** Land which has the best combination of physical and chemical features able to sustain long term agricultural production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
>
> **Unique Farmland:** Farmland of less quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.

Farmland of Statewide Importance: Land that is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965 (Williamson Act; Government Code Section 51200 et seq.) is the state's primary program aimed at conserving private land for agricultural and open space uses. The Williamson Act provides a mechanism through which private landowners can contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. In return, Williamson Act contracts offer tax incentives by ensuring that land is assessed for its agricultural productivity rather than its highest and best (i.e., most remunerative) use. Contracts typically restrict land use for a period of 10 years; however, some jurisdictions exercise the option to extend the term for up to 20 years. Contracts automatically renew unless the landowner or county serves notice of non-renewal (in which case the contract ends at the close of the current renewal period). Additionally, the landowner can petition for cancellation of a contract.

California Public Resources Code

Section 12220(g) of the California Public Resources Code defines forest land as "land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." "Timberland" is defined by Public Resources Code Section 4526 as "land, other than land owned by the federal government..., which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."

California Government Code

Chapter 6.7 of the Government Code (Sections 51100–51155) regulates timberlands within the state. "Timberland production zone" is defined in Section 51104(g) as an area that has been zoned pursuant to Government Code Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. In this context, "compatible uses" include any use that "does not significantly detract from the use of the property for, or inhibit, growing and harvesting

timber" (Government Code Section 51104(h)). Watershed management, grazing, and the erection, construction, alteration, or maintenance of electric transmission facilities are examples of compatible uses. The general plans of cities and counties may use the term "timberland preserve zone," which Government Code Section 51104(g) defines as equivalent to "timberland production zone."

Chapter 7 of the Government Code (Section 51238 et seq.) defines compatible uses for Agricultural Preserves, i.e., land under a Williamson Act contract. Compatible uses that were defined at the time a contract was originally signed determine which uses are presently compatible under the contract.

AIR QUALITY

Air Quality (Federal)

Federal Clean Air Act (FCAA) (42 U.S.C. § 7401 et seq.)

The FCAA requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. National standards are established for ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, particulate matter (PM, PM_{10} and $PM_{2.5}$), and lead. The Federal Clean Air Act (FCAA) mandates that states submit and implement a State Implementation Plan for local areas not meeting those standards; plans must include pollution control measures that demonstrate how the standards would be met. Pursuant to the 1990 FCAA amendments, the USEPA also regulates hazardous air pollutants, which are pollutants that result in harmful health effects, but are not specifically addressed through the establishment of NAAQS. Hazardous air pollutants require the use of the maximum or best available control technology to limit emissions. USEPA classifies air basins (or portions thereof) as in "attainment" or "nonattainment" for each criteria air pollutant by comparing monitoring data with state and federal standards to determine if the NAAQS are achieved. Areas are classified for a pollutant as follows:

- "Attainment" – the pollutant concentration is lower than the standard.
- "Nonattainment" – the pollutant concentration exceeds the standard.
- "Unclassified" – there are not enough data available for comparisons.

In 2007, the U.S. Supreme Court ruled that carbon dioxide (CO_2) is an air pollutant as defined under the FCAA, and that the USEPA has authority to regulate greenhouse gas (GHG) emissions.

The FCAA allows delegation of the enforcement of many of the federal air quality regulations to the states. In California, the California Air Resources Board (CARB) is responsible for enforcing air pollution regulations in concert with regional air pollution control districts.

Marine Diesel Engine Emission Standards

In March 2008, the USEPA adopted more stringent emission standards for locomotives and marine compression-ignition engines (73 Fed. Reg. 37096). To reduce emissions from Category 1 (at least 50 horsepower [hp] but less than 7 liters per cylinder displacement) and Category 2 (7 to 30 liters per cylinder displacement) marine diesel engines, the USEPA has established emission standards for new engines, referred to as Tier 2 marine engine standards. The Tier 2 standards were phased in from 2004 to 2007 (year of manufacture), depending on the engine size. The 2008 final rule includes the first-ever national emission standards for existing marine diesel engines, applying to engines larger than 600 kilowatts (kW) when they are remanufactured. The rule also sets Tier 3 emissions standards for newly built engines that began implementation phase-in in 2009. Finally, the rule establishes Tier 4 standards for newly built commercial marine diesel engines above 600 kW, based on the application of high-efficiency catalytic after-treatment technology that began implementation in 2014.

The new diesel marine engine standards will reduce emissions of diesel PM by 90 percent and emissions of nitrogen oxide (NO_x) by 80 percent for engines meeting Tier 4 standards, in comparison with engines meeting the current Tier 2 standards. The USEPA's three-part program: (1) tightened standards for existing marine diesel engines when they are remanufactured, taking effect as certified remanufacture systems are available starting in 2008; (2) sets near-term emission standards, referred to as Tier 3 standards, for newly built locomotive and diesel marine engines, which reflect the application of currently available technologies to reduce engine-out PM and NO_x emissions and phase-in starting in 2009; and (3) applies the final long-term Tier 4 emissions standards to marine diesel engines.

Non-Road Diesel Engine Emission Standards

The USEPA has established a series of cleaner emission standards for new off-road diesel engines culminating in the Tier 4 Final Rule of June 2004. The Tier 1, Tier 2, Tier 3, and Tier 4 standards require compliance with progressively more

stringent emission standards. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006, and the Tier 3 standards were phased in from 2006 to 2008. The Tier 4 standards complement the 2007 and later on-road heavy-duty engine standards by requiring 90 percent reductions in diesel PM and NO_x when compared against current emission levels. The Tier 4 standards were phased in starting with smaller engines in 2008 until all but the very largest diesel engines were to meet NO_x and PM standards in 2015.

On-Road Trucks Emission Standards

To reduce emissions from on-road, heavy-duty diesel trucks, the USEPA established a series of cleaner emission standards for new engines, starting in 1988. These emission standards regulations have been revised over time. The latest effective regulation, the 2007 Heavy-Duty Highway Rule, provides for reductions in PM, NO_x, and non-methane hydrocarbon emissions that were phased in during the model years 2007 through 2010.

Non-Road Diesel Fuel Rule

In May 2004, the USEPA set sulfur limits for non-road diesel fuel, including locomotives but not marine fuel. Under this rule, diesel fuel used by line-haul locomotives began being limited to 500 parts per million (ppm) starting June 1, 2007, and 15 ppm starting January 1, 2012, at which time it would be equivalent to sulfur content restrictions of the California Diesel Fuel Regulations.

National Corporate Average Fuel Economy Standards

The Corporate Average Fuel Economy Standards (CAFE) were first enacted in 1975 to improve the average fuel economy of cars and light duty trucks. On August 2, 2018, the National Highway Traffic Safety Administrative (NHTSA) and USEPA proposed to amend the fuel efficiency standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026 by maintaining the current model year 2020 standards through 2026 (Safer Affordable Fuel-Efficient [SAFE] Vehicles Rule). On September 19, 2019, USEPA and NHTSA issued a final action on the One National Program Rule, which is consider Part One of the SAFE Vehicles Rule and a precursor to the proposed fuel efficiency standards. The One National Program Rule enables USEPA/NHTSA to provide nationwide uniform fuel economy and GHG vehicle standards, specifically by (1) clarifying that federal law preempts state and local tailpipe GHG standards, (2) affirming NHTSA's statutory authority to set nationally

applicable fuel economy standards, and (3) withdrawing the California Clean Air Act (CCAA) preemption waiver to set state-specific standards.

USEPA and NHTSA published their decisions to withdraw California's waiver and finalize regulatory text related to the preemption on September 27, 2019 (84 Federal Register [Fed. Reg.] 51310). California, 22 other states, the District of Columbia, and two cities filed suit against Part One of the SAFE Vehicles Rule on September 20, 2019 (California et al. v. United States Department of Transportation et al., 1:19-cv-02826, U.S. District Court for the District of Columbia). On October 28, 2019, the Union of Concerned Scientists, Environmental Defense Fund, and other groups filed a protective petition for review after the federal government sought to transfer the suit to the D.C. Circuit (Union of Concerned Scientists v. National Highway Traffic Safety Administration). Opening briefs for the petition are currently scheduled to be completed on November 23, 2020. The lawsuit filed by California and others is stayed pending resolution of the petition.

USEPA and NTHSA published final rules to amend and establish national CO2 and fuel economy standards on April 30, 2020 (Part Two of the SAFE Vehicles Rule) (85 Fed. Reg. 24174). The revised rule changes the national fuel economy standards for light duty vehicles from 50.4 mpg to 40.5 mpg in future years. California, 22 other states, the District of Columbia filed a petition for review of the final rule on May 27, 2020. The fate of the SAFE Vehicles Rule remains uncertain in the face of pending legal deliberations.

Air Quality (State)

California Clean Air Act of 1988 (CCAA)

The CCAA requires all air districts in the state to endeavor to achieve and maintain state ambient air quality standards for ozone, CO, sulfur dioxide, nitrogen dioxide, and PM. CARB sets air quality standards for the state at levels to protect public health and welfare with an adequate margin of safety. The California Ambient Air Quality Standards (CAAQS) are generally stricter than national standards for the same pollutants; California also has standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The CAAQS describe adverse conditions (i.e., pollution levels must be below these standards before a basin can attain the standard). Air quality is considered in "attainment" if pollutant levels are continuously below or equal to the standards and violate the standards no more than once each year. The 1992 CCAA Amendments divide ozone nonattainment areas into four categories of pollutant levels (moderate, serious, severe, and extreme) to which progressively more

stringent requirements apply. CARB also regulates toxic air contaminants (pollutants that result in harmful health effects, but are not specifically addressed by air quality standards) using air toxic control measures.

California Air Resources Board Programs, Regulations, and Standards

California Diesel Fuel Regulations (Cal. Code Regs., tit. 13, §§ 2281-2285; Cal. Code Regs., tit. 17, § 93114)

In 2004, the CARB set limits on the sulfur content of diesel fuel sold in California for use in on-road and off-road motor vehicles. Harbor craft and intrastate locomotives were later included by a 2004 rule amendment (CARB 2005a). Under this rule, diesel fuel used in motor vehicles except harbor craft and intrastate locomotives has been limited to 500 ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning on September 1, 2006. Diesel fuel used in harbor craft in the South Coast Air Basin also was limited to 500 ppm sulfur starting January 1, 2006, and was lowered to 15 ppm sulfur on September 1, 2006. Diesel fuel used in intrastate locomotives (switch locomotives) was limited to 15 ppm sulfur starting on January 1, 2007.

California Diesel Risk Reduction Plan. CARB has adopted several regulations that are meant to reduce the health risk associated with on- and off-road and stationary diesel engine operation. This plan recommends many control measures with the goal of an 85 percent reduction in diesel PM emissions by 2020. The regulations noted below, which may also serve to significantly reduce other pollutant emissions, are all part of this risk reduction plan.

Commercial Harbor Craft Regulation. This regulation requires upgrades to Tier 2 or Tier 3 standards to reduce diesel PM and NO_x emissions from diesel engines used on commercial harbor craft (e.g., tugboats, crew and supply vessels, work boats, barges, dredges) operated in California Regulated Waters (internal waters, estuarine waters, ports and coastal waters within 24 nautical miles of the coast).

Emission Standards for On-Road and Off-Road Diesel Engines. Similar to the USEPA standards for on-road and off-road emissions described above, the CARB has established emission standards for new on-road and off-road diesel engines. These regulations have model year-based emissions standards for NO_x, hydrocarbons, CO, and PM.

Heavy Duty Diesel Truck Idling Rule – Heavy Duty Diesel Truck Idling Regulation. This CARB rule became effective February 1, 2005, and prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time, unless they are

queuing and provided the queue is located beyond 100 feet from any homes or schools.

In-Use Off-Road Vehicle Regulation. The state has also enacted a regulation to reduce diesel PM and criteria pollutant emissions from in-use off-road diesel-fueled vehicles. This regulation provides target emission rates for PM and NOx emissions from owners of fleets of diesel-fueled off-road vehicles, and applies to off-road equipment fleets of three specific sizes, as follows:

- Small Fleet – Fleet or municipality with equipment totaling less than or equal to 2,500 hp, or municipal fleet in lower population area, captive attainment fleet, or non-profit training center regardless of horsepower.
- Medium Fleet – Fleet with equipment totaling 2,501 to 5,000 hp.
- Large Fleet – Fleet with equipment totaling more than 5,000 hp, or all state and federal government fleets regardless of total hp.

The target emission rates for these fleets are reduced over time. Specific regulation requirements include:

- Limit on idling, requiring a written idling policy, and disclosure when selling vehicles;
- Require all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System [DOORS]) and labeled;
- Restrict the adding of older vehicles into fleets starting on January 1, 2014; and
- Require fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits).

Ocean-Going Vessels Fuel Standards. After January 1, 2014, ocean-going vessels within California Regulated Waters must use fuel with a maximum fuel sulfur content of 0.1 percent (using cleaner marine distillate fuels in larger ocean-going vessels reduces diesel particulate matter, NO_x, and SO_x emissions)

Off-Road Mobile Sources Emission Reduction Program. The CCAA mandates that CARB achieve the maximum degree of emission reductions from all off-road mobile sources (e.g., construction equipment, marine vessels, and harbor craft) to attain CAAQS. Tier 2, Tier 3, and Tier 4 exhaust emissions standards apply

to off-road equipment. In addition, CARB fleet requirements specify how equipment that is already in use can be retrofitted to achieve lower emissions using the CARB-verified retrofit technologies. USEPA standards for marine compression-ignition engines address NOx and diesel PM emissions, depending on engine size and year of manufacture. Tier 2 standards for marine engines were phased in for model years 2004 to 2007, and Tier 3 standards were phased in for currently available technologies to reduce NO_x and PM, starting in 2009.

Statewide Portable Equipment Registration Program (PERP). The PERP establishes a uniform program to regulate portable engines and portable engine-driven equipment units. Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts, if the equipment is located at a single location for no more than 12 months.

Advanced Clean Truck Regulation

CARB adopted the Advanced Clean Truck Regulation in June 2020 to accelerate a large-scale transition of zero emission medium-and-heavy-duty vehicles. The regulation requires the sale of zero-emission medium-and-heavy-duty vehicles as an increasing percentage of total annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b – 3 truck sales, 75 percent of Class 4 – 8 straight truck sales, and 40 percent of truck tractor sales. By 2045, every new medium-and-heavy-duty truck sold in California will be zero-emission. Large employers including retailers, manufacturers, brokers, and others are required to report information about shipments and shuttle services to better ensure that fleets purchase available zero-emission trucks.

Health and Safety Code

- **Sections 25531-25543:** (1) provide guidelines to identify a more realistic health risk; (2) require high-risk facilities to submit an air toxic emission reduction plan; (3) hold air pollution control districts accountable for ensuring that plans achieve objectives; and (4) require high-risk facilities to achieve their planned emission reductions.

- **The Air Toxics Hot Spots Information and Assessment Act (§ 44300 et seq.)** provides for the regulation of over 200 toxic air contaminants. Under the act, local air districts may request that a facility account for its toxic air contaminant emissions. Local air districts then prioritize facilities based on

emissions; high priority designated facilities must submit a health risk assessment.

BIOLOGICAL RESOURCES

Biological Resources (Federal)

Federal Endangered Species Act (FESA) (16 U.S.C. § 1531 et seq.)

The FESA, which is administered in California by the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), provides protection to species listed as threatened or endangered, or proposed for listing as threatened or endangered. When applicants propose projects with a federal nexus that "may affect" a federally listed or proposed species, the federal agency must (1) consult with the USFWS or NMFS, as appropriate, under Section 7, and (2) ensure that any actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of areas determined to be critical habitat. Section 9 prohibits the "take" of any member of a listed species.

- **Take –** To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct
- **Harass –** An intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering
- **Harm –** Significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering

Fish and Wildlife Coordination Act of 1958 (16 U.S.C. § 661-666(e))

This Act requires that whenever a body of water is proposed to be controlled or modified, the lead agency must consult with the state and federal agencies responsible for fish and wildlife management (e.g., USFWS, the California Department of Fish and Wildlife [CDFW], and National Oceanic and Atmospheric Administration [NOAA]). The Act allows for recommendations addressing adverse impacts associated with a proposed project, and for mitigating or compensating for impacts on fish and wildlife.

Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. § 1801 et seq.)

The MSA governs marine fisheries management in federal waters. The MSA was first enacted in 1976 and amended by the Sustainable Fisheries Act of 1996 and the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act in 2007. Amendments require the identification of Essential Fish Habitat (EFH) for federally managed species and the implementation of measures to conserve and enhance this habitat. Any project requiring federal authorization, such as a U.S. Army Corps of Engineers (ACOE) permit, is required to complete and submit an EFH Assessment with the application and either show that no significant impacts to the essential habitat of managed species are expected or identify mitigations to reduce those impacts. Under the MSA, Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. § 1802(10)). The EFH provisions of the MSA offer resource managers a means to heighten consideration of fish habitat in resource management. Federal agencies shall consult with the NMFS regarding any action they authorize, fund, or undertake that might adversely affect EFH (§ 305(b)(2)).

Marine Mammal Protection Act (MMPA) (16 U.S.C. § 1361 et seq.)

The MMPA is designed to protect and conserve marine mammals and their habitats. It prohibits takes of all marine mammals in the U.S. (including territorial seas) with few exceptions. The Act defines "take" as hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal. "Harassment" is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild; or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

The NMFS may issue a take permit under Section 104 if the activities are consistent with the purposes of the MMPA and applicable regulations at 50 Code of Federal Regulations (CFR), Part 216. The NMFS must also find that the manner of taking is "humane" as defined in the MMPA. If lethal taking of a marine mammal is requested, the applicant must demonstrate that using a non-lethal method is not feasible. In 1994 a simplified process for obtaining "small take" exemptions was added for unintentional taking by incidental harassment only. Under this process, incidental take of small numbers of marine mammals by harassment can be authorized for periods of up to one year.

Migratory Bird Treaty Act MBTA (16 USC 703-711)

The Migratory Bird Treaty Act (MBTA) of 1918 is the domestic law that affirms and implements a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. Unless and except as permitted by regulations, the MBTA makes it unlawful at any time, by any means, or in any manner to intentionally pursue, hunt, take, capture, or kill migratory birds anywhere in the United States. The law also applies to disturbance and removal of nests occupied by migratory birds or their eggs during the breeding season, whether intentional or incidental.

Bald and Golden Eagle Protection Act of 1940 (16 USC 668)

The federal Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 USC 668c). "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (72 FR 31132; 50 CFR 22.3).

National Invasive Species Act (NISA) (16 U.S.C. 4701 et seq, 33 CFR, Part 151, Subpart D)

NISA was originally passed in 1990 as the Nonindigenous Aquatic Nuisance Prevention and Control Act [16 U.S.C. § 4701-4751] and reauthorized, renamed and expanded in 1996. Under its provisions, the U.S. Coast Guard requires ballast water management (i.e., exchange) for vessels entering U.S. waters from outside the 200-nautical-mile U.S. Exclusive Economic Zone. The original Act was established to: (1) prevent unintentional introduction and dispersal of nonindigenous species into Waters of the U.S. through ballast water management and other requirements; (2) coordinate and disseminate information on federally conducted, funded, or authorized research, on the prevention and control of the zebra mussel and other aquatic nuisance species; (3) develop and carry out control methods to prevent, monitor, and control unintentional introductions of nonindigenous species from pathways other than ballast water exchange; (4) understand and minimize economic and ecological impacts of established nonindigenous aquatic nuisance species; and (5) establish a program of

research and technology development and assistance to states in the management and removal of zebra mussels.

Executive Orders (EO)

- **EO 11990** requires federal agencies to provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Each agency, to the extent permitted by law, must (1) avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds there is no practical alternative to such construction or the proposed action includes all practical measures to minimize harm to wetlands that may result from such use; (2) take into account economic, environmental and other pertinent factors in making this finding; and (3) provide opportunity for early public review of any plans or proposals for new construction in wetlands.

- **EO 13112** requires federal agencies to use authorities to prevent introduction of invasive species, respond to and control invasions, and provide for restoration of native species and habitat conditions in invaded ecosystems; also established the Invasive Species Council, which prepares a National Invasive Species Management Plan that details and recommends performance-oriented goals and objectives and measures of success for federal agencies.

- **EO 13158** requires federal agencies to (1) identify actions that affect natural or cultural resources that are within a Marine Protected Area (MPA); and (2) in taking such actions, to avoid harm to the natural and cultural resources that are protected by an MPA.

- **EO 13186** sets forth responsibilities of federal agencies to protect migratory birds.

Other Federal Acts

- **Clean Water Act (33 U.S.C. § 1251 et seq.) and Rivers and Harbors Act (33 U.S.C. § 401 et seq.)** (see Hydrology and Water Quality)

- **Estuary Protection Act (16 U.S.C. § 1221-1226)** authorizes federal agencies to assess the impacts of commercial and industrial developments on estuaries.

- **Bald and Golden Eagle Protection Act** makes it illegal to import, export, take, sell, purchase or barter any bald eagle or golden eagle or parts thereof.

Biological Resources (State)

California Endangered Species Act (CESA) (Fish & G. Code § 2050 et seq.)

The CESA provides for the protection of rare, threatened, and endangered plants and animals, as recognized by the CDFW, and prohibits the taking of such species without its authorization. Furthermore, the CESA provides protection for those species that are designated as candidates for threatened or endangered listings. Under the CESA, the CDFW has the responsibility for maintaining a list of threatened species and endangered species (Fish & G. Code, § 2070). The CDFW also maintains a list of candidate species, which are species that the CDFW has formally noticed as under review for addition to the threatened or endangered species lists. The CDFW also maintains lists of Species of Special Concern that serve as watch lists. Pursuant to CESA requirements, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project site and determine whether the proposed project will have a significant impact on such species. The CDFW encourages informal consultation on any proposed project that may affect a candidate species. The CESA also requires a permit to take a state-listed species through incidental or otherwise lawful activities (§ 2081, subd. (b)).

Lake and Streambed Alteration Program (Fish & G. Code §§ 1600-1616)

These regulations require that the CDFW: be notified of activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream; determines if the activity may substantially adversely affect an existing fish and wildlife resource; and issues a Streambed Alteration Agreement if applicable.

Other relevant California Fish and Game Code sections and Programs and Plans

- **Section 1900 et seq.** (California Native Plant Protection Act) is intended to preserve, protect, and enhance endangered or rare native plants in California. Under section 1901, a species is endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more causes. A species is rare when, although not threatened with immediate extinction, it is in such small numbers throughout its range that

it may become endangered. The Act includes provisions that prohibit taking of listed rare or endangered plants from the wild and a salvage requirement for landowners.

- **Sections 3503 & 3503.5** protect native birds' nests and eggs from all forms of needless take and possession and provide that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nests or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto.

- **Sections 3511** (birds), **4700** (mammals), **5050** (reptiles and amphibians), & **5515** (fish) designate certain species as "fully protected"; such species, or parts thereof, may not be taken or possessed at any time without permission by the CDFW.

- **Section 3513** provides it is unlawful to take or possess any non-game, migratory birds (to become inoperative on January 20, 2025, and repealed as of January 1, 2026).

- **California Aquatic Invasive Species Management Plan** provides a framework for agency coordination and identifies actions to minimize harmful effects of aquatic invasive species.

Marine Invasive Species Act (MISA) (Pub. Resources Code, § 71200 et seq.)

Originally passed in 2003 and amended several times, the purpose of MISA is to move towards eliminating the discharge of nonindigenous species into waters of the state or waters that may impact waters of the state, based on the best available technology economically achievable. MISA requires mid-ocean exchange or retention of all ballast water and associated sediments for all vessels 300 gross registered tons or more, U.S. and foreign, carrying ballast water into the waters of the state after operating outside state waters. For all vessels 300 gross register tons or more arriving at a California port or place carrying ballast water from another port or place within the Pacific Coast Region, the Act mandates near-coast exchange or retention of all ballast water. MISA also requires completion and submission of a Ballast Water Reporting Form 24 hours in advance of each port of call in California, annual submittal of the Hull Husbandry Reporting Form, the keeping of a ballast management plan and logs, and the application of "Good Housekeeping" Practices designed to minimize the transfer and introduction of invasive species. Compliance with

MISA is the responsibility of vessel owners/operators. The California State Lands Commission has regulatory authority to manage and enforce MISA.

Other

- **Lempert-Keene-Seastrand Oil Spill Prevention and Response Act** (**OSPRA) Gov. Code § 8670.1 et seq., Pub. Resources Code § 8750 et seq., and Rev. & Tax. Code § 46001 et seq.)** (see Hazards and Hazardous Materials)
- **Wetlands Conservation Policy** – no net loss of wetland acreage; long-term gain in the quantity, quality, and permanence of California's wetlands.
- **California Department of Food and Agriculture's California Noxious and Invasive Weed Action Plan** seeks to prevent and control noxious and invasive weeds.
- **Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) (Porter-Cologne)**(see Hydrology and Water Quality)

CULTURAL RESOURCES

Cultural Resources (Federal)

Abandoned Shipwreck Act of 1987 (43 U.S.C. § 2101–2106) and National Park Service (NPS) Abandoned Shipwreck Act Guidelines

The Abandoned Shipwreck Act asserts U.S. Government title to three categories of abandoned shipwrecks: those embedded in a state's submerged lands; those embedded in coralline formations protected by a state on its submerged lands, and those located on a state's lands that are included or determined eligible for inclusion in the National Register of Historic Places (NRHP). The law then transfers title for a majority of those shipwrecks to the respective states, and provides that states develop policies for management of the wrecks so as to protect natural resources, permit reasonable public access, and allow for recovery of shipwrecks consistent with the protection of historical values and environmental integrity of wrecks and sites.

The NPS has issued guidelines that are intended to: maximize the enhancement of shipwreck resources; foster a partnership among sport divers, fishermen, archeologists, sailors, and other interests to manage shipwreck resources of the states and the United States; facilitate access and utilization by recreational interests; and recognize the interests of individuals and groups engaged in shipwreck discovery and salvage.

Archaeological and Historic Preservation Act (AHPA) (54 U.S.C. §§ 3120501-312508; PL 113-287)

The AHPA provides for the preservation of historical and archaeological data that might be irreparably lost or destroyed as a result of (1) flooding, the building of access roads, the erection of workmen's communities, the relocation of railroads and highways, and other alterations of terrain caused by the construction of a dam by an agency of the U.S. or by any private person or corporation holding a license issued by any such agency; or (2) any alteration of the terrain caused as a result of a federal construction project or federally licensed project, activity, or program. This Act requires federal agencies to notify the Secretary of the Interior when they find that any federally permitted activity or program may cause irreparable loss or destruction of significant scientific, prehistoric, historical, or archaeological data. The AHPA built upon national policy, set out in the Historic Sites Act of 1935, "...to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance...."

Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. §§ 470aa – 470mm; P.L. 96-95; 93 Stat. 712)

The ARPA states that archaeological resources on public or Indian lands are an accessible and irreplaceable part of the nation's heritage and:

- Establishes protection for archaeological resources to prevent loss and destruction due to uncontrolled excavations and pillaging;
- Encourages increased cooperation and exchange of information between government authorities, the professional archaeological community, and private individuals having collections of archaeological resources prior to the enactment of this Act;
- Establishes permit procedures to permit excavation or removal of archaeological resources (and associated activities) located on public or Indian land; and
- Defines excavation, removal, damage, or other alteration or defacing of archaeological resources as a "prohibited act" and provides for criminal and monetary rewards to be paid to individuals furnishing information leading to the finding of a civil violation or conviction of a criminal violator.

An anti-trafficking provision prohibits interstate or international sale, purchase, or transport of any archaeological resource excavated or removed in violation of

a state or local law, ordinance, or regulation. ARPA's enforcement provision provides for criminal and civil penalties against violators of the Act. The ARPA's permitting component allows for recovery of certain artifacts consistent with NPS Federal Archeology Program standards and requirements.

National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. § 470 et seq.) and implementing regulations (Protection of Historic Properties; 36 CFR 800) (applies only to federal undertakings)

Archaeological resources are protected through the NHPA and its implementing regulation (Protection of Historic Properties; 36 Code of Federal Regulations 800), the AHPA, and the ARPA. This Act presents a general policy of supporting and encouraging the preservation of prehistoric and historic resources for present and future generations by directing federal agencies to assume responsibility for considering the historic resources in their activities. The state implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs coordinated by the California Office of Historic Preservation (OHP) in the State Department of Parks and Recreation, which also advises federal agencies regarding potential effects on historic properties.

The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the state's jurisdictions, including commenting on federal undertakings. Under the NHPA, historic properties include "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places" (16 U.S.C. § 470w [5]).

Cultural Resources (State)

California Register of Historical Resources (CRHR)

The CRHR is an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (Pub. Resources Code, § 5024.1, subd. (a)). CRHR eligibility criteria are modeled after National Register of Historic Places (NRHP) criteria but focus on resources of statewide significance. Certain resources are determined by the statute to be automatically included in the CRHR, including California properties formally determined to be eligible for, or listed in, the NRHP. To be eligible for the CRHR, a prehistoric or historical period property must be significant at the local, state, or

federal level under one or more of the following criteria (State CEQA Guidelines, § 15064.5, subd. (a)(3)):

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

A resource eligible for the CRHR must meet one of the criteria of significance above and retain enough of its historic character or appearance (integrity) to be recognizable as an historical resource and to convey the reason for its significance. An historic resource that may not retain sufficient integrity to meet the criteria for listing in the NRHP, may still be eligible for listing in the CRHR. Properties listed, or formally designated as eligible for listing, on the National Register are automatically listed on the CRHR, as are certain State Landmarks and Points of Interest. A lead agency is not precluded from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1, subdivision (j), or 5024.1 (State CEQA Guidelines, § 15064.5, subd. (a)(4)).

CEQA (Pub. Resources Code § 21000 et seq.)

CEQA section 21084.1 provides that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. A "historical resource" includes: (1) a resource listed in, or eligible for listing in, the California Register of Historic Resources; (2) a resource included in a local register of historical or identified as significant in an historical resource surveys; and (3) any resource that a lead agency determines to be historically significant for the purposes of CEQA, when supported by substantial evidence in light of the whole record. Historical resources may include archaeological resources. Mitigation measures for significant impacts to historical resources must be identified and implemented if feasible.

Other

- **Public Resources Code section 5097.5** prohibits excavation or removal of any "vertebrate paleontological site or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands."
- **Penal Code section 623** provides for the protection of caves, including their natural, cultural, and paleontological contents. It specifies that no "material" (including all or any part of any paleontological item) will be removed from any natural geologically formed cavity or cave.

CULTURAL RESOURCES – TRIBAL

Tribal Cultural Resources (Federal)

Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. §§ 3001-3013; P.L. 101-601; 104 Stat. 3049)

Assigns ownership or control of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are excavated or discovered on federal lands or tribal lands after passage of the act to lineal descendants or affiliated Indian tribes or Native Hawaiian organizations; establishes criminal penalties for trafficking in human remains or cultural objects; and requires federal agencies and museums that receive federal funding to inventory Native American human remains and associated funerary objects in their possession or control and identify their cultural and geographical affiliations within 5 years, and prepare summaries of information about Native American unassociated funerary objects, sacred objects, or objects of cultural patrimony. This is to provide for repatriation of such items when lineal descendants, Indian tribes, or Native Hawaiian organizations request it.

Executive Order (EO) 13007, Indian Sacred Sites

EO 13007 requires federal agencies with administrative or legal responsibility to manage federal lands to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sites (to the extent practicable permitted by law and not clearly inconsistent with essential agency functions).

Tribal Cultural Resources (State)

CEQA (Pub. Resources Code §§ 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 [AB 52 (Gatto, Stats. 2014, Ch. 532)])

The Assembly Bill (AB) 52 (effective July 1, 2015) amendments to CEQA relate to consultation with California Native American tribes, consideration of tribal cultural resources, and confidentiality. The definition of tribal cultural resources considers tribal cultural values in addition to scientific and archaeological values when determining impacts and mitigation. AB 52 provides procedural and substantive requirements for lead agency consultation with California Native American tribes and consideration of effects on tribal cultural resources, as well as examples of mitigation measures to avoid or minimize impacts to tribal cultural resources. AB 52 establishes that if a project may cause a substantial adverse change in the significance of a tribal cultural resource, that project may have a significant effect on the environment. Lead agencies must avoid damaging effects to tribal cultural resources, when feasible, and shall keep information submitted by tribes confidential.

Health and Safety Code section 7050.5

This section provides for treatment of human remains exposed during construction; no further disturbance may occur until the County Coroner makes findings as to origin and disposition pursuant to Public Resources Code section 5097.98. The Coroner has 24 hours to notify the Native American Heritage Commission (NAHC) if the remains are determined to be of Native American descent. The NAHC contacts most likely descendants about how to proceed.

Public Resources Code section 5097.98

This section provides (1) a protocol for notifying the most likely descendent from the deceased if human remains are determined to be Native American in origin and (2) mandated measures for appropriate treatment and disposition of exhumed remains.

Executive Order B-10-11

EO B-10-11 establishes as state policy that all agencies and departments shall encourage communication and consultation with California Indian Tribes and allow tribal governments to provide meaningful input into proposed decisions and policies that may affect tribal communities.

ENERGY

Energy (Federal)

Marine Diesel Engine Emission Standards (see Air Quality)

Non-Road Diesel Engine Emission Standards (see Air Quality)

On-Road Trucks Emission Standards (see Air Quality)

National Corporate Average Fuel Economy Standards (see Air Quality)

Energy (State)

California Diesel Fuel Regulations (see Air Quality)

Commercial Harbor Craft Regulation (see Air Quality)

Emission Standards for On-Road and Off-Road Diesel Engines (see Air Quality)

Heavy Duty Diesel Truck Idling Rule – Heavy Duty Diesel Truck Idling Regulation (see Air Quality)

In-Use Off-Road Vehicle Regulation (see Air Quality)

Ocean-Going Vessels Fuel Standards (see Air Quality)

Off-Road Mobile Sources Emission Reduction Program (see Air Quality)

Advanced Clean Truck Regulation (see Air Quality)

Clean Energy and Pollution Reduction Act (SB 350; Stats. 2015, ch. 547)

This Act requires that the amount of electricity generated and sold to retail customers from renewable energy resources be increased to 50 percent by December 31, 2030, and that statewide energy efficiency savings in electricity and natural gas by retail customers be doubled by January 1, 2030.

2022 Scoping Plan for Achieving Carbon Neutrality

The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) lays out a path to achieve targets for carbon neutrality and reduce anthropogenic greenhouse gas (GHG) emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279. The actions and outcomes in the plan will achieve: significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working

lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

Geology and Soils (Federal/International)

Building Codes

The Uniform Building Code (UBC) designates and ranks regions of the U.S., according to their seismic hazard potential, as Seismic Zones 1 through 4, with Zone 1 having the least seismic potential and Zone 4 having the highest seismic potential. The International Building Code (IBC) sets design standards to accommodate a maximum considered earthquake (MCE), based on a project's regional location, site characteristics, and other factors.

Paleontological Resources Preservation Act (16 U.S.C. §§ 470aaa-470aaa-11)

Enacted to preserve paleontological resources for current and future generations on federal lands under the jurisdiction of the National Park Service, Bureau of Land Management, Bureau of Reclamation, and USFWS, this Act identifies management requirements, collection requirements, and curation requirements, and authorizes criminal and civil penalties, rewards and forfeiture.

Omnibus Public Land Management Act of 2009 - Public Law 111-11 (123 Stat. 991)

Public Law 111-11 at Title VI, subtitle D lays out statutory requirements for Paleontological Resources Preservation (PRP). PRP provides definitions but requires the definition of some terms, and uses other terms and concepts that need further definition or details to clarify intent or enforcement. PRP identifies management requirements, collection requirements, curation requirements, the need for both criminal and civil penalties, rewards and forfeiture, and the need for confidentiality of some significant resource locations.

Other Relevant Laws

- **Public Resources Code section 5097.5** prohibits excavation or removal of any vertebrate paleontological site or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.

Geology and Soils (State)

Alquist-Priolo Earthquake Fault Zoning Act (Pub. Resources Code §§ 2621-2630)

This Act requires that "sufficiently active" and "well-defined" earthquake fault zones be delineated by the State Geologist and prohibits locating structures for human occupancy on active and potentially active surface faults. (Note that since only those potentially active faults that have a relatively high potential for ground rupture are identified as fault zones, not all potentially active faults are zoned under the Alquist-Priolo Earthquake Fault Zone, as designated by the State of California.)

California Building Code (Cal. Code Regs., tit. 24)

The California Building Code provides a minimum standard for building design, which is based on the UBC, but is modified for conditions unique to California. The Code, which is selectively adopted by local jurisdictions, based on local conditions, contains requirements pertaining to multiple activities, including: excavation, site demolition, foundations and retaining walls, grading activities including drainage and erosion control, and construction of pipelines alongside existing structures.

Seismic Hazards Mapping Act & Mapping Regs (Pub. Resources Code § 2690 et seq.; Cal. Code Regs., tit. 14, div. 2, ch. 8, art. 10)

This statute and these regulations were promulgated to promote public safety by protecting against the effects of strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. The Act requires that: (1) site-specific geotechnical investigations be conducted identifying the hazard and; (2) mitigation measures be formulated prior to permitting most developments designed for human occupancy. California Division of Mines and Geology Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California (2008), constitutes the guidelines for evaluating seismic hazards other than surface fault-rupture, and for recommending mitigation measures as required by Public Resources Code section 2695, subdivision (a). The Act does not apply offshore as the California Geological Survey has not zoned offshore California under the Act.

Other Relevant Policies

Public Resources Code division 6, parts 1 and 2 (see Multiple Environmental Issues)

- **California Code of Regulations, title 2, division 3, chapter 1, article 3** (see Multiple Environmental Issues)

GREENHOUSE GAS EMISSIONS

Greenhouse Gas Emissions (Federal/International)

Federal Clean Air Act (FCAA) (42 U.S.C. § 7401 et seq.)

In 2007, the U.S. Supreme Court ruled that CO_2 is an air pollutant as defined under the Federal Clean Air Act (FCAA), and that the US Environmental Protection Agency (USEPA) has authority to regulate Greenhouse Gas (GHG) emissions.

Mandatory Greenhouse Gas Reporting (74 Fed. Reg. 56260)

On September 22, 2009, the USEPA issued the Mandatory Reporting of Greenhouse Gases Rule, which requires reporting of GHG data and other relevant information from large sources (industrial facilities and power plants that emit more than 25,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) emissions per year) in the U.S. The purpose of the Rule is to collect accurate and timely GHG data to inform future policy decisions. The Rule is referred to as 40 Code of Federal Regulations Part 98 (Part 98). Gases covered by implementation of Part 98 (GHG Reporting Program) are: CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers.

Kyoto Protocol and Paris Climate Agreement

On March 21, 1994, the Kyoto Protocol, the first international agreement to regulate GHG emissions, was signed. The Kyoto Protocol was a treaty made under the United Nations Framework Convention on Climate Change. The Kyoto Protocol commitments included a global GHG emissions reduction target of 5 percent from 1990 levels during the first commitment period of 2008 to 2012. The U.S. was a signatory to the Kyoto Protocol; however, Congress did not ratify it and the U.S. was not bound by the Protocol's commitments.

In December 2015, the Paris Climate Agreement was endorsed and adopted by 195 countries including the U.S. (which has since withdrawn from and then rejoined the Agreement). The overarching goal was to reduce pollution levels so that the rise in global temperatures is limited to no more than 2° Celsius (3.6° Fahrenheit). The Agreement includes voluntary commitments to cut or limit the growth of GHG emissions and provide regular and transparent reporting of every country's carbon reduction.

Greenhouse Gas Emissions (State)

California Global Warming Solutions Act of 2006 (Health & Safety Code §§ 38500-38559; AB 32, Stats. 2006, ch. 488)

Under Assembly Bill (AB) 32, the California Air Resources Board (CARB) is responsible for monitoring and reducing GHG emissions in the state and for establishing a statewide GHG emissions cap for 2020 based on 1990 emissions levels. CARB adopted the AB 32 Climate Change Scoping Plan (Scoping Plan), initially approved in 2008 and updated in 2014, which contains the main implementation strategies for California to reduce CO_2e emissions by 169 million metric tons (MMT) from the state's projected 2020 emissions level of 596 MMT CO_2e under a business-as-usual scenario. The Scoping Plan breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the state's GHG inventory, but does not directly discuss GHG emissions generated by construction activities.

California Global Warming Solutions Act of 2006: emissions limit (Health & Safety Code § 38566; SB 32, Stats. 2016, ch. 249)

The update made by SB 32 requires a reduction in statewide GHG emissions to 40 percent below 1990 levels by 2030 to meet the target set in EO B-30-15. The 2017 Climate Change Scoping Plan provides a path to meet the SB 32 GHG emissions reduction goals and provides several GHG emissions reduction strategies to meet the 2030 interim GHG emissions reduction target including implementation of the Sustainable Freight Action Plan, Diesel Risk Reduction Plan, Renewable Portfolio Standard (50 percent by 2030), Advanced Clean Cars policy, and Low Carbon Fuel Standard.

Clean Energy and Pollution Reduction Act (SB 350; Stats. 2015, ch. 547)

This Act requires that the amount of electricity generated and sold to retail customers from renewable energy resources be increased to 50 percent by

December 31, 2030, and that statewide energy efficiency savings in electricity and natural gas by retail customers be doubled by January 1, 2030.

SB 97 (Stats. 2007, ch. 185)

Pursuant to SB 97, the State Office of Planning and Research prepared, and the California Natural Resources Agency adopted, amendments to the state CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. Effective as of March 2010, the revisions to the CEQA Environmental Checklist Form (Appendix G) and the Energy Conservation Appendix (Appendix F) provide a framework to address global climate change impacts in the CEQA process; state CEQA Guidelines section 15064.4 was also added to provide an approach to assessing impacts from GHGs.

As discussed in state CEQA Guidelines section 15064.4, the determination of the significance of GHG emissions calls for a careful judgment by the lead agency, consistent with the provisions in section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, to the extent possible, based on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project.

A lead agency shall have discretion to determine, in the context of a particular project, whether to:

- Use a model or methodology to quantify GHG emissions resulting from a project, and determine which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
- Rely on a qualitative analysis or performance-based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment: the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting; whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

Sustainable Communities and Climate Protection Act of 2008

Adopted in September 2008, Senate Bill (SB) 375 provides a new planning process to coordinate community development and land use planning with regional transportation plans in an effort to reduce sprawling land use patterns and dependence on private vehicles and thereby reduce vehicle miles traveled and GHG associated with vehicle miles traveled. SB 375 is one major tool being used to meet the goals in the Global Warming Solutions Act (AB 32). Under SB 375, CARB sets GHG emission reduction targets for 2020 and 2035 for the metropolitan planning organizations in the state. Each metropolitan planning organization must then prepare a sustainable communities strategy that meets the GHG emission reduction targets set by CARB. The sustainable communities strategy has been incorporated into the region's regional transportation plan.

Other Legislation

- **AB 1493 (Stats. 2002, ch. 200)** required CARB to develop and implement regulations (stricter emissions standards) to reduce automobile and light truck GHG emissions beginning with model year 2009.

- **AB 1279 (Stats. 2022, ch. 337)** codifies a 2018 executive order from Governor Brown that first established a statewide goal of carbon neutrality by 2045. (The terms net-zero GHG emissions and carbon neutrality have essentially the same meaning. Both mean that emissions of GHGs must be balanced by removals of GHGs through carbon sequestration, carbon capture, or other technologies. Carbon capture is explained in more detail below.) The legislation also requires the state to reduce GHGs to at least 85 percent below 1990 levels by 2045. By 2035, CARB must report to the Legislature on the feasibility and trade-offs of achieving these goals.

- **Senate Bill 100** The State's existing renewables portfolio standard requires all retail sellers to procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve 25 percent of retail sales by December 31, 2016 (achieved), 33 percent by December 31, 2020, 40 percent by December 31, 2024, 45 percent by December 31, 2027, and 50 percent by December 31, 2030 (as extended by SB 350). SB 100 revises and extends these renewable resource targets to 50 percent by December 31, 2026, 60 percent by December 31, 2030, and 100 percent by December 31, 2045.

- **SB 375 (Stats. 2008, ch. 728; effective 2009)** required CARB to develop regional GHG emission reduction targets in regions covered by California's 18 metropolitan planning organizations (MPOs) and required the 18 MPOs to develop regional land use and transportation plans and demonstrate an ability to attain the proposed reduction targets by 2020 and 2035

- **SB 605** directed CARB, in coordination with other State agencies and local air districts, to develop a comprehensive Short-Lived Climate Pollutant (SLCP) Reduction Strategy.

- **SB 1203 (Stats. 2022, ch. 368)** requires the Department of General Services (DGS) to publish an inventory of state agency GHG emissions by 2024. The legislation defines a state agency as a state agency, board, department, or commission. The legislation requires DGS, in consultation with CARB, to publish a plan no later than 2026 that includes actions and investments for how state agencies can reach the target of net-zero emissions in their operations. The plan must be updated every two years until 2035, at which point agencies are required to meet the target.

- **SB 1383 (Stats. 2016, ch. 395)** requires CARB to approve and begin implementing its Short-Lived Climate Pollutant Reduction Strategy by January 1, 2018, to achieve a 40 percent reduction in methane, 40 percent reduction in hydrofluorocarbon gases, and 50 percent reduction in anthropogenic black carbon by 2030, relative to 2013 levels.

- **SB 1425 (Stats. 2016, ch. 596)** requires the California Environmental Protection Agency to oversee the development of a registry of GHG emissions resulting from the use of water, such as pumping, treatment, heating, and conveyance (the water-energy nexus), using the best available data

Executive Orders (EOs)

- **EO N-82-20 (Newsom, 2020)** created a California Biodiversity Collaborative to conserve at least 30% of the state's land and coastal waters by 2030 to combat the biodiversity and climate crises.

- **EO N-19-19 (Newsom, 2019)** aims to redouble efforts in addressing climate change and building a sustainable, inclusive economy. Key directives include the Department of Finance to create a Climate Investment Framework to utilize the State's investment portfolio for advancing climate

leadership, protecting taxpayers, and supporting high-road job creation. The Order also emphasizes the need to further reduce direct tailpipe emissions, and manage climate risk in State operations through lowering greenhouse gas emissions.

- **EO B-55-18 (Brown 2018)** calls for carbon neutrality by 2045, consistent with the IPCC report. This executive order introduces the concept of balancing carbon emissions and carbon sequestration within the state.
- **EO B-30-15 (Brown 2015)** established a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 to ensure California meets its target to reduce GHG emissions to 80 percent below 1990 levels by 2050. State agencies with jurisdiction over sources of GHG emissions to implement measures were also directed pursuant to statutory authority, to achieve GHG emissions reductions to meet the 2030 and 2050 targets.
- **EO S-21-09 (Schwarzenegger 2009)** directed CARB to adopt a regulation consistent with the goal of EO S-14-08.
- **EO S-14-08 (Schwarzenegger 2008)** required all retail suppliers of electricity in California to serve 33 percent of their load with renewable energy by 2020.
- **EO S-13-08 (Schwarzenegger 2008)** directed state agencies to take specified actions to assess and plan for impacts of global climate change, particularly sea level rise.
- **EO S-01-07 (Schwarzenegger 2007)** set a low carbon fuel standard for California, and directed the carbon intensity of California's transportations fuels to be reduced by at least 10 percent by 2020.
- **EO S-3-05 (Schwarzenegger 2005)** directed reductions in GHG emissions to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.

HAZARDS AND HAZARDOUS MATERIALS

Hazards and Hazardous Materials (Federal)

Safe Drinking Water Act

The US Environmental Protection Agency (USEPA)'s authority under the Safe Drinking Water Act sets federal limits for drinking water contaminants. Water

suppliers must provide water that meets these standards, called maximum contaminant levels.

Hazardous Materials Transportation Act (HMTA) (49 U.S.C. §§ 5101-5127)

The HMTA delegates authority to the U.S. Department of Transportation to develop and implement regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation. The USEPA's Hazardous Waste Manifest System is a set of forms, reports, and procedures for tracking hazardous waste from a generator's site to the disposal site. Applicable regulations are contained primarily in CFR Titles 40 and 49.

California Toxics Rule (40 CFR 131)

In 2000, the USEPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions to be applied to waters in California to protect human health and the environment. Under the Clean Water Act (CWA) § 303(c)(2)(B), the USEPA requires states to adopt numeric water quality criteria for priority toxic pollutants for which the USEPA has issued criteria guidance, and the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses. These federal criteria are legally applicable in California for inland surface waters, enclosed bays, and estuaries.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C., Ch. 103, § 9601 et seq.)

CERCLA, commonly known as Superfund, provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986 (SARA).

Emergency Planning and Community Right-to-Know Act (EPCRA) (42 U.S.C., §§ 11001-11050).

Under the Emergency Planning and Community Right-to-Know Act (EPCRA), or Title III of SARA, the EPA requires local agencies to regulate the storage and handling of hazardous materials and requires development of a plan to mitigate

the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit to government agencies (i.e., Environmental Health Services Department), an inventory of the hazardous materials, an emergency response plan, and an employee training program. These business plans must provide a description of the types of hazardous materials/waste onsite and the location of these materials. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR 300)

Authorized under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA: 42 U.S.C. § 9605), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA: Pub. L. 99-499); and by Clean Water Act section 311(d), as amended by the Oil Pollution Act (Pub. L. 101-380), the NCP outlines requirements for responding to oil spills and hazardous substance releases. It specifies compliance, but does not require preparation of a written plan, and provides a comprehensive system for reporting, spill containment, and cleanup. Per 40 CFR 300.175 and 40 CFR 300.120, the U.S. Coast Guard has responsibility for oversight of regional response for oil spills in "coastal zones."

Occupational Safety and Health Act of 1970 (29 U.S.C. § 1 et seq.)

Congress created the California Division of Occupational Safety and Health (Cal/OSHA) to assure safe and healthful working conditions for working persons by setting and enforcing standards and by providing training, outreach, education and assistance. Cal/OSHA has entered into an agreement with California under which California regulations cover all private sector places of employment within the state with certain exceptions.

Oil Pollution Act (OPA) of 1990 (33 U.S.C. § 2701 et seq.)

The OPA requires owners and operators of facilities that could cause substantial harm to the environment to prepare and submit, and maintain up to date plans for responding to worst-case discharges of oil and hazardous substances and for facilities and vessels to demonstrate that they have sufficient response equipment under contract to respond to and clean up a worst-case spill. The passage of the OPA motivated California to pass a more stringent spill response and recovery regulation and the creation of the Office of Spill Prevention and Response to review and regulate oil spill plans and contracts. The OPA includes

provisions to expand prevention and preparedness activities, improve response capabilities, provide funding for natural resource damage assessments, ensure that shippers and oil companies pay the costs of spills that do occur, and establish an expanded research and development program. Pursuant to a Memorandum of Understanding established to divide areas of responsibility, the U.S. Coast Guard is responsible for tank vessels and marine terminals, the USEPA for tank farms, and the Research and Special Programs Administration for pipelines; each of these agencies has developed regulations for its area of responsibility. In addition, the Secretary of Interior is responsible for spill prevention, oil-spill contingency plans, oil-spill containment and clean-up equipment, financial responsibility certification, and civil penalties for offshore facilities and associated pipelines in all federal and state waters.

Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901 et seq.)

The RCRA authorizes the USEPA to control hazardous waste from "cradle-to-grave" (generation, transportation, treatment, storage, and disposal). RCRA Hazardous and Solid Waste Amendments of 1984 include waste minimization, phasing out land disposal of hazardous waste, and corrective action for releases. The Department of Toxic Substances Control is the lead state agency for corrective action associated with RCRA facility investigations and remediation.

Toxic Substances Control Act (TSCA) (15 U.S.C. §§ 2601–2629)

The TSCA authorizes the USEPA to require reporting, record-keeping, testing requirements, and restrictions related to chemical substances and/or mixtures. It also addresses production, importation, use, and disposal of specific chemicals, such as polychlorinated biphenyls (PCBs), asbestos-containing materials, lead-based paint, and petroleum.

Other Relevant Laws, Regulations, and Recognized National Codes and Standards

- **33 CFR, Navigation and Navigable Waters** regulates aids to navigation, vessel operations, anchorages, bridges, security of vessels, waterfront facilities, marine pollution financial responsibility and compensation, prevention and control of releases of materials (including oil spills) from vessels, ports and waterways safety, boating safety, and deep-water ports.

- **40 CFR Parts 109, 110, 112, 113, and 114** – The Spill Prevention Countermeasures and Control (SPCC) plans covered in these regulatory

programs apply to oil storage and transportation facilities and terminals, tank farms, bulk plants, oil refineries, and production facilities, and bulk oil consumers (e.g., apartment houses, office buildings, schools, hospitals, government facilities). These regulations include minimum criteria for developing oil removal contingency plans, prohibit discharge of oil such that applicable water quality standards would be violated, and address oil spill prevention and preparation of SPCC plans. They also establish financial liability limits and provide civil penalties for violations of the oil spill regulations.

- **46 CFR parts 1 through 599 and Inspection and Regulation of Vessels (46 U.S.C. Subtitle II Part B)** provide that all commercial (e.g., passengers for hire, transport of cargoes, hazardous materials, and bulk solids) vessels operating offshore on specified routes (inland, near coastal, and oceans), including those under foreign registration, are subject to requirements applicable to vessel construction, condition, and operation. These regulations also allow for inspections to verify that vessels comply with applicable international conventions and U.S. laws and regulations.

- **Act of 1980 to Prevent Pollution from Ships (33 U.S.C. §§ 1901-1915)** requires ships in U.S. waters, and all U.S. ships to comply with International Convention for the Prevention of Pollution from Ships (MARPOL)

- **Clean Water Act (33 U.S.C. § 1251 et seq.)** (see Hydrology and Water Quality)

- **Convention on the International Regulations for Preventing Collisions at Sea** establishes “rules of the road” such as rights-of-way, safe speed, actions to avoid collision, and procedures to observe in narrow channels and restricted visibility

- **Hazardous Materials Transportation Act** (see Transportation/Traffic)

- **Safety and Corrosion Prevention Requirements** — ASME, National Association of Corrosion Engineers (NACE), ANSI

Hazards and Hazardous Materials (State)

California Occupational Safety and Health Act (Cal/OSHA) of 1973 and California Code of Regulations, title 8

California employers have many different responsibilities under the CalOSHA Regulations. The following represents several requirements**:**

- Establish, implement and maintain an Injury and Illness Prevention Program and update it periodically to keep employees safe
- Inspect workplace(s) to identify and correct unsafe and hazardous conditions
- Make sure employees have and use safe tools and equipment and properly maintain this equipment
- Provide and pay for personal protective equipment
- Use color codes, posters, labels or signs to warn employees of potential hazards

Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (OSPRA) (Gov. Code § 8670.1 et seq., Pub. Resources Code § 8750 et seq., and Rev. & Tax. Code § 46001 et seq.)

The OSPRA and its implementing regulations seek to protect state waters from oil pollution and to plan for the effective and immediate response, removal, abatement, and cleanup in the event of an oil spill. The Act requires applicable operators to prepare and implement marine oil spill contingency plans and to demonstrate financial responsibility, and requires immediate cleanup of spills, following the approved contingency plans, and fully mitigating impacts on wildlife. The Act assigns primary authority to the Office of Spill Prevention and Response (OSPR) within the California Department of Fish and Wildlife (CDFW) to direct prevention, removal, abatement, response, containment, and cleanup efforts with regard to all aspects of any oil spill in the marine waters of the state; the California State Lands Commission is also provided with authority for oil spill prevention from and inspection of marine facilities and assists OSPR with spill investigations and response. Notification is required to the State Office of Emergency Services, which in turn notifies the response agencies, of all oil spills in the marine environment, regardless of size. The Act also created the Oil Spill Prevention and Administration Fund and the Oil Spill Response Trust Fund. Pipeline operators pay fees into the first of these funds for pipelines transporting oil into California across, under, or through marine waters.

Clean Coast Act of 2005 (SB 771; Stats. 2005, ch. 588)

This Act (effective January 1, 2006) includes requirements to reduce pollution of California waters from large vessels by: prohibiting and requiring reporting of discharges of hazardous wastes, other wastes, or oily bilge water into California waters or a marine sanctuary; and prohibiting and requiring reporting of

discharges of grey water and sewage into California waters from vessels with sufficient holding-tank capacity or vessels capable of discharging grey water or sewage to available shore-side reception facilities.

Other Relevant Laws, Regulations, and Standards

- **Hazardous Waste Control Act (Health & Saf. Code, ch. 6.5, § 25100 et seq. & Cal. Code Regs., tit. 22, div. 4.5)** establishes criteria for defining hazardous waste and its safe handling, storage, treatment, and disposal (law is designed to provide cradle-to-grave management of hazardous wastes and reduce the occurrence and severity of hazardous materials releases).

- **Hazardous Material Release Response Plans and Inventory Law (Health & Saf. Code, ch. 6.95)** is designed to reduce the occurrence and severity of hazardous materials releases. This state law requires businesses to develop a Release Response Plan for hazardous materials emergencies if they handle more than 500 pounds, 55 gallons, or 200 cubic feet of hazardous materials. In addition, the business must prepare a Hazardous Materials Inventory of all hazardous materials stored or handled at the facility over the above thresholds, and all hazardous materials must be stored in a safe manner.

- **California Code of Regulations, title 8, division 1** sets forth the Permissible Exposure Limit, the exposure, inhalation or dermal permissible exposure limit for numerous chemicals. Included are chemicals, mixture of chemicals, or pathogens for which there is statistically significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed employees. Title 8 sections 5191 and 5194 require a Hazard Communication Plan to ensure both employers and employees understand how to identify potentially hazardous substances in the workplace, understand the associated health hazards, and follow safe work practices.

- **California Code of Regulations, title 19, division 2** establishes minimum statewide standards for Hazardous Materials Business Plans.

- **California Code of Regulations, title 22, division 4.5** regulates hazardous wastes and materials by implementation of a Unified Program to ensure consistency throughout the state in administration requirements, permits, inspections, and enforcement by Certified Unified Program Agencies (CUPAs).

- **California Code of Regulations, title 24, part 9 (Fire Code regulations)** states hazardous materials should be used and stored in compliance with the state fire codes.

- **California State Lands Commission Oil and Gas provisions and regulations** (see Multiple Environmental Issues)

- **Porter-Cologne Water Quality Control Act (Wat. Code § 13000 et seq.)** (see Hydrology and Water Quality)

- **Protection of Underground Infrastructure (California Government Code § 4216)** requires that an excavator must contact a regional notification center (i.e., underground service alert) at least 2 days before excavation of any subsurface installations. The underground service alert then notifies utilities that may have buried lines within 1,000 feet of the excavation. Representatives of the utilities must mark the specific location of their facilities within the work area prior to the start of excavation. The construction contractor must probe and expose the underground facilities by hand prior to using power equipment.

- **Seismic Hazards Mapping Act/Regulations (Pub. Resources Code § 2690 et seq.; Cal Code Regs., tit. 14, div. 2, ch. 8, art. 10)** (see Geology and Soils)

HYDROLOGY AND WATER QUALITY

Hydrology and Water Quality (Federal)

Federal Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.)

The CWA is comprehensive legislation (it generally includes the Federal Water Pollution Control Act of 1972, its supplementation by the CWA of 1977, and amendments in 1981, 1987, and 1993) that seeks to protect the nation's water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the U.S. These water quality standards are promulgated by the USEPA and enforced in California by the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). Relevant CWA sections include:

- **Section 303(d) (33 U.S.C. § 1313)** requires states to list waters that are not attaining water quality standards, which is known as the 303(d) List of impaired waters. These requirements have led to the development of

total maximum daily load (TMDL) guidance at the state level through the SWRCB and various RWQCBs.

- **Section 305(b) (33 U.S.C. § 1315)** requires states to assess and report on the water quality status of waters within the states.

- **Section 401 (33 U.S.C. § 1341)** specifies that any applicant for a federal permit or license to conduct any activity which may result in any discharge into the navigable waters of the U.S. must obtain a certification or waiver thereof from the state in which the discharge originates that such a discharge will comply with established state effluent limitations and water quality standards. U.S. Army Corps of Engineers projects are required to obtain this certification.

- **Section 402 (33 U.S.C. § 1342)** establishes conditions and permitting for discharges of pollutants under the National Pollutant Discharge Elimination System (NPDES). Under the NPDES Program, states establish standards specific to water bodies and designate the types of pollutants to be regulated, including total suspended solids and oil; all point sources that discharge directly into waterways are required to obtain a permit regulating their discharge. NPDES permits fall under the jurisdiction of the SWRCB or RWQCBs when the discharge occurs within state waters (out to 3 nautical miles).

- **Section 403 (33 U.S.C. § 1343)** provides permit issuance guidelines for ocean discharge. Section 403 provides that point source discharges to the territorial seas, contiguous zone, and oceans are subject to regulatory requirements in addition to the technology- or water quality-based requirements applicable to typical discharges. These requirements are intended to ensure that no unreasonable degradation of the marine environment will occur as a result of the discharge and to ensure that sensitive ecological communities are protected.

- **Section 404 (33 U.S.C. § 1344)** authorizes the U.S. Army Corps of Engineers to issue permits for the discharge of dredged or fill material into waters of the U.S., including wetlands, streams, rivers, lakes, coastal waters or other water bodies or aquatic areas that qualify as waters of the U.S. Wetlands are a subset of "waters of the United States" that are defined in the Code of Federal Regulations (CFR) (33 CFR 328.3[a]; 40 CFR 230.3[s]) as:

1. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide.

2. All interstate waters including interstate wetlands. (Wetlands are defined by the federal government [33 CFR 328.3(b), 1991] as those areas that are inundated or saturated by surface or groundwater at a Regulatory Setting August 2023 A-7 PG&E Gas Line 021G/R-708 Replacement Project MND frequency and duration sufficient to support, and that under normal circumstances support, a prevalence of vegetation typically adapted for life in saturated soil conditions).

3. All other waters—such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds—the use, degradation, or destruction of which could affect interstate or foreign commerce. This includes any waters with the following current or potential uses:

    - That are or could be used by interstate or foreign travelers for recreational or other purposes,

    - From which fish or shellfish are or could be taken and sold in interstate or foreign commerce, or

    - That are used or could be used for industrial purposes by industries in interstate commerce.

4. All impoundments of waters otherwise defined as waters of the United States under the definition.

5. Tributaries of waters identified in paragraphs (1) through (4).

6. Territorial seas.

7. Wetlands next to waters identified in paragraphs (1) through (6).

8. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding the Clean Water Act jurisdiction remains with the U. S. Environmental Protection Agency (328.3[a][8] added 58 CFR 45035, August 25, 1993).

Impacts to federally regulated waters subject to the jurisdiction of the USACE would require a permit from the USACE.

Rivers and Harbors Act (33 U.S.C. § 401 et seq.)

This Act governs specified activities in "navigable waters" (waters subject to the ebb and flow of the tide or that are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce). Section 10 provides that construction of any structure in or over any navigable water of the U.S., or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters, is unlawful unless the U.S. Army Corps of Engineers approves the work and issues a Rivers and Harbors Act section 10 Permit (which may occur concurrently with Clean Water Act section 404 permits).

National Flood Insurance Program

In response to the increasing cost of disaster relief, Congress passed the National Flood Insurance Program of 1968 and the Flood Disaster Protection Act of 1973. The Federal Emergency Management Agency (FEMA) administers the program to provide subsidized flood insurance to communities that comply with FEMA regulations to limit development in floodplains. A FIRM is an official FEMA prepared map of a community. It is used to delineate both the SFHAs and the flood-risk premium zones that are applicable to the community.

Other Relevant Laws and Regulations

- **Navigation and Navigable Waters (33 CFR)** regulations include requirements pertaining to prevention and control of releases of materials from vessels (e.g., oil spills), traffic control, and restricted areas, and general ports and waterways safety.
- **Oil Pollution Act (OPA) (33 U.S.C. § 2701 et seq.)** (see Hazards and Hazardous Materials)

<u>Hydrology and Water Quality (State)</u>

State Water Resources Control Board

The State Water Resources Control Board is the agency designated by the Environmental Protection Agency for administering applicable Federal Clean Water Act and Safe Drinking Water Act programs, which include adopting water quality standards for State waters. In addition to standards and

regulations established by the Federal National Pollutant Discharge Elimination System (NPDES) program, California adopted a number of other, more stringent legislative acts in order to further strengthen State water quality standards. These acts include the Porter-Cologne Water Quality Act, California Water Code, and Title 23 of the California Code of Regulations. Within California, the State Water Resources Control Board is responsible for developing and implementing water quality control policy.

The Central Valley Regional Water Quality Control Board is responsible for water quality permitting in the Central Valley region including the County of Sacramento where the Project site is located. The Central Valley Regional Water Quality Control Board (Region 5) adopted the Water Quality Control Plan for the Sacramento and San Joaquin River Basins(Basin Plan), which designates beneficial uses and establishes water quality objectives for groundwater and surface water in the Central Valley region, including the San Joaquin Delta where the Project would be located.

Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) (Porter-Cologne)

Porter-Cologne is the principal law governing water quality in California. The Act established the SWRCB and nine RWQCBs, which have primary responsibility for protecting water quality and beneficial uses of state waters. Porter-Cologne also implements many provisions of the federal Clean Water Act, such as the NPDES permitting program. Pursuant to Clean Water Act section 401, applicants for a federal license or permit for activities that may result in any discharge to waters of the U.S. must seek a Water Quality Certification from the state in which the discharge originates; such Certification is based on a finding that the discharge will meet water quality standards and other appropriate requirements of state law. In California, RWQCBs issue or deny certification for discharges within their jurisdiction. The SWRCB has this responsibility where projects or activities affect waters in more than one RWQCB's jurisdiction. If the SWRCB or a RWQCB imposes a condition on its Certification, those conditions must be included in the federal permit or license. Plans that contain enforceable standards for the various waters they address include the following:

- **Basin Plan**. Porter-Cologne (see § 13240) requires each RWQCB to formulate and adopt a Basin Plan for all areas within the region. Each RWQCB must establish water quality objectives to ensure the reasonable protection of beneficial uses, and an implementation program for achieving water quality objectives within the Basin Plan. In California, the

beneficial uses and water quality objectives are the state's water quality standards.

- **California Ocean Plan.** (see § 13170.2) establishes water quality objectives for California's ocean waters and provides the basis for regulating wastes discharged into ocean and coastal waters. The plan applies to point and non-point sources. In addition, the Ocean Plan identifies applicable beneficial uses of marine waters and sets narrative and numerical water quality objectives to protect beneficial uses. The SWRCB first adopted this plan in 1972, and it reviews the plan at least every 3 years to ensure that current standards are adequate and are not allowing degradation to indigenous marine species or posing a threat to human health.

RWQCBs also oversee on-site treatment of "California Designated, Non-Hazardous Waste" and enforce water quality thresholds and standards set forth in the Basin Plan. Applicants may be required to obtain a Construction Stormwater General Permit under the NPDES program, and develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes best management practices to control erosion, siltation, turbidity, and other contaminants associated with construction land disturbance activities. The SWPPP would include best management practices to control or prevent the release of non-storm water discharges, such as crude oil, in storm water runoff.

California Anti-Degradation Policy

In 1968, as required under the federal anti-degradation policy, the SWRCB adopted Resolution No. 68-16 a "Statement of Policy with Respect to Maintaining High Quality of Waters in California." Resolution 68-16 states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality standard with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The Policy prohibits discharges of wastes that will lower the quality of surface or groundwater so that the water is available for the maximum benefit of future residents.

Harbors and Navigation Code sections 650-674

This code specifies a State policy to "promote safety for persons and property in and connected with the use and equipment of vessels," and includes laws concerning marine navigation that are implemented by local city and county governments. This Code also regulates discharges from vessels within territorial waters of the State of California to prevent adverse impacts on the marine environment. This code regulates oil discharges and imposes civil penalties and

liability for cleanup costs when oil is intentionally or negligently discharged to the waters of the State of California.

Construction Storm Water Discharge Regulations

Construction projects that include disturbance of one or more acres of land surface, would be subject to the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction Stormwater General Permit) (Order No. 2022-0057-DWQ) administered by the Regional Water Quality Control Board. The Construction Stormwater General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the United States from construction sites that disturb one acre or more of land surface, or that are part of a common plan of development or sale that disturbs more than one 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. Because the Project would entail more than one acre of disturbance and temporary impacts, the Construction Stormwater General Permit would be obtained by PG&E to cover associated stormwater discharges.

The Construction Stormwater General Permit requires the development and implementation of a stormwater 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 Stormwater General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site after construction).

Other Relevant Laws

- **Lake and Streambed Alteration Program (Fish & G. Code, §§ 1600-1616)** (see Biological Resources section)
- **Water Code section 8710** requires that a reclamation board permit (from Sherman Island Reclamation District 341) be obtained prior to the start of any work, including excavation and construction activities, if projects are located within floodways or levee sections. Structures for human habitation are not permitted within designated floodways.
- **Water Code section 13142.5** provides marine water quality policies stating that wastewater discharges shall be treated to protect present and future beneficial uses, and, where feasible, to restore past beneficial uses of the receiving waters. The highest priority is given to improving or eliminating discharges that adversely affect wetlands, estuaries, and other biologically sensitive sites; areas important for water contact sports; areas that produce shellfish for human consumption; and ocean areas subject to massive waste discharge.

LAND USE AND PLANNING

Land Use and Planning (Federal)

There are no major federal laws, regulations, and policies potentially applicable to this Project.

Land Use and Planning (State)

Submerged Lands Act (43 U.S.C. § 1301 et seq.; Pub. L. 83-31)

The State of California owns tide and submerged lands waterward of the ordinary high watermark. State law gives primary responsibility for determination of the precise boundary between these public tidelands and private lands, and

administrative responsibility over state tidelands, to the CSLC. Access and use of state shoreline areas can be obtained through lease agreements.

MINERAL RESOURCES

Mineral Resources (Federal)

There are no major federal laws, regulations, and policies potentially applicable to this Project.

Mineral Resources (State)

Surface Mining and Reclamation Act (SMARA) (Pub. Resources Code §§ 2710-2796).

The California Department of Conservation is the primary agency tasked with mineral resource protection. The Department, which is charged with conserving earth resources (Pub. Resources Code, §§ 600-690), has five program divisions: California Geological Survey (CGS); Geologic Energy Management Division (CalGEM); Division of Land Resource Protection (DLRP); State Mining and Geology Board (SMGB); and Division of Mine Reclamation (DMR). SMGB develops policy direction regarding the development and conservation of mineral resources and reclamation of mined lands. In accordance with SMARA, CGS classifies the regional significance of mineral resources and assists in designating lands containing significant aggregate resources. Four Mineral Resource Zones (MRZs) are designated to indicate the significance of mineral deposits.

- MRZ-1 – Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
- MRZ-2 – Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- MRZ-3 – Areas containing mineral deposits the significance of which cannot be evaluated from available data.
- MRZ-4 – Areas where available information is inadequate for assignment to any other MRZ.

The Warren-Alquist State Energy Resources Conservation and Development Act (Pub. Res. Code § 25000 et seq.)

This act was adopted in 1974 to encourage conservation of non-renewable energy resources. It established the California Energy Commission.

NOISE

Noise (Federal)

Noise Control Act (42 U.S.C. § 4901 et seq.) and NTIS 550\9-74-004, 1974

The Noise Control Act required the USEPA to establish noise emission criteria and noise testing methods (40 CFR Chapter 1, Subpart Q). These criteria generally apply to interstate rail carriers and to some types of construction and transportation equipment. In 1974, the USEPA provided guidance in National Technical Information Service (NTIS) 550\9-74-004 ("Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety;" referenced as the "Levels Document") that established a Day Night Average Sound Level (L_{dn}) of 55 dBA as the requisite level, with an adequate margin of safety, for areas of outdoor uses including residences and recreation areas. The recommendations do not consider technical or economic feasibility (i.e., the document identifies safe levels of environmental noise exposure without consideration for achieving these levels or other potentially relevant considerations), and therefore should not be construed as standards or regulations.

NTIS 550\9-74-004, 1974

In response to a Federal mandate, the USEPA provided guidance in NTIS 550\9-74-004, 1974 ("Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety"), commonly referenced as the "Levels Document" that establishes an Ldn of 55 dBA as the requisite level, with an adequate margin of safety, for areas of outdoor uses including residences and recreation areas. The USEPA recommendations contain a factor of safety and do not consider technical or economic feasibility (i.e., the document identifies safe levels of environmental noise exposure without consideration for achieving these levels or other potentially relevant considerations), and therefore should not be construed as standards or regulations.

Transit Noise and Vibration Impact Assessment from the Federal Transit Administration (FTA)

The FTA has issued guidance on how to assess vibration impacts from construction-related activities in its report *Transit Noise and Vibration Impact Assessment*. FTA's guidance is designed to be used by project sponsors seeking to evaluate vibration impacts during the environmental review process. The document focuses primarily on operation of transportation projects, but it also provides guidance on the use of heavy machinery and associated vibration levels during construction, including the types of equipment that would be deployed under the Project. The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. These standards are detailed in the table below.

Construction Vibration Criteria for Building Damage

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

Noise (State)

Land Use Compatibility Guidelines from the now defunct California Office of Noise Control (State of California 1976)

State regulations for limiting population exposure to physically and/or psychologically significant noise levels include established guidelines and ordinances for roadway and aviation noise under the California Department of Transportation and the now defunct California Office of Noise Control. Office of Noise Control land use compatibility guidelines provided the following:

- For residences, an exterior noise level of 60 to 65 dBA Community Noise Equivalent Level (CNEL) is considered "normally acceptable;" a noise level of greater than 75 dBA CNEL is considered "clearly unacceptable."
- A noise level of 70 dBA CNEL is considered "conditionally acceptable" (i.e., the upper limit of "normally acceptable" for sensitive uses [schools, libraries, hospitals, nursing homes, churches, parks, offices, commercial/ professional businesses]).

Other Relevant Regulation

- **California Code of Regulations, title 24** establishes CNEL 45 dBA as the maximum allowable indoor noise level resulting from exterior noise sources for multi-family residences.
- **The California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance Manual** has developed guidance on addressing vibration issues associated with construction, operation, and maintenance of transportation projects. The table below shows the Caltrans criteria for human response to transient vibration.

Human Response to Transient Vibration

Human Response	PPV (in/sec)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035

POPULATION AND HOUSING

There are no major federal or state laws, regulations, and policies potentially applicable to this Project.

PUBLIC SERVICES

Public Services (Federal)

CFR Title 29

- **29 CFR 1910.38** requires an employer, when required by a California Division of Occupational Safety and Health (Cal/OSHA) standard, to have an Emergency Action Plan that must be in writing, kept in the workplace, and available to employees for review.
- **29 CFR 1910.39** requires an employer to have a Fire Prevention Plan.
- **29 CFR 1910.155, Subpart L, Fire Protection** requires employers to place and keep in proper working order fire safety equipment within facilities.

Public Services (State)

California Code of Regulations, title 19 (Public Safety)

California State Fire Marshal regulations establish minimum standards for the prevention of fire and for protection of life and property against fire, explosion, and panic.

RECREATION

Recreation (Federal)

There are no major federal laws, regulations, and policies potentially applicable to this Project.

Recreation (State)

California State Parks Central Valley Vision Implementation Plan

The Central Valley Vision Implementation Plan will be implemented over the next twenty years to improve recreation and resource protection in the Central Valley. The Plan resulted from analysis by California State Parks with input from Central Valley residents and partners, including public agencies and non-profit organizations. The Plan is a catalog of potential initiatives, including costs and schedule, as mandated by Public Resources Code 5095.50-5095.54 (AB 1426). Full implementation of the Plan would improve and increase recreation facilities and add over 22,000 acres of land to the California State Park system. Initiatives for Brannan Island SRA are discussed in the Initiatives by Region and Park chapter of the plan, contained within the Delta subsection which covers Contra Costa, Sacramento, San Joaquin, and Solano Counties. Initiatives includes adding 30 campsites and 12 picnic sites; expanding trails, angling, boating facilities, and the existing visitor center; if feasible, restore windsurfing areas; and increasing cooperation with the California Department of Water Resources and Department of Fish and Wildlife to provide recreation at Twitchell, Sherman and Lower Sherman Islands.

TRANSPORTATION / TRAFFIC

Transportation / Traffic (Federal)

Hazardous Materials Transportation Act (HMTA) (49 U.S.C. §§ 5101-5127) (see Hazards and Hazardous Materials)

Ports and Waterways Safety Act (33 U.S.C. § 1221 et seq.)

This Act provides the authority for the U.S. Coast Guard to increase vessel safety and protect the marine environment in ports, harbors, waterfront areas, and navigable waters, including by authorizing the Vessel Traffic Service, controlling vessel movement, and establishing requirements for vessel operation.

Americans with Disabilities Act (ADA) (U.S.C., tit. 42, 47)

The ADA (1990) is a wide-ranging civil rights law that prohibits, under certain circumstances, discrimination based on disability. Pedestrian facility design must comply with the accessibility standards identified in the ADA, which applies to all projects involving new or altered pedestrian facilities. The scoping and technical provisions for new construction and alterations identified in the ADA Accessibility Guidelines (Sections 4.3, 4.7 and 4.8) can be used to help design pedestrian facilities that are ADA compliant. For example, Title II-6.600 of the Technical Assistance Manual states, "When streets, roads, or highways are newly built or altered, they must have ramps or sloped areas whenever there are curbs or other barriers to entry from a sidewalk or path." Certain facilities, such as historic buildings, may be exempt from ADA requirements.

Title 23 (Highways), CFR, Section 450.220

Requires each state to carry out a continuing, comprehensive, and intermodal statewide transportation planning process. This planning process must include the development of a statewide transportation plan and transportation improvement program that facilitates the efficient, economic movement of people and goods in all areas of the state.

Transportation/Traffic (State)

California Vehicle Code

Chapter 2, article 3 defines the powers and duties of the California Highway Patrol, which enforces vehicle operation and highway use in the state. The California Department of Transportation is responsible for the design, construction, maintenance, and operation of the California State Highway System and the portion of the Interstate Highway System within state boundaries.

Caltrans has the discretionary authority to issue special permits for the use of California State highways for other than normal transportation purposes. Caltrans also reviews all requests from utility companies, developers, volunteers, nonprofit organizations, and others desiring to conduct various activities within

the California Highway right of way. The Caltrans Highway Design Manual, prepared by the Office of Geometric Design Standards, establishes uniform policies and procedures to carry out the highway design functions of Caltrans. Caltrans has also prepared a Guide for the Preparation of Traffic Impact Studies. Objectives for the preparation of this guide include providing consistency and uniformity in the identification of traffic impacts generated by local land use proposals.

Harbors and Navigation Code sections 650-674 (see Hydrology and Water Quality)

UTILITIES AND SERVICE SYSTEMS

Utilities and Service Systems (Federal)

CFR Title 29 (see Public Services)

Hazardous Materials Transportation Act (HMTA) (49 U.S.C. §§ 5101-5127)

The HMTA delegates authority to the U.S. Department of Transportation to develop and implement regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation. The USEPA's Hazardous Waste Manifest System is a set of forms, reports, and procedures for tracking hazardous waste from a generator's site to the disposal site. Applicable regulations are contained primarily in CFR Titles 40 and 49.

Toxic Substances Control Act (TSCA) (15 U.S.C. §§ 2601–2629)

The TSCA authorizes the USEPA to require reporting, record-keeping, testing requirements, and restrictions related to chemical substances and/or mixtures. It also addresses production, importation, use, and disposal of specific chemicals, such as polychlorinated biphenyls (PCBs), asbestos-containing materials, lead-based paint, and petroleum.

Utilities and Service Systems (State)

California Government Code Section 4216

Section 4216 of the California Government Code protects underground structures during excavation. This law requires state and local agencies to contact a regional notification center before excavating for subsurface installations to identify and protect existing underground infrastructure, such as pipelines, conduits, ducts, or wires. Under this law, excavators must delineate the planned

excavation site and contact their regional notification center at least 2 working days before excavations. The Project site's regional notification center is Underground Service Alert (USA) North 811. USA North 811 notifies utility providers of existing underground installations within 1,000 feet of planned excavation.

California Integrated Waste Management Act (AB 939; Stats. 1989, ch. 1095)

This Act mandates management of non-hazardous solid waste throughout California. Its purpose includes: reduce, recycle, and reuse solid waste generated in the state to the maximum extent feasible; improve regulation of existing solid waste landfills; ensure that new solid waste landfills are environmentally sound; streamline permitting procedures for solid waste management facilities; and specify local government responsibilities to develop and implement integrated waste management programs. AB 939 policies preferred waste management practices include the following. The highest priority is to reduce the amount of waste generated at its source (source reduction). Second is to reuse, by extending the life of existing products and recycling those wastes that can be reused as components or feed stock for the manufacture of new products, and by composting organic materials. Source reduction, reuse, recycling and composting are jointly referred to as waste diversion methods because they divert waste from disposal. Third is disposal by environmentally safe transformation in a landfill. All local jurisdictions, cities, and counties were required to divert 50 percent of the total waste stream from landfill disposal by the year 2000 and each year thereafter (with 1990 as the base year).

California Hazardous Waste Control Act (Health & Saf. Code, ch. 6.5, § 25100 et seq. & Cal. Code Regs., tit. 22, div. 4.5) establishes criteria for defining hazardous waste and its safe handling, storage, treatment, and disposal (law is designed to provide cradle-to-grave management of hazardous wastes and reduce the occurrence and severity of hazardous materials releases).

California Code of Regulations, Title 22, Division 4.5 (Environmental Health Standards for the Management of Hazardous Waste)

CCR Title 22 outlines various standards and requirements for the identification, collection, transport, disposal, and recycling of hazardous and universal wastes. *Universal waste,* as defined in CCR Title 22, Section 66273.9, includes batteries, electronic devices, mercury-containing equipment, lamps, cathode ray tubes, and aerosol cans. The regulations mandate recycling, recovery, the return of spent items to the manufacturer, or disposal at an appropriately permitted

facility. Title 22, Division 4.5 also sets forth restrictions and standards relevant to waste destination facilities and provides authorization requirements for various waste handlers. Title 22 includes California's Universal Waste Rule and other additional waste handling and disposal requirements.

WILDFIRE

Wildfire (Federal)

There are no major federal laws, regulations, and policies potentially applicable to this Project.

Wildfire (State)

State Responsibility Area (SRA)

The California Public Resources Code (Section 4101 et seq.) includes fire safety requirements for which the Department of Forestry and Fire Protection (CAL FIRE) has adopted regulations (for example, Chapter 7 of Division 1.5 of 14 CCR) that apply to state responsibility areas (SRAs). As the name implies, SRAs are areas where CAL FIRE has primary responsibility for fire protection. During the fire hazard season, these regulations: (a) restrict the use of equipment that may produce a spark, flame, or fire; (b) require the use of spark arrestors on equipment that has an internal combustion engine; (c) specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and (d) specify fire-suppression equipment that must be provided onsite for various types of work in fire-prone areas.

Very High Fire Hazard Severity Zones (AB 337; Gov. Code § 51175 et seq.)

As a result of the Oakland Hills Fire (Tunnel Fire) of 1991, the Bates Bill (AB 337) was passed in 1992 requiring CAL FIRE to work with local governments to identify high fire hazard severity zones within local responsibility areas throughout each county in the state. Over the years, CAL FIRE has updated the maps and provided new recommendations to local governments.

CAL FIRE periodically gathers new data and updates the mapping. This is a massive project requiring policy and procedure staff, prevention and planning staff, and the technical geographic information system (GIS) skills of CAL FIRE's Fire and Resource Assessment Program.

APPENDIX B

Local Laws, Regulations, and Policies
Potentially Applicable to the Project

Appendix B in this Mitigated Negative Declaration identifies local regulations and policies potentially applicable to the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project.

AESTHETICS

Solano County General Plan

Solano County General Plan policies related to aesthetic resources that may apply to the Project include:

Policy RS.P-35: Protect the unique scenic features of Solano County, particularly hills, ridgelines, wetlands, and water bodies.

Policy RS.P-36: Support and encourage practices that reduce light pollution and preserve views of the night sky.

Policy RS.P-37: Protect the visual character of designated scenic roadways.

Sacramento County General Plan

Sacramento County General Plan policies related to aesthetic resources that may apply to the Project include:

Policy OS-1: Actively plan to protect, as open space, areas of natural resource value, which may include but are not limited to wetlands preserves, riparian corridors, woodlands, and floodplains associated with riparian drainages.

Policy LU-31: Strive to achieve a natural nighttime environment and an uncompromised public view of the night sky by reducing light pollution.

AGRICULTURE AND FORESTRY RESOURCES

Solano County

Solano County General Plan policies related to agricultural resources that may apply to the Project include:

Policy AG.P-3: Encourage consolidation of the fragmented pattern of agricultural preserves and contracts established under the Land Conservation Act (Williamson Act) and the retention of agricultural preserves and contracts in agricultural, watershed, and marshland areas.

Policy AG.P-16: Minimize potential conflicts between agricultural and residential uses by encouraging the use of urban-agricultural buffers within city municipal service areas between residential uses and agricultural lands.

Sacramento County

Sacramento County General Plan policies related to agricultural resources that may apply to the Project include:

Policy AG-10: The County shall balance the protection of prime, statewide importance, unique and local importance farmlands and farmlands with intensive agricultural investments with the preservation of natural habitat so that the protection of farmland can also serve to protect habitat.

AIR QUALITY

Solano County General Plan

The Solano County General Plan, Public Health and Safety Chapter's, Air Quality Element indicates that mobile sources are a major source of air pollution in Solano County. The Solano County Air Quality Element also prioritizes land use and transportation planning efforts to minimize sensitive receptors to air pollutants. The Solano County Air Quality Element requires that the following best management practices (BMPs) be implemented for short-term construction projects:

- Regular watering or application of non-toxic soil stabilizers, episodic control to limit activity on days with high winds or forecast poor air quality
- Installation of windbreaks, and reestablishment of ground cover on inactive areas
- Older model construction equipment should be upgraded through the appropriate air quality management district or CARB incentive program
- Engine idling should be minimized when equipment is not in use.

Sacramento County General Plan

The Sacramento County General Plan's Air Quality Element indicates that the primary source of poor air quality is due to mobile source emissions, such as single occupancy vehicles. The County's Air Quality Element prioritizes land use and transportation policies that offer alternatives to single occupancy vehicle use and recognizes that sensitive receptors such as the young and elderly can

suffer greater negative health effect from exposure to air pollution. Therefore, the County's Air Quality Element states that land uses such as schools, hospitals, parks and elderly housing facilities, should be located away from uses that generate a heavy concentration of emissions.

The County's Air Quality Element has three objectives to improve air quality. The section below discusses each objective and the policies associated with them that are applicable to the Project.

Objective 1. The integration of air quality planning with land use, transportation, and energy planning processes to provide a safe and healthy environment.

Policy AQ-3: Buffers and/or other appropriate exposure reduction measures shall be established on a project-by project basis and incorporated during review to provide for protection of sensitive receptors from sources of air pollution or odor. The CARB's "Strategies to Reduce Air Pollution Exposure Near High Volume Roadways" Technical Advisory and the SMAQMD's "Mobile Sources Air Toxics Protocol" or applicable SMAQMD guidance shall be utilized when establishing these exposure reduction measures.

Policy AQ-4: Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or Greenhouse Gases (GHG) as adopted by the SMAQMD, shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the SMAQMD.

Policy AQ-4A: Residential zones should not be located adjacent to industrial zones (M-1 and M-2) or general agriculture zones (AG-10 to 160). In the event that a residential zone is located adjacent to an industrial or agricultural zone, the developer of the property(ies) being rezoned shall be required to implement exposure reduction measures developed in consultation with the SMAQMD.

Policy AQ-4B: Land uses with sensitive receptors such as residences, schools, senior care facilities and day care centers which are proposed within 500 feet of a freeway or other high-volume roadway defined as an urban roadway with more than 100,000 average daily trips or a rural roadway with more than 50,000 average daily trips, a railyard or an active railroad shall incorporate exposure reduction measures consistent with the guidance listed in Air Quality Element policy AQ-3.

Objective 2. A reduction in motor vehicle emissions through a decrease in the average daily trips and vehicle miles traveled and an increasing reliance on the use of low emission vehicles.

Policy AQ-10: Encourage vehicle trip reduction and improved air quality by requiring development projects that exceed the SMAQMD's significance thresholds for operational emissions to provide on-going, cost-effective mechanisms for transportation services that help reduce the demand for existing roadway infrastructure.

Policy AQ-11: Encourage contractors operating in the county to procure and to operate low-emission vehicles, and to seek low emission fleet status for their off-road equipment.

Objective 3. Compliance with federal and state air quality standards to reduce all air pollutants, including O3 depleting compounds to ensure the protection of the stratospheric O3 layer.

Policy AQ-16: Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any 1-hour period.

Policy AQ-19: Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.

Policy AQ-21: Support SMAQMD's particulate matter control measures for residential wood burning and fugitive dust.

SMAQMD Regulations

SMAQMD Regulation 2 Rule 302 – Permit to Operate: Any person operating an article, machine, equipment or other contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, shall first obtain a written permit from the Air Pollution Control Officer. No permit to operate or use shall be granted either by the Air Pollution Control Officer or the Hearing Board for any article, machine, equipment or contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, constructed or installed without authorization as required by Section 301 of this rule, until the information required is presented to the Air Pollution Control Officer and such article, machine, equipment or contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, is altered,

if necessary, and made to conform to the standards set forth in Section 303 of this rule, elsewhere in these rules and regulations, and in the Health and Safety Code.

SMAQMD Regulation 4 Rule 401, Rule 2.3 – Ringelmann Chart: A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour which is:

- As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- Of such opacity as to obscure a human observer's view, or a certified calibrated in- stack opacity monitoring system to a degree equal to or greater than does smoke described in this rule.

SMAQMD Regulation 4 Rule 402, Rule 2.5 – Nuisance: A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property.

SMAQMD Regulation 4 Rule 403 – Fugitive Dust: A person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to:

- Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways or the clearing of land.
- Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.
- Other means approved by the Air Pollution Control Officer.

SMAQMD Regulation 4 Rule 404 – Particulate Matter: Except as otherwise provided in Rule 406 – Specific Contaminants, a person shall not discharge into

the atmosphere from any source particulate matter in excess of 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot).

SMAQMD Regulation 4 Rule 406- Specific Contaminants: A person shall not discharge into the atmosphere from any single source of emission whatsoever sulfur compounds in any state or combination thereof exceeding in concentration at the point of discharge: sulfur compounds, calculated as sulfur dioxide (SO2): 0.2% by volume, except as otherwise provided in Rule 420.

YSAQMD Regulations

YSAQMD Regulation 2, Rule 2.3 – Ringelmann Chart: A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour which is:

- As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- Of such opacity as to obscure a human observer's view, or a certified calibrated in- stack opacity monitoring system to a degree equal to or greater than does smoke described in this rule.

YSAQMD Regulation 2, Rule 2.5 – Nuisance: A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property.

YSAQMD Regulation 3, Rule 3.1 – Permit Requirements: No person shall operate any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, without obtaining a permit from the Air Pollution Control Officer or the Hearing Board. In lieu of obtaining local permit(s), the equipment can operate under a voluntary Portable Equipment Registration Program (PERP) administered by CARB so long as the equipment complies with the PERP conditions.

BIOLOGICAL RESOURCES

Solano County

At the local level, Solano County has developed a number of policies to protect and enhance the County's natural habitats and diverse plant and animal communities. Solano County General Plan policies related to biological resources that may apply to the Project include:

Policy RS.P-1: Protect and enhance the County's natural habitats and diverse plant and animal communities, particularly occurrences of special-status species, wetlands, sensitive natural communities, and habitat connections.

Policy RS.P-2: Manage the habitat found in natural areas and ensure its ecological health and ability to sustain diverse flora and fauna.

Policy RS.P-3: Focus conservation and protection efforts on high-priority habitat areas.

Policy RS.P-5: Protect and enhance wildlife movement corridors to ensure the health and long-term survival of local animal and plant populations. Preserve contiguous habitat areas to increase habitat value and to lower land management costs.

Sacramento County

Sacramento County General Plan policies related to biological resources that that may apply to the Project include:

Policy CO-58: Ensure no net loss of wetlands, riparian woodlands, and oak woodlands.

Policy CO-59: Ensure mitigation occurs for any loss of or modification to the following types of acreage and habitat function:

- Vernal pools,
- Wetlands,
- Riparian,
- Native vegetative habitat, and
- Special-status species habitat.

Policy CO-63: Vernal pools, wetlands, and streams within identified preserves shall not be drained, excavated, or filled for the purpose of converting the land to another use. If fill or modification is required for Drainage Master Plans,

stormwater quality or levee maintenance, creation or restoration of an equal amount must occur within the boundaries of the preserve to achieve no net loss consistent with policy CO-58.

Policy CO-75: Maintain viable populations of special status species through the protection of habitat in preserves and linked with natural wildlife corridors.

PG&E Multiple Region Operations and Maintenance Habitat Conservation Plan

Field Protocol 1: Conduct annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the Plan Area that are applicable to their job duties and work. Tailboard and site-specific training will also be conducted prior to commencing work.

Field Protocol 2: Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).

Field Protocol 3: Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.

Field Protocol 4: Route off-road access paths and site work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).

Field Protocol 5: Notify conservation landowners at least 2 business days prior to conducting covered activities on protected lands (state- or federally owned wildlife areas, ecological reserves, or conservation areas); more notice will be provided if practicable or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV8003P-01, PG&E will notify the conservation landowner within 48 hours after initiating emergency work. Although this notification is intended only to inform conservation landowner, PG&E will attempt to work with the conservation landowner to address landowner concerns.

Field Protocol 6: Minimize potential for covered species to become trapped, injured, or killed in pipes, culverts, or under materials or equipment. Inspect pipes and culverts wide enough to be entered by a covered species that could inhabit the area where pipes are stored for wildlife species prior to moving pipes and culverts. Contact a biologist if a covered species or other federally-listed species is suspected or discovered.

Field Protocol 7: Vehicle speeds on unpaved roads will not exceed 15 miles per hour.

Field Protocol 8: Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.

Field Protocol 9: In designated State Responsibility Areas, equip all motorized equipment with federally or state-approved spark arrestors. Ensure a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens is onsite during welding. During fire "red flag" conditions as determined by the California Department of Forestry and Fire Protection, prohibit welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.

Field Protocol 10: Minimize the covered activity footprint and minimize the amount of time spent at a work site to reduce the potential for take of species.

Field Protocol 11: Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways.

Field Protocol 12: Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.

Field Protocol 13: Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife is not trapped. Field crews will not handle covered species. If any covered wildlife species is found, work will stop and a biologist will be notified. A biologist with appropriate take permits will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.

Field Protocol 14: If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial "weed free" seed mix. (Except in suitable habitat for Mount Hermon June beetle, Ohlone tiger beetle and Zyante band-winged grasshopper.)

Field Protocol 15: Prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review

by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.

Field Protocol 16: Maintain a buffer of 250 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not practicable because the covered activity footprint is within the buffered area, other measures as prescribed by the biologist or the HCP administrator to minimize impacts such as flagging access routes or paths, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity.

Field Protocol 17: Directionally fall trees away from an exclusion zone, if an exclusion zone has been defined. If this is not practicable, remove the tree in sections. Avoid damage to adjacent trees to the extent practicable. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs more than 6 inches in diameter.

Field Protocol 18: Nests with eggs and/or chicks will be avoided: contact a biologist or the Avian Protection Program Manager for further guidance. Work will be stopped until the crew can obtain clarification from a biologist or the Avian Protection Program Manager on how to proceed.

Field Protocol 19: Inspect and maintain exclusion fencing installed to exclude species from work areas.

Valley Elderberry Longhorn Beetle (VELB) 1: All personnel, including PG&E employees and contractors, who are likely to encounter elderberry plants or valley elderberry longhorn beetle, especially during vegetation management activities, are required to receive training on valley elderberry longhorn beetle. When covered ground-disturbing activities will be implemented within 20 feet of elderberry, a qualified individual will identify a work exclusion zone (i.e., 5–20 feet of the dripline of all elderberry shrubs), with pin flagging or other appropriate means, within which ground disturbance, tree felling, and equipment and vehicle operation will be avoided or minimized. Except for cut stump treatment of removed trees (non-elderberry), herbicides will not be used within this zone. When performing vegetation maintenance work in compliance with Public Resources Code Sections 4291– 4293, pruning, rather than removal of elderberry plants, will be performed where feasible.

Giant Garter Snake (GGS) 1: Conduct work during the active season (May 1–October 1) to the extent practicable. A biologist will conduct a survey and identify where exclusion fencing is needed. If needed, a solid exclusion fence

will be installed around the perimeter of work sites and will be inspected weekly. Burrows and other refuge habitat will be avoided to the extent practicable. If work will be conducted during the inactive period (October 2–April 30) then PG&E will conduct preparation work during the snake's active period to make construction areas ready for work during the inactive season. Preparation work includes, at a minimum, adding baserock to access roads and work sites, grading access roads and work sites, and installing work zone exclusion fencing. If giant garter snakes are encountered during construction activities, snakes will be allowed to move away from construction or a biologist will follow USFWS handling protocols and move snakes to the nearest appropriate habitat out of harm's way.

CULTURAL RESOURCES

Solano County

Chapter four of the Solano County General Plan contains goals and policies pertaining to cultural resources. Solano County General Plan policies related to cultural resources that may apply to the Project include:

Policy RS.P-38: Identify and preserve important prehistoric and historic structures, features, and communities.

Policy RS.P-40: Consult with Native American governments to identify and consider Native American cultural places in land use planning.

Sacramento County

The Sacramento County General Plan Conservation Element contains goals and policies pertaining to cultural resources. The County's goal is to promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts or areas of ethnic historical, religious or socio-economic importance.

Sacramento County General Plan policies related to cultural resources that may apply to the Project include:

Policy CO-150: Utilize local, state and national resources, such as the NCIC, to assist in determining the need for a cultural resources survey during project review.

Policy CO-152: Consultations with Native American tribes shall be handled with confidentiality and respect regarding sensitive cultural resources on traditional tribal lands.

Policy CO-153: Refer projects with identified archaeological and cultural resources to the Cultural Resources Committee to determine significance of resource and recommend appropriate means of protection and mitigation. The Committee shall coordinate with the Native American Heritage Commission in developing recommendations.

Policy CO-154: Protection of significant prehistoric, ethnohistoric and historic sites within open space easements to ensure that these resources are preserved in situ for perpetuity.

Policy CO-155: Native American burial sites encountered during preapproved survey or during construction shall, whenever possible, remain in situ. Excavation and reburial shall occur when in situ preservation is not possible or when the archaeological significance of the site merits excavation and recording procedure. On-site reinterment shall have priority. The project developer shall provide the burden of proof that offsite reinterment is the only feasible alternative. Reinterment shall be the responsibility of local tribal representatives.

Policy CO-156: The cost of all excavation conducted prior to completion of the project shall be the responsibility of the project developer.

Policy CO-157: Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.

Policy CO-158: As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.

Policy CO-159: Request a Native American Statement as part of the environmental review process on development projects with identified cultural resources.

Policy CO-169: Restrict the circulation of cultural resource location information to prevent potential site vandalism. This information is exempt from the "Freedom of Information Act".

Policy CO-170: Cooperate with other agencies to enforce laws and aggressively prosecute illegal collection of artifacts.

Policy CO-171: Design and implement interpretive programs about known archaeological or historical sites on public lands or in public facilities. Interpretation near or upon known sites should be undertaken only when adequate security is available to protect the site and its resources.

CULTURAL RESOURCES – TRIBAL

See Cultural Resources above for a listing of local cultural resources policies.

ENERGY

Solano County

Solano County General Plan policies related to energy resources that may apply to the Project include:

Policy RS.P-49: Ensure energy conservation and reduced energy demand in the county through required use of energy-efficient technology and practices.

Policy RS.P-55: Require responsible extraction, storage, and transportation of natural gas resources that minimize the impact on the natural environment.

Solano County Climate Action Plan

Solano County has also developed a Climate Action Plan which was adopted on June 7, 2011. The Climate Action Plan identified the quantity of GHG emissions to be reduced to meet the reduction target of 20 percent below 2005 GHG emissions levels. The Climate Action Plan establishes measures and implementing actions necessary to achieve Solano County's reduction target.

Sacramento County

Sacramento County General Plan policies related to energy resources that may apply to the Project include:

Policy AQ-11: Encourage contractors operating in the county to procure and to operate low-emission vehicles, and to seek low emission fleet status for their off-road equipment.

Policy AQ-16: Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any 1-hour period.

Sacramento County Climate Action Plan

Sacramento County has also developed a Climate Action Plan which was adopted on November 9, 2011. The Plan includes a GHG inventory for the unincorporated areas of the county, GHG emissions target, and goals and implementation. The Plan focuses on implementing a GHG emissions reduction framework. Transportation, heating and cooling emission sources are indicated to be the greatest GHG sources in the County. On September 7, 2021, Sacramento County released the final draft of the updated Climate Action Plan. The Plan provides specific measures to be implemented to reduce GHG emissions. The measures listed below may apply to the Project:

Policy GHG-08: EPA-rated Tier 4 final diesel engines are required for new construction projects when electric-powered construction equipment is infeasible or unavailable.

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

Solano County

The Public Health and Safety chapter of the Solano County General Plan Policy Document contains goals and policies pertaining to geologic hazards of Solano County. Solano County General Plan policies related to geologic hazards that may apply to the Project include:

Policy HS.I-20: The County shall require geotechnical evaluation and recommendation before new development in moderate or higher-hazard areas. Such geotechnical evaluation shall analyze the potential hazards from landslides, liquefaction, expansive soils, steep slopes, erosion, subsidence, Alquist-Priolo Earthquake Fault Zones or other identified fault zones, tsunamis, and/or seiches. Require new development to incorporate project features that avoid or minimize the identified hazards.

Solano County Grading Permit

The Engineering Division of the County's Public Works Department is responsible for issuing grading permits and will be required should the given project require excavations or fills greater than 50 cubic yards total movement on any site; 8,000 square feet of area disturbed; 3 feet in depth; or 2:1 slopes. Exemptions include utility trenches, wells, and exploratory excavations.

Sacramento County

The Safety Element of the Sacramento County General Plan contains goals and policies pertaining to geologic hazards of Sacramento County. Sacramento County General Plan policies related to geologic hazards that may apply to the Project include:

Policy SA-1: The County shall require geotechnical reports and impose the appropriate mitigation measures for new development located in seismic and geologically sensitive areas.

Policy SA-3: The County shall support efforts by Federal, State, and other local jurisdictions to investigate local seismic and geological hazards and support those programs that effectively mitigate these hazards.

Sacramento County Grading Permit

The County's Engineering Department is responsible for issuing grading permits and will be required should the given project require excavations or fills greater than 350 cubic yards or more of soil or earthly material or clear and grub 1 acre or greater of land. Exemptions include underground utilities.

GREENHOUSE GAS EMISSIONS

Solano County

The Solano County General Plan, Public Health and Safety Chapter's, Air Quality Element indicates that planning practices to reduce criteria pollutant emissions through land use and transportation planning efforts also act to minimize GHG emissions from the same sources. The policies outlined in the County's Air Quality Element focus on the reduction of GHG emissions that are generated by agriculture, land use and energy consumption.

Solano County developed a Climate Action Plan which was adopted on June 7, 2011. The Climate Action Plan identified the quantity of GHG emissions to be reduced to meet the reduction target of 20 percent below 2005 GHG emissions levels. The Climate Action Plan establishes measures and implementing actions necessary to achieve Solano County's reduction target.

Sacramento County

Sacramento County General Plan policies in the County's Air Quality Element related to GHG emissions that may apply to the Project include:

Policy AQ-4: Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or GHG emission as adopted by the SMAQMD, shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the SMAQMD.

Policy LU-115: It is the goal of Sacramento County to reduce greenhouse gas emissions to 1990 levels by the year 2020. This shall be achieved through a mix of State and local action.

The Sacramento County Climate Action Plan was adopted on November 9, 2011, by the Sacramento County Board of Supervisors. The Plan includes a GHG inventory for the unincorporated areas of the county, GHG emissions target, and goals and implementation. The Plan focuses on implementing a GHG emissions reduction framework. Transportation, heating and cooling emission sources are indicated to be the greatest GHG sources in the County. On September 7, 2021, Sacramento County released the final draft of the updated Climate Action Plan. The Plan provides specific measures to be implemented to reduce GHG emissions. The measures listed below may apply to the Project:

Policy GHG-08: EPA-rated Tier 4 final diesel engines are required for new construction projects when electric-powered construction equipment is infeasible or unavailable.

Project applicants will include Tier 4 final engines in construction lists prior to receiving building permits.

Policy GHG-29: Encourage new development projects to use electrically powered construction equipment wherever feasible.

HAZARDS AND HAZARDOUS MATERIALS

Solano County

The Public Health and Safety chapter of the Solano County General Plan Policy Document contains goals and policies pertaining to hazards and hazardous materials. Solano County General Plan policies related to hazards and hazardous materials that may apply to the Project include:

Policy HS.P-26: Minimize the risks associated with transporting, storing, and using hazardous materials through methods that include careful land use planning and coordination with appropriate federal, state, or County agencies.

Policy HS.P-27: Work to reduce the health risks associated with naturally occurring hazardous materials such as radon, asbestos, or mercury.

Policy HS.P-28: Encourage the use of programs and products by businesses that will result in a reduction of hazardous waste and materials.

Policy HS.P-29: Promote hazardous waste management strategies in this order of priority: source reduction, recycling and reuse, on-site treatment, off-site treatment, and residuals disposal.

Policy HS.P-31: Encourage regional efforts to implement alternatives to land disposal of untreated hazardous wastes, and participate in inter-jurisdictional agreements that balance the economic efficiencies of siting facilities with the responsibility of each jurisdiction to manage its fair share of hazardous wastes generated within the region.

Sacramento County

The Hazardous Materials Element of the Sacramento County General Plan Policy Document contains goals and policies pertaining to hazards and hazardous materials. Sacramento County General Plan policies related to hazards and hazardous material that may apply to the Project include:

Policy HM-4: The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.

Policy HM-7: Encourage the implementation of workplace safety programs and to the best extent possible ensure that residents who live adjacent to industrial or commercials facilities are protected from accidents and the mishandling of hazardous materials.

Policy HM-8: Continue the effort to prevent ground water and soil contamination.

Policy HM-9: Continue the effort to prevent surface water contamination.

Policy HM-10: Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.

Policy HM-11: Protect residents and sensitive facilities from incidents which may occur during the transport of hazardous materials in the County.

Policy HM-12: Continue the effort through the Sacramento Metropolitan Air Quality Management District (SMAQMD) to inventory and reduce toxic air contaminants as emission standards are developed.

Policy HM-13: Develop and implement a comprehensive hazardous materials management program and permit process for all applicable County agencies. The program and permitting process should be devoid of overlap and shall be consistent with the Goals and Policies of this Hazardous Materials Element to the best extent possible under existing laws and regulations.

Policy HM-14: Support local enforcement of hazardous materials regulations.

Sacramento County Local Hazard Mitigation Plan

Sacramento County, in partnership with the Cities of Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova and numerous special districts updated their countywide Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) in 2021. The plan covers hazards of concern such as Flood, drought, earthquake, wildfire, levee failure, and severe weather.

The LHMP forms the foundation for a community's long-term strategy to reduce disaster losses by breaking the repeated cycle of disaster damage and reconstruction.

HYDROLOGY AND WATER QUALITY

Solano County

Solano County General Plan policies in the County's Resources section related to hydrology and water quality that may apply to the Project include:

Policy RS.G-10: Foster sound management of the land and water resources in Solano County's watersheds to minimize erosion and protect water quality using best management practices and protect downstream waterways and wetlands.

Policy RS.P-28: Protect long-term water quality in the Delta in coordination with water agencies at local, state, and federal levels for designated beneficial uses, including agriculture, municipal, water-dependent industrial, water-contact recreation, boating and fish and wildlife habitat

Policy RS.P-64: Identify, promote, and seek funding for the evaluation and remediation of water resource or water quality problems through a watershed management approach.

Work with the regional water quality control board, watershed-focused groups, and stakeholders in the collection, evaluation and use of watershed-specific water resource information.

Policy RS.P-70: Protect land surrounding valuable water sources, evaluate watersheds, and preserve open space lands to protect and improve groundwater quality, reduce polluted surface runoff, and minimize erosion.

Policy RS.P-72: Preserve riparian vegetation along county waterways to maintain water quality.

Policy RS.P-73: Use watershed planning approaches to resolve water quality problems. Use a comprehensive stormwater management program to limit the quantity and increase the water quality of runoff flowing to the county's streams and rivers.

Sacramento County

The Conservation and Open Space and Hazardous Materials Elements of the Sacramento County General Plan provide policies related to hydrology and water quality. Sacramento County General Plan policies related to hydrology and water quality that may apply to the Project include:

Policy CO-24: Comply with the Sacramento Areawide National Pollutant Discharge Elimination System Municipal Stormwater Permit (NPDES Municipal Permit) or subsequent permits, issued by the Central Valley Regional Water Quality Control Board (Regional Board) to the County, and the cities of Sacramento, Elk Grove, Citrus Heights, Folsom, Rancho Cordova, and Galt (collectively known as the Sacramento Stormwater Quality Partnership [SSQP]).

Policy CO-25: Support the preservation, restoration, and creation of riparian corridors, wetlands and buffer zones.

Policy CO-26: Protect areas susceptible to erosion, natural water bodies, and natural drainage systems.

Policy CO-94: Development within the 100-year floodplain and designated floodway of Sacramento streams, slough, creeks or rivers shall be:

- Consistent with policies to protect wetlands and riparian areas; and
- Limited to land uses that can support seasonal inundation.

Policy CO-101: Stabilize the banks of rivers and streams in a manner that increases flood protection and increases riparian habitat functions.

Policy CO-112: The use of concrete and impervious materials is discouraged where it is inconsistent with the existing adjacent watercourse and overall ecological function of the stream.

Policy HM-9: Continue the effort to prevent surface water contamination.

PG&E Multiple Region Operations and Maintenance Habitat Conservation Plan

Field Protocol 11: Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways.

Field Protocol 12: Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.

Field Protocol 15: Prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.

LAND USE AND PLANNING

Solano County

The 2008 Solano County General Plan applies to all lands outside of the jurisdictional boundaries of the incorporated cities within Solano County. The General Plan is the guide for both land development and conservation in the unincorporated portions of the county. It contains the policy framework

necessary to fulfill the community's vision for Solano County in 2030; a sustainable place with a thriving environment and an economy that maintains social equity. This theme of sustainability is carried throughout the plan in its goals, policies, and programs. The vision for Solano County is founded on the principles of "The Environment," "The Economy," and "Social Equity."

Solano County Zoning Ordinance

The Solano County zoning ordinance provides a precise plan for land use and development standards within Solano County. General Plan land use designations are associated with zoning districts, which include specific requirements, including setbacks, height limits, development standards. The zoning ordinance must be consistent with the General Plan, and so amendments and updates to the General Plan require corresponding zoning ordinance changes. The Solano County Zoning Code was most recently updated November 5, 2025.

Sacramento County

The Sacramento County 2030 General Plan guides growth and development within the unincorporated areas of Sacramento County. Key strategies of the Plan include a focus on economic growth and environmental sustainability, addressing the issues and needs of existing communities, and establishing a new framework for accommodating the growth of new communities based on smart growth principles. The many individual Elements of the General Plan address the wide variety of issues and proactive actions to be taken by the County to enhance and preserve the quality of life for County residents, enhance economic strengths, and preserve agricultural heritage.

Sacramento County Zoning Ordinance

The Zoning Code establishes land use zones and standards and regulations for development within unincorporated Sacramento County. Zoning specifies the immediate uses for land and is the primary instrument for implementing General Plan policies, including those found in the Land Use Element. Zoning is adopted by ordinance and carries the weight as local law. Sacramento County's Zoning Code regulates the use, placement, spacing, size, and nature of buildings and parcels of land in order to promote orderly development. The Sacramento County Zoning Code was most recently updated July 22, 2015.

MINERAL RESOURCES

Solano County

Solano County General Plan policies related to mineral resources that may apply to the Project include:

Policy RS.P-33: The County shall preserve, for future use, areas with important mineral resources by preventing residential, commercial, and industrial development that would be incompatible with mining practices to the extent feasible.

Sacramento County

Sacramento County General Plan goals and policies related to mineral resources that may apply to the Project include:

GOAL: Mineral resource protected for economic extraction with minimal adverse impacts.

Policy CO-45: To the maximum extent possible, all base material utilized in County and private road construction shall be composed of recycled asphalt concrete and roadway base material.

NOISE

Solano County

There are no policies pertaining to noise that are relevant to the Project within the Solano County Code or the Solano County General Plan Noise Element.

Sacramento County

Section 6.68 of the Sacramento County Code relates to Project-related noise generation from construction noise, and provides the following exemption:

Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 6:00 a.m. on weekdays and Friday commencing at 8:00 p.m. through and including 7:00 a.m. on Saturday; Saturdays commencing at 8:00 p.m. through and including 7:00 a.m. on the next following Sunday and on each Sunday after the hour of 8:00 p.m. Provided; however, when an unforeseen or unavoidable condition occurs during a

construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 8:00 p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner.

POPULATION AND HOUSING

Solano County

Solano County General Plan goals related to population and housing that may apply to the Project include:

Goal LU.G-1: Preserve and protect the current development pattern of distinct and identifiable cities and communities.

Sacramento County

Sacramento County General Plan policies related to population and housing that may apply to the Project include:

Policy LU-19: Incompatible land uses should be buffered from one another by methods that retain community character, and do not consume large land areas or create pedestrian barriers.

Policy LU-95: Support the ongoing conservation, maintenance and upgrading of the County's housing inventory.

PUBLIC SERVICES

Solano County

Solano County General Plan policies related to public services that may apply to the Project include:

Policy PF.P-41: In the review and approval of County and City projects, identify and consider the law enforcement needs generated by the project.

Sacramento County

Sacramento County General Plan policies related to public services that may apply to the Project include:

Policy PF-59: Alternative methods of fire protection and access must be instituted if access is reduced to emergency vehicles.

Policy SA-29: The County and fire districts will work together to regulate hazardous materials to mitigate emergency responses.

RECREATION

Solano County

Solano County General Plan policies related to recreation resources that may apply to the Project include:

Policy RS.P-26: Promote continued recreational use of the land and waters of the Delta, including fishing and boating; ensure needed recreational facilities are constructed, maintained, and supervised; protect landowners from unauthorized recreational uses on private lands; and maximize dwindling public funds for recreation by promoting public private partnerships and multiple uses of Delta lands consistent with the Land Use and Resource Management Plan for the Primary Zone of the Delta.

Sacramento County

Recreation and access policies within Sacramento County are included in the Delta Protection Element of the General Plan. Sacramento County General Plan policies related to recreation resources that may apply to the Project include:

Policy DP-46: Support and encourage programs for waterways that provide opportunities for safe boating and recreation, including removal of floating and sunken debris and abandoned vessels from Delta waterways in collaboration with appropriate agencies.

TRANSPORTATION

Solano County

Solano County General Plan policies related to transportation and traffic that may apply to the Project include:

Policy TC.G-5: Encourage and maintain the safe, convenient transfer of goods and services from agricultural lands and industrial locations to regional and interregional transportation facilities.

Policy TC.I-20: Encourage the use of water transportation when industrial and commercial uses are proposed near deepwater channels.

Sacramento County

Sacramento County General Plan policies related to transportation and traffic that may apply to the Project include:

Policy DP-59: Impacts associated with construction of transmission lines and utilities can be mitigated by locating new construction in existing utility or transportation corridors, or along property lines, and by minimizing construction impacts. Before new transmission lines are constructed, the utility should determine if an existing line has available capacity. To minimize impacts on agricultural practices, utility lines shall follow edges of fields.

Pipelines in utility corridors or existing rights-of-way shall be buried to avoid adverse impacts to terrestrial wildlife. Pipelines crossing agricultural areas shall be buried deep enough to avoid conflicts with normal agricultural or construction activities. Utilities shall be designed and constructed to minimize any detrimental effect on levee integrity or maintenance, agricultural uses and wildlife within the Delta. Utilities shall consult with communities early in the planning process for the purpose of creating an appropriate buffer from residences, schools, churches, public facilities and inhabited marinas.

Policy DP-63: Roads within the Delta shall be maintained to serve the existing agricultural uses and supporting commercial uses, recreational users, and Delta residents. Promote the maintenance and enhancement of major thoroughfares already used as cross-Delta corridors.

Transportation Analysis Guidelines

Sacramento County developed Transportation Analysis Guidelines in 2020 to facilitate the determination of the significance of transportation impacts as required by Section 15064.3 of the State CEQA Guidelines. Section 15064.3 requires transportation impact analysis to focus on vehicle miles travelled (VMT) instead of traffic congestion. The County's Guidelines focus on long-term generation of VMT associated with development projects, and not short-term construction projects. However, the County's Guidelines provide screening

criteria to determine if a detailed transportation analysis is required. One of these criteria is for small projects generating less than 237 average daily trips, and indicates these projects are expected to result in less than significant VMT impacts.

Sacramento County Active Transportation Plan

The 2022 Active Transportation Plan for unincorporated Sacramento County is a tool for guiding County staff, public officials, residents, and developers to build a balanced transportation system that supports and encourages active modes of travel. The primary purpose of this Plan is to promote and encourage people to choose walking, biking, and rolling through the creation of safe, comfortable, connected, and accessible walking, rolling and biking networks, encourage alternatives to single-occupancy vehicle trips and improve access to transit.

Sacramento County Metropolitan Plan/Sustainable Communities Strategy

The Sacramento Area Council of Governments (SACOG) adopted their 2020 Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy in November 2019 that addresses transportation and land use issues in Sacramento, El Dorado, Placer, Sutter, Yolo and Yuba Counties. As part of the MTP, these counties participate in the Congestion Management Plan (CMP) that provides a region-wide transportation strategy that also provides reliable and timely information on the current performance of the Sacramento area transportation system to inform SACOG's regional transportation process. Sacramento County does not establish or regulate any Level of Service standard as part of or separate from the CMP.

UTILITIES AND SERVICE SYSTEMS

Solano County

Solano County General Plan policies related to utilities and service systems that may apply to the Project include:

Policy PF.P-25: Collaborate with the state, regional, and city agencies and landfill operators to ensure that the capacity of available landfills is sufficient. Prioritize capacity for waste generated within the county. Ensure that programs are designed to meet or exceed state requirements for landfill capacities.

Policy PF.P-26: Implement and participate in local and regional programs that encourage source reduction and recycling of solid and hazardous wastes in Solano County.

Sacramento County

Sacramento County General Plan policies related to utilities and service systems that may apply to the Project include:

Policy PF-20: Support the implementation of recycling programs for the unincorporated area of Sacramento County through the Source Reduction and Recycling Element of the County Integrated Waste Management Plan in order to meet the requirements of AB 939.

Policy PF-25: Transportation of solid waste shall utilize the safest practical means and routes of transport.

Policy PF-26: Solid waste collection vehicles shall minimize dispersion of litter, odor and fumes.

WILDFIRE

Solano County

Solano County General Plan goals related to wildfire that may apply to the Project include:

Goal HS.G-3: Reduce the risk and threat from urban and wildland fire hazards.

Sacramento County

Sacramento County General Plan goals and policies related to wildfire that may apply to the Project include:

Fire Hazards Goal: Minimize the loss of life, injury, and property damage due to fire hazards.

Policy SA-24: The County shall require, unless it is deemed infeasible to do so, the use of both natural and mechanical vegetation control in lieu of burning or the use of chemicals in areas where hazards from natural cover must be eliminated, such as levees and vacant lots.

APPENDIX C

Air Quality and Greenhouse Gas Emissions Tables

Threemile Slough Crossing Remediation Project
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 1: CONSTRUCTION EMISSIONS SUMMARY

Model Run: August 12, 2026

Source	Peak Day Emissions, lbs/day													Project Emissions, tons												$MTCO_2e$
	NO_x	ROG	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	
Pre-Decommissioning Debris Survey	10.2	0.363	0.142	0.130	0.272	0.142	0.034	0.176	1.53	0.307	0.103	0.062	1,814	0.005	0.0002	0.0001	0.00013	0.0002	0.0001	0.00003	0.0001	0.001	0.0002	0.00008	0.00003	1.11	1.03
Terrestrial Decommissioning	7.60	0.947	0.235	9.98	10.22	0.232	1.50	1.73	22.4	0.099	0.837	1.36	9,779	0.056	0.008	0.002	0.057	0.059	0.002	0.012	0.014	0.130	0.0005	0.004	0.006	50.0	46.4
Marine Decommissioning	32.9	1.69	0.799	0.00	0.80	0.799	0.000	0.80	25.5	0.272	0.065	0.573	5,453	0.488	0.024	0.012	0.000	0.012	0.012	0.000	0.012	0.383	0.004	0.001	0.009	81.4	74.3
Post Decommissioning Debris Survey	10.2	0.363	0.142	0.130	0.272	0.142	0.130	0.272	1.53	0.307	0.103	0.062	1,814	0.005	0.0002	0.0001	0.00013	0.0002	0.0001	0.00003	0.0001	0.001	0.0002	0.00008	0.00003	1.108	1.03
Peak Day Emissions, lb/day	***32.9***	***1.69***	***0.799***	***9.98***	***10.2***	***0.80***	***1.50***	***1.73***	***25.5***	***0.307***	***0.837***	***1.36***	***9,779***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Project Total Emissions, tons	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	***0.554***	***0.033***	***0.014***	***0.057***	***0.071***	***0.014***	***0.012***	***0.026***	***0.514***	***0.005***	***0.005***	***0.015***	***134***	***123***
SMAQMD Significance Thresholds	***85***	*--*	*--*	*--*	***80***	*--*	*--*	***82***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	***14.6***	*--*	*--*	***15***	*--*	*--*	*--*	*--*	*--*	*--*
Threshold exceeded?	***No***				***No***			***No***						*--*	*--*	*--*	*--*	***No***	*--*	*--*	***No***	*--*	*--*	*--*	*--*	*--*	*--*
																								GHG - $MTCO_2e$ conversions		***273***	***27.9***	***1***	*--*
																								Approximate Total $MTCO_2e$, tons/yr		***123***		

Notes:

-Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report
SMAQMD - Sacramento Metropolitan Air Quality Management District
$MTCO_2e$ - Metric Tons of Carbon Dioxide Equivalent
NO_x - Oxides of Nitrogen
ROG - Reactive Organic Gases
$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
DPM - Diesel Particulate Matter
CO - Carbon Monoxide
SO_2 - Sulfur Dioxide
N_2O - Nitrous Oxide
CH_4 - Methane
CO_2 - Carbon Dioxide

Threemile Slough Crossing Remediation Project
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 2: Pre-Decommissioning Debris Survey

On-Site Sources

						Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
Source	BHP	Load Factor	Number	Hours/ Day	Duration (days)	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Air Compressor-1	50	48	1	0	0	2.740	0.120	0.008	0.008	3.700	0.007	0.004	0.059	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Derrick Barge Crane	330	29	1	0	0	3.790	0.120	0.088	0.088	2.600	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Diving Air Compressor	50	48	1	0	0	4.750	0.230	0.192	0.192	3.700	0.007	0.004	0.059	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	100	74	1	0	0	2.740	0.120	0.008	0.008	3.700	0.006	0.004	0.021	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Hydroexcavator	300	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	476	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-1	15	74	1	0	0	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-2	15	74	1	0	0	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-3	15	74	1	0	0	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-4	15	74	1	0	0	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Support Tug Generator	75	43	1	0	0	3.751	0.149	0.116	0.116	0.820	0.119	0.016	0.025	550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Support Tug Mains	500	50	1	0	0	3.728	0.134	0.051	0.051	0.567	0.113	0.015	0.023	527	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Survey Vessel	270	45	1	**10**	**1**	3.728	0.134	0.051	0.051	0.567	0.113	0.015	0.023	527	9.987	0.360	0.138	0.138	1.518	0.304	0.040	0.0619	1,412	0.005	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.71
SEP Generator	400	74	1	0	0	2.320	0.120	0.088	0.088	2.600	0.005	0.004	0.014	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Pump-1	20	74	1	0	0	4.407	0.709	0.177	0.177	2.376	0.007	0.004	0.064	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Welding Machine-1	20	45	1	0	0	4.407	0.709	0.177	0.177	2.376	0.007	0.004	0.064	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Wheeled Loader-1	240	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Wheeled Loader-2	240	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**9.987**	**0.360**	**0.138**	**0.138**	**1.518**	**0.304**	**0.040**	**0.062**	**1412**	**0.005**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.71**

On-Road Sources

						Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Heavy Duty Trucks - T7TC (offsite)	1	1	1	120	2	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.257	0.003	0.004	0.004	0.014	0.004	0.063	0.000	402	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.402
														Total	**0.257**	**0.003**	**0.004**	**0.004**	**0.014**	**0.004**	**0.063**	**0.000**	**402**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.402**

On-Road Sources

						Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Heavy Duty Trucks - T7TC (offsite)	1	1	1	120	2	0.4920	0.1299	0.130162	0.034375113	0.000130	0.000034
							Total	**0.130162**	**0.034375**	**0.000130**	**0.000034**

Notes:

Hours per day and durations provided by client.

Round trips for supplies deliveries and equipment provided by client.

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ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Threemile Slough Crossing Remediation Project
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 3: Terrestrial Decommissioning

On-Site Sources

						Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
Source	**BHP**	**Load Factor**	**Number**	**Hours/ Day**	**Duration (days)**	**NO_x**	**ROG**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**SO_2**	**N_2O**	**CH_4**	**CO_2**	**NO_x**	**ROG**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**SO_2**	**N_2O**	**CH_4**	**CO_2**	**NO_x**	**ROG**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**SO_2**	**N_2O**	**CH_4**	**CO_2**
Air Compressor-1	50	48	1	0	0	2.740	0.120	0.008	0.008	3.700	0.007	0.004	0.059	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Derrick Barge Crane	330	29	1	0	0	3.790	0.120	0.088	0.088	2.600	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Diving Air Compressor	50	48	1	0	0	4.750	0.230	0.192	0.192	3.700	0.007	0.004	0.059	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator-1	310	38	1	**8**	**10**	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.540	0.125	0.017	0.017	4.571	0.010	0.009	0.3158	976	0.003	0.001	0.000	0.000	0.023	0.000	0.000	0.002	4.88
Excavator-2	310	38	1	**8**	**10**	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.540	0.125	0.017	0.017	4.571	0.010	0.009	0.3158	976	0.003	0.001	0.000	0.000	0.023	0.000	0.000	0.002	4.88
Generator-1	100	74	1	0	0	2.740	0.120	0.008	0.008	3.700	0.006	0.004	0.021	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Hydroexcavator	300	38	1	**6**	**2**	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	476	0.392	0.090	0.012	0.012	3.317	0.008	0.006	0.2322	718	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.72
Light Plant-1	15	74	1	**6**	**30**	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.627	0.089	0.026	0.026	0.513	0.001	0.001	0.0079	83.4	0.009	0.001	0.000	0.000	0.008	0.000	0.000	0.000	1.25
Light Plant-2	15	74	1	**6**	**30**	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.627	0.089	0.026	0.026	0.513	0.001	0.001	0.0079	83.4	0.009	0.001	0.000	0.000	0.008	0.000	0.000	0.000	1.25
Light Plant-3	15	74	1	**6**	**30**	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.627	0.089	0.026	0.026	0.513	0.001	0.001	0.0079	83.4	0.009	0.001	0.000	0.000	0.008	0.000	0.000	0.000	1.25
Light Plant-4	15	74	1	**6**	**30**	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.627	0.089	0.026	0.026	0.513	0.001	0.001	0.0079	83.4	0.009	0.001	0.000	0.000	0.008	0.000	0.000	0.000	1.25
Support Tug Generator	75	43	1	0	0	3.751	0.149	0.116	0.116	0.820	0.119	0.016	0.025	550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Support Tug Mains	500	50	1	0	0	3.728	0.134	0.051	0.051	0.567	0.113	0.015	0.023	527	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Survey Vessel	270	45	1	0	0	3.728	0.134	0.051	0.051	0.567	0.113	0.015	0.023	527	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
SEP Generator	400	74	1	0	0	2.320	0.120	0.088	0.088	2.600	0.005	0.004	0.014	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Pump-1	20	74	1	0	0	4.407	0.709	0.177	0.177	2.376	0.007	0.004	0.064	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Welding Machine-1	20	45	1	0	0	4.407	0.709	0.177	0.177	2.376	0.007	0.004	0.064	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Wheeled Loader-1	240	36	1	**8**	**10**	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.396	0.091	0.012	0.012	3.352	0.008	0.006	0.2316	716	0.002	0.000	0.000	0.000	0.017	0.000	0.000	0.001	3.58
Wheeled Loader-2	240	36	1	**8**	**10**	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.396	0.091	0.012	0.012	3.352	0.008	0.006	0.2316	716	0.002	0.000	0.000	0.000	0.017	0.000	0.000	0.001	3.58
														Total	**4.77**	**0.879**	**0.174**	**0.174**	**21.2**	**0.048**	**0.039**	**1.359**	**4,436**	**0.047**	**0.008**	**0.002**	**0.002**	**0.113**	**0.000**	**0.000**	**0.006**	**22.64**

On-Road Sources

						Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
Source	**Peak Round Trips/Day**	**Average Round Trips/Day**	**Number of Vehicles**	**Length of Round Trip (miles)**	**Duration (days)**	**NO_x**	**ROG**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**SO_2**	**N_2O**	**CH_4**	**CO_2**	**NO_x**	**ROG**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**SO_2**	**N_2O**	**CH_4**	**CO_2**	**NO_x**	**ROG**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**SO_2**	**N_2O**	**CH_4**	**CO_2**
Passenger Vehicle - LDA (offsite)	1	1	3	50	30	0.0412	0.0075	0.0010	0.0009	0.709	0.0027	0.0045	0.002	278	0.014	0.002	0.000	0.000	0.234	0.001	0.001	0.001	91.9	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	1.379
Light-Duty Truck - LDT2 (offsite)	1	1	9	50	30	0.0453	0.0084	0.0043	0.0041	0.085	0.0026	0.0436	0.000	277	0.045	0.008	0.004	0.004	0.084	0.003	0.043	0.000	275	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	4.122
Passenger Vehicle - LDA (offsite)	1	1	5	50	30	0.0412	0.0075	0.0010	0.0009	0.709	0.0027	0.0045	0.002	278	0.023	0.004	0.001	0.001	0.391	0.002	0.002	0.001	153.2	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	2.298
Light-Duty Truck - LDT2 (offsite)	1	1	15	50	30	0.0453	0.0084	0.0043	0.0041	0.085	0.0026	0.0436	0.000	277	0.075	0.014	0.007	0.007	0.141	0.004	0.072	0.001	458	0.001	0.000	0.000	0.000	0.002	0.000	0.001	0.000	6.869
Passenger Vehicle - LDA (offsite)	1	1	2	50	30	0.0412	0.0075	0.0010	0.0009	0.709	0.0027	0.0045	0.002	278	0.009	0.002	0.000	0.000	0.156	0.001	0.001	0.000	61.3	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.919
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	30	0.0453	0.0084	0.0043	0.0041	0.085	0.0026	0.0436	0.000	277	0.030	0.006	0.003	0.003	0.056	0.002	0.029	0.000	183	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	2.748
Heavy Duty Trucks - T7TC (offsite)	1	1	20	20	5	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.856	0.010	0.015	0.014	0.048	0.013	0.211	0.000	1,340	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.000	3.350
Heavy Duty Trucks - T7TC (offsite)	1	1	1	70	4	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.150	0.002	0.003	0.002	0.008	0.002	0.037	0.000	235	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.469
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.107	0.001	0.002	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.335
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.107	0.001	0.002	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.335
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.107	0.001	0.002	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.107	0.001	0.002	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	5	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.428	0.005	0.007	0.007	0.024	0.006	0.106	0.000	670	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.675
Heavy Duty Trucks - T7TC (offsite)	1	1	1	60	3	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.128	0.002	0.002	0.002	0.007	0.002	0.032	0.000	201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.302
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.107	0.001	0.002	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.335
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.107	0.001	0.002	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.335
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	5	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.428	0.005	0.007	0.007	0.024	0.006	0.106	0.000	670	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.675
														Total	**2.83**	**0.068**	**0.061**	**0.058**	**1.210**	**0.051**	**0.798**	**0.005**	**5,343**	**0.009**	**0.001**	**0.000**	**0.000**	**0.016**	**0.000**	**0.004**	**0.000**	**27.31**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	3	50	30	0.4263	0.1069	0.140979	0.035365582	0.002115	0.000530
Light-Duty Truck - LDT2 (offsite)	1	1	9	50	30	0.4272	0.1073	0.423850	0.106416339	0.006358	0.001596
Passenger Vehicle - LDA (offsite)	1	1	5	50	30	0.4263	0.1069	0.234965	0.058942636	0.003524	0.000884
Light-Duty Truck - LDT2 (offsite)	1	1	15	50	30	0.4272	0.1073	0.706416	0.177360565	0.010596	0.002660
Passenger Vehicle - LDA (offsite)	1	1	2	50	30	0.4263	0.1069	0.093986	0.023577054	0.001410	0.000354
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	30	0.4272	0.1073	0.282567	0.070944226	0.004238	0.001064
Heavy Duty Trucks - T7TC (offsite)	1	1	20	20	5	0.4920	0.1299	0.433874	0.114583709	0.001085	0.000286
Heavy Duty Trucks - T7TC (offsite)	1	1	1	70	4	0.4920	0.1299	0.075928	0.020052149	0.000152	0.000040
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.4920	0.1299	0.054234	0.014322964	0.000108	0.000029
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.4920	0.1299	0.054234	0.014322964	0.000108	0.000029
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.4920	0.1299	0.054234	0.014322964	0.000027	0.000007
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.4920	0.1299	0.054234	0.014322964	0.000027	0.000007
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	5	0.4920	0.1299	0.216937	0.057291855	0.000542	0.000143
Heavy Duty Trucks - T7TC (offsite)	1	1	1	60	3	0.4920	0.1299	0.065081	0.017187556	0.000098	0.000026
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.4920	0.1299	0.054234	0.014322964	0.000108	0.000029
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.4920	0.1299	0.054234	0.014322964	0.000108	0.000029
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	5	0.4920	0.1299	0.216937	0.057291855	0.000542	0.000143
							Total	**3.216924**	**0.824951**	**0.031148**	**0.007857**

Notes:

Hours per day and durations provided by client.

Round trips for supplies deliveries, equipment and waste disposal provided by client.

Threemile Slough Crossing Remediation Project
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 4: Marine Decommissioning

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Air Compressor-1	50	48	1	**2**	**60**	2.740	0.120	0.008	0.008	3.700	0.007	0.004	0.059	568	0.290	0.013	0.001	0.001	0.392	0.001	0.000	0.0062	60.1	0.009	0.000	0.000	0.000	0.012	0.000	0.000	0.000	1.80
Derrick Barge Crane	330	29	1	**12**	**30**	3.790	0.120	0.088	0.088	2.600	0.005	0.004	0.153	472	9.595	0.304	0.223	0.223	6.583	0.013	0.011	0.3874	1,195	0.144	0.005	0.003	0.003	0.099	0.000	0.000	0.006	17.92
Diving Air Compressor	50	48	1	**3**	**30**	4.750	0.230	0.192	0.192	3.700	0.007	0.004	0.059	568	0.754	0.037	0.030	0.030	0.587	0.001	0.001	0.0094	90.2	0.011	0.001	0.000	0.000	0.009	0.000	0.000	0.000	1.35
Generator-1	100	74	1	**12**	**30**	2.740	0.120	0.008	0.008	3.700	0.006	0.004	0.021	568	5.364	0.235	0.016	0.016	7.243	0.012	0.008	0.0411	1,113	0.080	0.004	0.000	0.000	0.109	0.000	0.000	0.001	16.69
Hydroexcavator	300	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	476	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-1	15	74	1	**6**	**30**	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.627	0.089	0.026	0.026	0.513	0.001	0.001	0.0079	83.4	0.009	0.001	0.000	0.000	0.008	0.000	0.000	0.000	1.25
Light Plant-2	15	74	1	**6**	**30**	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.627	0.089	0.026	0.026	0.513	0.001	0.001	0.0079	83.4	0.009	0.001	0.000	0.000	0.008	0.000	0.000	0.000	1.25
Light Plant-3	15	74	1	**6**	**30**	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.627	0.089	0.026	0.026	0.513	0.001	0.001	0.0079	83.4	0.009	0.001	0.000	0.000	0.008	0.000	0.000	0.000	1.25
Light Plant-4	15	74	1	**6**	**30**	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.627	0.089	0.026	0.026	0.513	0.001	0.001	0.0079	83.4	0.009	0.001	0.000	0.000	0.008	0.000	0.000	0.000	1.25
Support Tug Generator	75	43	1	**12**	**30**	3.751	0.149	0.116	0.116	0.820	0.119	0.016	0.025	550	3.200	0.127	0.099	0.099	0.700	0.101	0.014	0.0210	470	0.048	0.002	0.001	0.001	0.010	0.002	0.000	0.000	7.04
Support Tug Mains	500	50	1	**2**	**30**	3.728	0.134	0.051	0.051	0.567	0.113	0.015	0.023	527	4.110	0.148	0.057	0.057	0.625	0.125	0.016	0.0255	581	0.062	0.002	0.001	0.001	0.009	0.002	0.000	0.000	8.72
Survey Vessel	270	45	1	0	0	3.728	0.134	0.051	0.051	0.567	0.113	0.015	0.023	527	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
SEP Generator	400	74	1	**4**	**30**	2.320	0.120	0.088	0.088	2.600	0.005	0.004	0.014	568	6.056	0.313	0.230	0.230	6.787	0.013	0.011	0.0365	1,483	0.091	0.005	0.003	0.003	0.102	0.000	0.000	0.001	22.25
Water Pump-1	20	74	1	**2**	**30**	4.407	0.709	0.177	0.177	2.376	0.007	0.004	0.064	568	0.288	0.046	0.012	0.012	0.155	0.000	0.000	0.0042	37.1	0.004	0.001	0.000	0.000	0.002	0.000	0.000	0.000	0.56
Welding Machine-1	20	45	1	**8**	**2**	4.407	0.709	0.177	0.177	2.376	0.007	0.004	0.064	568	0.700	0.113	0.028	0.028	0.377	0.001	0.001	0.0102	90.2	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.09
Wheeled Loader-1	240	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Wheeled Loader-2	240	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**32.9**	**1.69**	**0.799**	**0.799**	**25.499**	**0.272**	**0.065**	**0.573**	**5453**	**0.488**	**0.024**	**0.012**	**0.012**	**0.383**	**0.004**	**0.001**	**0.009**	**81.43**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	0	0	0	0	0	0.0412	0.0075	0.0010	0.0009	0.709	0.0027	0.0045	0.002	278	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Light-Duty Truck - LDT2 (offsite)	0	0	0	0	0	0.0453	0.0084	0.0043	0.0041	0.085	0.0026	0.0436	0.000	277	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
														Total	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.00**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	0	0	0	0	0	0.4263	0.1069	0.000000	0.000000	0.000000	0.000000
Light-Duty Truck - LDT2 (offsite)	0	0	0	0	0	0.4272	0.1073	0.000000	0.000000	0.000000	0.000000
							Total	**0.000000**	**0.000000**	**0.000000**	**0.000000**

Notes:

Hours per day and durations provided by client.

Round trips for supplies deliveries, equipment and waste disposal provided by client.

Threemile Slough Crossing Remediation Project
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 5: Post Decommissioning Debris Survey

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Air Compressor-1	50	48	1	0	0	2.740	0.120	0.008	0.008	3.700	0.007	0.004	0.059	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Derrick Barge Crane	330	29	1	0	0	3.790	0.120	0.088	0.088	2.600	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Diving Air Compressor	50	48	1	0	0	4.750	0.230	0.192	0.192	3.700	0.007	0.004	0.059	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	100	74	1	0	0	2.740	0.120	0.008	0.008	3.700	0.006	0.004	0.021	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Hydroexcavator	300	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	476	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-1	15	74	1	0	0	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-2	15	74	1	0	0	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-3	15	74	1	0	0	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Light Plant-4	15	74	1	0	0	4.269	0.607	0.178	0.178	3.491	0.008	0.004	0.054	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Support Tug Generator	75	43	1	0	0	3.751	0.149	0.116	0.116	0.820	0.119	0.016	0.025	550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Support Tug Mains	500	50	1	0	0	3.728	0.134	0.051	0.051	0.567	0.113	0.015	0.023	527	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Survey Vessel	270	45	1	**10**	**1**	3.728	0.134	0.051	0.051	0.567	0.113	0.015	0.023	527	9.987	0.360	0.138	0.138	1.518	0.304	0.040	0.0619	1,412	0.005	0.000	0.000	0.000	0.001	0.000	0.000	0.71
SEP Generator	400	74	1	0	0	2.320	0.120	0.088	0.088	2.600	0.005	0.004	0.014	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Pump-1	20	74	1	0	0	4.407	0.709	0.177	0.177	2.376	0.007	0.004	0.064	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Welding Machine-1	20	45	1	0	0	4.407	0.709	0.177	0.177	2.376	0.007	0.004	0.064	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Wheeled Loader-1	240	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Wheeled Loader-2	240	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**9.987**	**0.360**	**0.138**	**0.138**	**1.518**	**0.304**	**0.040**	**0.062**	**1412**	**0.005**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.71**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Heavy Duty Trucks - T7TC (offsite)	1	1	1	120	2	0.9707	0.0116	0.0168	0.0161	0.054	0.0144	0.2394	0.001	1520	0.257	0.003	0.004	0.004	0.014	0.004	0.063	0.000	402	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.402
														Total	**0.257**	**0.003**	**0.004**	**0.004**	**0.014**	**0.004**	**0.063**	**0.000**	**402**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.40**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Heavy Duty Trucks - T7TC (offsite)	1	1	1	120	2	0.4920	0.1299	0.130162	0.034375113	0.000130	0.000034
							Total	**0.130162**	**0.034375**	**0.000130**	**0.000034**

Notes:

Hours per day and durations provided by client.

Round trips for supplies deliveries and equipment provided by client.

padre associates
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Threemile Slough Crossing Remediation Project
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 6: Construction - Fugitive Dust Emissions

Construction

Activity	Source	Source Units	Number of Days	Emission Factor	Emission Factor, Units	Peak Day Emissions (lbs/day)		Total Emissions (tons)	
						PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Pre-Decommissioning Debris Survey									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0.00	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	2.59	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.000**	**0.0000**
Terrestrial Decommissioning									
Site Grading	0.25	acres/day	0	1.1	lbs PM10/day/acre	0.2750	0.0250	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	100	tons/day	0	1.72E-04	lbs/ton	0.0172	0.0026	0.0000	0.0000
Vehicle Miles Off-Road	2.5	vehicle-miles/day	8	2.59	lbs/vehicle-mile	6.4752	0.6475	0.0259	0.0039
					Max/Total	**6.767**	**0.675**	**0.026**	**0.0039**
Marine Decommissioning									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0.00	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	2.59	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.0000**	**0.0000**
Post Decommissioning Debris Survey									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0.00	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	2.59	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.0000**	**0.0000**

Fugitive Dust Emissions: Inputs for the Table

Emission factors based on following inputs		
Mean number of rain days per year	*0*	*worst case*
Silt content of soil, fill storage pile, %	*1.5*	*SCAQMD default value*
Roadway inputs (paved and unpaved, as per URBEMIS)		
Roads mean vehicle weight, tons	*20.61*	*based on project description, HHDT + LDT and vehicles weight (average of full and empty)*
unpaved dirt road silt content, %	*8.4*	*AP-42 construction sites*
Truck Loading inputs		
k, particle size multiplier, default=0.35 fpr pm10	*0.35*	
U, mean wind speed, mph range 1.3-15	*8.15*	
M, moisture content, default=12%	*12*	
PM2.5/PM10 ratio truck loading	*0.15*	
Site grading emissions from CalEEMod for grading	*0.091*	*ratio of PM2.5/PM10 CalEEMod*
Demolition materials, tons/yds3	*1.000*	*estimated for concrete debris*
Fill materials, tons/yds3	*1.000*	*estimated for soils*
Mitigation: demolition area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: grading/dist area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: dumping soil moisture (fraction reduction)	*0.00*	*0.69 for minimum 12% soil moisture (SCAQMD)*
Mitigation: storage piles (fraction reduction)	*0.00*	*0.90 for watering by hand and covering (SCAQMD)*
Mitigation: roads (fraction reduction)	*0.00*	*0.55 for watering 3X per day (SCAQMD), 0.80 for soil binders applied monthly (AP-42)*

Notes:

PM2.5/PM10 ratio as per AP-42 k factor for PM10 and PM2.5
Demolition dust calculations as per EPA AP-42 11.19 and 13.2.4
Truck loading dumping cut/fill based on CalEEMod
Storage pile emissions based on SCAQMD Handbook (URBEMIS does not address emissions from storage piles)
Paved and unpaved road dust emissions based on AP-42 2006 (unpaved) Chapt 13. EPA AP-42 2006 is the same as URBEMS and CalEEMod
One month assumes 22 days of activity, as per URBEMIS

Threemile Slough Crossing Remediation Project
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 7: Emission Factors and Assumptions

Onsite Construction				Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)								
Source	Tier	Operational Horsepower	Load Factor	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Air Compressor-1	4	50	48	2.740	0.120	0.008	0.008	3.700	0.007	0.0042	0.059	568	0.0060	0.0003	0.0000	0.0000	0.0082	0.00002	0.00001	0.00013	1.2529
Derrick Barge Crane	2	330	29	3.790	0.120	0.088	0.088	2.600	0.005	0.0042	0.153	472	0.0084	0.0003	0.0002	0.0002	0.0057	0.00001	0.00001	0.00034	1.0405
Diving Air Compressor	2	50	48	4.750	0.230	0.192	0.192	3.700	0.007	0.0042	0.059	568	0.0105	0.0005	0.0004	0.0004	0.0082	0.00002	0.00001	0.00013	1.2529
Excavator-1	4	310	38	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0355
Excavator-2	4	310	38	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0355
Generator-1	4	100	74	2.740	0.120	0.008	0.008	3.700	0.006	0.0042	0.021	568	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00005	1.2529
Hydroexcavator	4	300	38	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.154	476	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0501
Light Plant-1	4	15	74	4.269	0.607	0.178	0.178	3.491	0.008	0.0042	0.054	568	0.0094	0.0013	0.0004	0.0004	0.0077	0.00002	0.00001	0.00012	1.2529
Light Plant-2	4	15	74	4.269	0.607	0.178	0.178	3.491	0.008	0.0042	0.054	568	0.0094	0.0013	0.0004	0.0004	0.0077	0.00002	0.00001	0.00012	1.2529
Light Plant-3	4	15	74	4.269	0.607	0.178	0.178	3.491	0.008	0.0042	0.054	568	0.0094	0.0013	0.0004	0.0004	0.0077	0.00002	0.00001	0.00012	1.2529
Light Plant-4	4	15	74	4.269	0.607	0.178	0.178	3.491	0.008	0.0042	0.054	568	0.0094	0.0013	0.0004	0.0004	0.0077	0.00002	0.00001	0.00012	1.2529
Support Tug Generator	2	75	43	3.751	0.149	0.116	0.116	0.820	0.119	0.0164	0.025	550	0.0083	0.0003	0.0003	0.0003	0.0018	0.00026	0.00004	0.00005	1.2133
Support Tug Mains	2	500	50	3.728	0.134	0.051	0.051	0.567	0.113	0.0149	0.023	527	0.0082	0.0003	0.0001	0.0001	0.0012	0.00025	0.00003	0.00005	1.1623
Survey Vessel	3	270	45	3.728	0.134	0.051	0.051	0.567	0.113	0.0149	0.023	527	0.0082	0.0003	0.0001	0.0001	0.0012	0.00025	0.00003	0.00005	1.1623
SEP Generator	3	400	74	2.320	0.120	0.088	0.088	2.600	0.005	0.0042	0.014	568	0.0051	0.0003	0.0002	0.0002	0.0057	0.00001	0.00001	0.00003	1.2529
Water Pump-1	4	20	74	4.407	0.709	0.177	0.177	2.376	0.007	0.0042	0.064	568	0.0097	0.0016	0.0004	0.0004	0.0052	0.00002	0.00001	0.00014	1.2529
Welding Machine-1	4	20	45	4.407	0.709	0.177	0.177	2.376	0.007	0.0042	0.064	568	0.0097	0.0016	0.0004	0.0004	0.0052	0.00002	0.00001	0.00014	1.2529
Wheeled Loader-1	4	240	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0359
Wheeled Loader-2	4	240	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0359

Offsite Trasporation			Emission Factors (g/mile)									Emission Factors (lb/mile)								
Source	Tier	Region	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	Sacramento County	0.0412	0.0075	0.0010	0.0009	0.7090	0.0027	0.0045	0.0019	277.9	0.0001	0.0000	0.0000	0.0000	0.0016	0.00001	0.00001	0.00000	0.6127
Light-Duty Truck - LDT2 (offsite)	--	Sacramento County	0.0453	0.0084	0.0043	0.0041	0.0850	0.0026	0.0436	0.0004	277.0	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00010	0.00000	0.6106
Med-Heavy Duty - T6 Utility (offsite)	--	Sacramento County	0.2846	0.0040	0.0044	0.0042	0.0226	0.0092	0.1528	0.0002	969.8	0.0006	0.0000	0.0000	0.0000	0.0000	0.00002	0.00034	0.00000	2.1380
Heavy Duty Trucks - T7TC (offsite)	--	Sacramento County	0.9707	0.0116	0.0168	0.0161	0.0542	0.0144	0.2394	0.0005	1519.6	0.0021	0.0000	0.0000	0.0000	0.0001	0.00003	0.00053	0.00000	3.3502

Offsite Dust - Mobile Sources			Emission Factors (g/mile)		Emission Factors (lb/mile)	
Source	Tier	Region	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	Sacramento County	0.4263	0.1069	0.000940	0.000236
Light-Duty Truck - LDT2 (offsite)	--	Sacramento County	0.4272	0.1073	0.000942	0.000236
Med-Heavy Duty - T6 Utility (offsite)	--	Sacramento County	0.4642	0.1202	0.001023	0.000265
Heavy Duty Trucks - T7TC (offsite)	--	Sacramento County	0.4920	0.1299	0.001085	0.000286

Notes:

- Equipment list and engine sizes obtianed from client.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020 and Ports Emissions Inventory Guidance, EPA, 2020.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D 2020.*
- CO_2 and CH_4 emission factors for construction equipment were obtained from *CalEEMod Appendix D 2020 and Ports Emissions Inventory Guidance, EPA, 2020.*
- Vehicle emissions factors obtained from EMFAC-2021

APPENDIX D

Biological Technical Report

BIOLOGICAL TECHNICAL REPORT

PACIFIC GAS & ELECTRIC COMPANY
THREEMILE SLOUGH PIPELINE CROSSINGS
REMEDIATION AND DECOMMISSIONING PROJECT
SACRAMENTO COUNTY, CALIFORNIA

Project No. 2402-1171

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1.0 INTRODUCTION

Pacific Gas & Electric Company (PG&E) proposes to remediate two existing natural gas transmission pipelines and decommission and remove two previously abandoned pipelines that cross Threemile Slough. The Threemile Slough Pipeline Crossings Remediation and Decommissioning Project (Project) occurs on Threemile Slough between the Brannan Island State Recreation Area and Sherman Island in Sacramento County, California. Two pipeline crossings, L-131Y and L-131Z, will be remediated to address shallow depth of burial. The Project scope of work also includes the decommissioning and removal of two existing pipeline crossings at the same location that are no longer in use and were previously abandoned in place.

The purpose of this Biological Technical Report is to detail the findings of a desktop review and biological field surveys conducted for the proposed Project. This technical report includes a review of pertinent literature, a review of regulatory requirements, results of reconnaissance field surveys, and a preliminary discussion of general impacts of Project implementation on biological resources.

2.0 BACKGROUND

PG&E is proposing to remediate the L-131Y and L-131Z pipeline crossings and decommission two existing and abandoned pipelines at the Threemile Slough crossing location. The Project purpose is to address shallow depth of burial issues on the active pipelines and remove pipeline crossings that are no longer in use. These activities are described in more detail in Section 2.2 below.

2.1 LOCATION

The Project site is located on Threemile Slough between the Brannan Island State Recreation Area and Sherman Island near the confluence with the Sacramento River. The Project site is located within the *Jersey Island, California* United States Geological Survey (USGS) 7.5-Minute Series topographic quadrangle map (Figure 1). The Project site is in Township 3 North, Range 3 East and occurs within Sacramento County, California. Access to the Project site on the north bank of the slough is through the Brannan Island State Park and access to the Project site on the south side of Threemile Slough is from Sherman Island Levee Road.

2.2 PROJECT DESCRIPTION

2.2.1 Pipeline Remediation

The proposed remediation of the shallowly buried pipeline sections consists of placing rock over the pipelines to achieve the prescribed minimum five feet of cover. The marine equipment spread to be used for the project will be mobilized to the site from their home port located in the San Francisco Bay area and will consist of a derrick barge, materials barge, two tugboats, a utility/survey boat, and a work skiff.

The proposed rock placement will begin with placement of approximately 100 cubic yards of gravel or three-quarters-of-an-inch crushed rock around the exposed pipeline to a point approximately 1 to 2 feet above the top of the pipeline to minimize the potential for larger rocks damaging the pipeline coating. Approximately 950 cubic yards of larger rock approximately matching the size of that found on the surrounding slough bed (9-inch) will then be placed above the pipelines to achieve the prescribed minimum five feet of cover. The estimated total volume of rock to be placed is approximately 1,050 cubic yards, and the estimated area over which rock will be placed is approximately 5, 706 square feet. The cross-section of the proposed rock placement would have an approximately 5-foot-wide flat top, and then be sloped at approximately 1.8 to 1 (horizontal to vertical) to a point where it meets the existing grade (Figure 2).

Adding rock to the slough channel will change the water depth of the slough at this location. However, as-built drawings from when the pipelines were installed in 1990 indicate that the pipelines were installed with the required 5-feet of cover, and the proposed remediation is restoring the cover to that 1990 pre-existing condition. Therefore, while the proposed rock placement may slightly alter the flow of water relative to the current condition, there is no impact to the flow of water relative to the 1990 as-built condition.

To place the rock, a crane-deployed clam bucket will be used to pick up rock from the deck of a materials barge and place the rock above the pipelines. A computer monitor with a

real-time surface navigation display will be set up in the crane to provide the crane operator with the precise location of the clam bucket, the pipeline crossings, and the rock placement.

2.2.2 Pipeline Decommissioning and Removal

The proposed decommissioning scope of work for the two 10-inch-diameter L-131 pipelines that were previously filled with cement and abandoned in place includes complete removal of the pipelines beneath the slough, and removal of the pipelines from the waterside slope of the Sherman Island Levee and the north bank of the slough. As-built documentation provided by PG&E indicates that the pipelines were previously removed from the levee crown. The segments that were previously abandoned in the landside slope and south of the landside levee toe are not within the scope of this project. These segments will remain filled with cement and abandoned in place. The decommissioning portion of the project is scheduled to commence as soon as the remediation work is complete, using the same marine equipment described above in Section 2.2.1.

Removal of the terrestrial pipeline sections, which are located on the north bank of the slough and the waterside slope of the Sherman Island levee located on the south side of the slough, will be performed using excavators (Figure 2). Additional terrestrial construction equipment, such as front loaders, backhoes or skid steers may also be used to support the handling of excavated materials. Vegetation will be removed from above the pipelines and adjacent to the planned excavation areas as needed to allow access for excavators and other equipment. An arborist report will be produced to document trees that may require trimming or removal. Vegetation removal will be minimized to the extent feasible.

Excavators will be used to excavate the soil above and adjacent to the pipelines to be removed to fully expose the pipelines. Topsoil and riprap will be stockpiled separately from other excavation spoils to be replaced last. The terrestrial segments of the pipelines will be cut into sections and loaded onto trucks for transportation to an off-site disposal facility.

Once the terrestrial pipeline removal is complete, excavations will be backfilled and compacted using the native spoils that were removed during excavation. Additional fill material may be imported, as needed, to restore the excavations to the pre-project contours. Separately stockpiled topsoil or riprap will be placed last to match the pre-project conditions.

The previously abandoned L-131 pipelines are buried approximately 7 to 12 feet deep across much of the slough. Since the L-131 pipelines were previously filled with cement, removal will require excavation for most of their length. Underwater excavation will be performed using a submersible excavation pump narrowly following the buried pipeline alignment. The submersible excavation pump pulls both sediment and water into the pump inlet, which mix and form a slurry. On the riverbed, hoses connected to the pump outlet transport the slurry a short distance where it will be side-cast onto the riverbed.

Once excavated, a cutting device such as a shear, hydraulically operated saw, or diamond wire saw suspended from the crane will cut the pipelines into sections. The crane will change from a cutting device to a hydraulically operated grapple to pick up each section of pipeline and place it on the materials barge for eventual transportation to a disposal facility.

Underwater excavations or disturbances to the riverbed that result from the submarine pipeline removal are expected to return to pre-Project conditions through side-casting into the

excavation and through natural hydrogeomorphic processes (Figure 2). The terrestrial project worksites will be restored to pre-project conditions, including reseeding of vegetation and restoration of fences or other improvements that may have been impacted by decommissioning activities. A site restoration plan will be prepared at least 30 days prior to construction and submitted to agencies, as required, for approval.

A turbidity monitoring plan will be developed and approved by the agencies before in-water work is started. The turbidity monitoring plan will be implemented to ensure that the turbidity levels from the excavation work remain within approved limits.

2.2.3 Schedule

The Project is planned to occur August through October 2026. All decommissioning activities within the waterway will occur within the seasonal aquatic work window of August 1 to October 31, 2026, to avoid seasonal migrations and coincide with the period when listed anadromous fish species are least likely to occur in the work areas. Onsite work activities will generally be conducted Monday through Friday approximately 10 hours per workday. Longer shifts or additional shifts may occur, if necessary, to complete the Project within the defined seasonal constraints.

3.0 METHODOLOGY

3.1 LITERATURE REVIEW

Biologists from Padre Associates, Inc. (Padre) reviewed available Project design information, Sacramento soil survey map, National Wetland Inventory (NWI) Map, the USGS 7.5-minute topographic map for the Jersey Island quadrangle, and other environmental documents. The California Natural Diversity Database (CNDDB) and California Department of Fish and Wildlife Biogeographic Information and Observation System (BIOS) were queried for records of special-status species reported within a five-mile radius surrounding the Project area (California Department of Fish and Wildlife [CDFW], 2024). A list of federally listed Threatened and Endangered species was obtained from the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), and is included under Appendix A (USFWS, 2024a; NMFS, 2024). Special-status taxa that are known to exist or have the potential to exist in the Project area were also identified through a review of relevant literature (California Native Plant Society [CNPS], 2024; Zeiner et al., 1988; 1990a, b).

Padre biologists also reviewed PG&E's Multiple Region Operations & Maintenance Habitat Conservation Plan (MRHCP) (ICF, 2020) for incorporation of Avoidance and Minimization Measures (AMMs) from the MRHCP for protection of covered species potentially impacted by the Project.

3.2 FIELD SURVEY

Reconnaissance-level field surveys for the purposes of site characterization, biological surveys, and preliminary aquatic resources delineation were conducted by Padre biologists on August 15, 2024. The biological resources study area (study area) included all biological resources that could potentially be impacted by the Project. The study area includes all temporary impact areas, staging areas, access routes, and the surrounding areas. Boundaries of the study area are depicted in Figures 3 and 4. Surveys of the study area were conducted to assess the potential for biological resources and to determine the likelihood of occurrence for special-status species and/or sensitive and regulated habitats on the site. Detection methods included direct observation with binoculars; examination and identification of tracks, scats, previous years nests, burrows/diggings, and carcasses/skeletal remains; and identification of vocalizations (calls and songs). No trapping or netting was performed during surveys. Plants not identified in the field were first identified to a taxonomic level necessary to confirm they were not a special-status species, then collected and returned to the lab for identification using a microscope and standard taxonomic references, when possible (Baldwin et al., 2012). Prior to the field surveys, the CNDDB/BIOS query was reviewed to identify recorded occurrences of special-status plant and animal species in the Project vicinity (Appendix B). Special-status species occurring within five miles of the site are depicted in Figure 5. During the field surveys, vegetative cover types and significant habitat features, such as wetlands, potential nest trees, host plants (valley elderberry longhorn beetle [VELB] [*Desmocerus californicus dimorphus*]) and potential dens or burrows, were noted. Lists of plants and wildlife associated with the various cover types were compiled and are included in Appendix C and Appendix D. Site photographs taken during field surveys are provided in Figure 6.

4.0 ENVIRONMENTAL SETTING

4.1 GEOLOGY/GEOMORPHOLOGY

The Project site is located within the Delta subsection of the Great Valley ecological section of California (Miles and Goudey, 1997). The Delta subsection is located in low areas, near sea-level, at the confluence of the Sacramento and San Joaquin Rivers. The geomorphology of this subsection is a practically level plain, except for the levees of the Sacramento and San Joaquin Rivers. Elevations in this subsection range from a few feet on levees to sea-level, or lower, on the rest of the plain. Decomposition of organic deposits and consequential land subsidence is the main geomorphic process. Fluvial erosion and deposition are the main geomorphic processes on and adjacent to levees.

Three soil types that have been mapped by the Natural Resources Conservation Service (NRCS) are distributed across the Project area, as described in Section 4.3 below.

The Project is located within the Sacramento Valley subregion of the Great Valley California floristic region (Baldwin et al., 2012). The northern and western portions of the Project area are located within the Brannan Island State Recreation area. The southern portion of the Project area is located adjacent to agricultural and developed lands. The Project area crosses Threemile Slough which has a federal levee on the south side.

4.2 CLIMATE

The Project site is situated in Climate Zone 14, which includes Northern California's inland areas with some ocean influence (Sunset Western Garden Collection, 2024). The site has a climate that is moderated by the Pacific Ocean. The climate is characterized by slightly warmer winters and cooler summers than would be expected without moderation from the marine air. This is due to the opening in Northern California's Coast Ranges created by San Francisco and San Pablo bays which allows marine air to penetrate further inland. Most of the rainfall occurs during the period from November through April.

The nearest weather station with historic data that is representative of the climate at the Project area is the Concord Buchanan Field Station (041964) approximately 22.0 miles southwest of the Project area. The average maximum temperature for the 25-year period between 1999 and 2024 was 73.6° Fahrenheit (F), with a range of 58.3°F in January to 88.4°F in July. The average minimum temperature was 49.6°F with a range of 40.3°F in December and 58.7°F in August. The average annual precipitation is 14.91 inches with a range of 0.00 inches in July to 3.39 inches in December. No precipitation falls as snowfall in this location (Western Regional Climate Center, 2024).

4.3 SOILS

The soils in the Delta subsection are mostly poorly to very poorly drained. Soil temperature regimes are thermic (defined as mean annual temperature between 60°F and 70°F, with a difference of greater than 9°F between mean summer and winter soil temperatures). Soil moisture regimes are mostly aquic (soil saturated long enough to cause anaerobic conditions) but they are xeric (dry for 45 or more consecutive days) on levees.

Based on a review and analysis of the U.S. Department of Agriculture's Web Soil Survey for Sacramento County (NRCS, 2024), the Project site is underlain by Egbert clay, 0 to 2 percent slopes, Xeropsamments, 1 to 15 percent slopes, and water. The water soil mapping unit does not have a soil description. The Egbert clay and xeropsamments mapping units are described below.

4.3.1 Egbert clay, 0 to 2 percent slopes (map unit 139)

This soil mapping unit is a poorly drained soil formed in alluvium. Typically, the soil profile is described from 0 to 20 inches as clay and from 20 to 60 inches as silt clay loam. Depth to a restrictive feature is typically more than 80 inches. Depth to the water table is typically 0 inches. This mapping unit is classified as hydric soil. This soil mapping unit underlies the entire study area south of Threemile Slough (Sherman Island).

4.3.2 Xerospamments, 1 to 15 percent slopes (map unit 244)

This soil mapping unit is a somewhat excessively drained soil formed in mine spoil or earthy fill. Typically, the soil profile is described as variable from 0 to 60 inches. Depth to a restrictive feature is typically more than 80 inches. Depth to the water table is typically more than 80 inches. This mapping unit is classified as a non-hydric soil. This mapping unit underlies the entire study area north of Threemile Slough (Brannan Island).

4.4 WATER QUALITY AND TEMPERATURE

Water quality, including turbidity and temperature, are important factors in determining habitat suitability for special-status fish species, specifically salmonids. Typically, salmonids prefer cool streams and rivers with a maximum temperature of 64°F (18°C). High water temperatures result in reduced levels of dissolved oxygen, which can impact growth and development of all life stages of salmonids. Salmon have been documented to have an avoidance response to unfavorable dissolved oxygen levels (Carter, 2005). A typical salmonid behavioral response when temperatures become too high is to move upstream to locations where conditions are more favorable.

A review of real time temperature data in the San Joaquin River from the past 14 years at USGS station San Joaquin R a Jersey Point CA (station #11337190), located approximately 4.3 miles downstream of the Project area indicates that water temperatures above 68°F are typical between June and October (USGS, 2024).

Higher flows associated with increased river stages can result in higher turbidity because of the high flow energies suspending sediments. Water quality data from 2017 to 2024 at the San Joaquin R a Jersey Point monitoring station, report that turbidity levels can range from 4.2 to 8.3 NTUs during late summer and early fall and increases to a range of 8 to 86 NTUs from November through January (USGS, 2024).

4.5 HABITAT DESCRIPTION AND VEGETATION

The study area is located south of the City of Rio Vista, between and including Brannan Island and Sherman Island. The surrounding area consists primarily of agricultural and developed land. A recreational area is located on the northern and western sides of Threemile Slough, and the eastern and southern sides of the slough are comprised of fields used for agriculture.

Six vegetation communities were identified onsite during field surveys (Figure 3). Wild oats and annual brome grasslands were present on Sherman Island along the landward levee slope adjacent to Sherman Island East Levee Road and throughout the majority of the upland study area on Brannan Island. A non-natural vegetation community with a significant amount of human disturbance was also present within the southern portion of the study area on Sherman Island. This community was classified as disturbed land. Along the south bank of Threemile Slough, California sycamore and coast live oak riparian woodland was present along the shoreline. On the north bank of Threemile Slough, sandbar willow thicket was present along the steep banks. There were small pockets of emergent hydrophytic vegetation growing on both banks of Threemile Slough but these were not large enough to be considered separate vegetation communities. Threemile Slough is classified as a riverine community. Lastly, there were developed areas present including roads and a parking lot within the study area on both Brannan and Sherman Islands.

Vegetation communities were determined based on species composition and descriptions from *A Manual of California Vegetation* (MCV) (Sawyer et al., 2009) but were modified as needed to accurately describe the existing habitat observed within the study area. Plant species lists are provided for the study area in Appendix C. Vegetation Communities mapped within the study area are shown in Figure 3. Below is a brief description of the six vegetation communities mapped within the study area.

4.5.1 California Sycamore and Coast Live Oak Riparian Woodland

California sycamore and coast live oak riparian woodlands are typically found on the banks of intermittent streams, springs, seeps, and gullies and on the adjacent floodplains. This community can be found throughout California's Central Valley and the South Coast, Transverse, and Peninsular Mountain Ranges at elevations ranging from sea level to approximately 7,800 feet. This riparian woodland community is characterized by a dominance of western sycamore (*Plantanus racemosa*) or coast live oak (*Quercus agrifolia*) in the tree canopy. Associate species in the tree canopy can include white alder (*Alnus rhombifolia*), California black walnut (*Juglans hindsii*), Fremont cottonwood (*Populus fremontii* ssp. *Fremontii*), valley oak (*Quercus lobata*), California bay (*Umbellularia californica*), and a variety of willow species including narrow-leaved willow (*Salix exigua*), Gooding's black willow (*Salix gooddingii*), and red willow (*Salix laevigata*). The understory of this community may have an open or intermittent shrub layer and a sparse or grassy herbaceous layer. This community is well adapted to intermittent flooding and western sycamore often relies on flooding events to scour seeds for higher success in germination rates.

Within the study area, California sycamore and coast live oak riparian woodland was present along the south bank of Threemile Slough. The dominant species observed in the tree canopy was coast live oak. Narrow-leaved willow and California button willow (*Cephalanthus occidentalis*) were present in the shrub layer. Herbaceous species observed in this community were varied but included California rose (*Rosa californica*), Himalayan blackberry (*Rubus armeniacus*), delta tule pea (*Lathyrus jepsonii var. jepsonii),* Bermuda grass (*Cynodon dactylon*), lamp rush (*Juncus effusus*), ragweed (*Ambrosia sp*.), and curly doc (*Rumex crispus*). California sycamore and coast live oak riparian woodland is a sensitive natural community (S3) on the California Department of Fish and Wildlife's (CDFW) *California Natural Communities List* (CDFW, 2023).

4.5.2 Developed

This land cover type is not described in the MCV because it is not a natural community and is typically associated with human disturbance. Developed areas are characterized by a high degree of human disturbance and can include a variety of site conditions from buildings to roadways and parking lots. Typically, there is limited vegetation cover and limited habitat for wildlife present in developed areas.

Within the study area, developed lands were mapped along roads on both Sherman Island and Brannan Island and within the paved parking lot and the PG&E valve station on Brannan Island. The ground surface in these areas was highly disturbed and was either covered in asphalt or gravel. Almost no vegetation was growing within this land cover type.

4.5.3 Disturbed Land

This land cover type is not described in the MCV because it is not a natural community and is typically associated with human disturbance. Disturbed land may exhibit a variety of site conditions, but they are typically dominated by non-native and early successional herbaceous species that readily colonize areas that have been recently disturbed or are frequently disturbed.

Within the study area, disturbed land was present within the low-lying field to the south of Sherman Island East Levee Road. There were multiple types of human disturbance identified throughout this field including old storage facilities and equipment, remnants of burned vegetation and trash piles, and soil or debris dump piles. In addition, piles of dredge spoils and vegetation were present from recent dredging that occurred in an agricultural ditch approximately 15 feet west of the study area. Due to the variety of disturbance activities in this area, there was a variety of herbaceous vegetation observed in this community. The dominant vegetation observed in the disturbed area included Bermuda grass and beardless wild rye (*Elymus triticoides*). Where dredged material from the agricultural ditch was piled, there was a higher concentration of hydrophytic plants including common reed (*Phragmites australis*), narrow-leaved cattail (*Typha angustifolia*), willow weed (*Persicaria lapathifolia*), tall cyperus (*Cyperus eragrostis*), and cocklebur (*Xanthium strumarium*), presumably from the seedbank within the dredge spoils. Throughout the disturbed lands there were many disturbance-adapted weedy species like bristly ox-tongue (*Helminthotheca echioides*), bindweed (*Convolvulus arvensis*), bur clover (*Medicago polymorpha*), and Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*).

4.5.4 Riverine

This community is not described in the MCV because it is an open water aquatic community with limited vegetation. Within the study area, Threemile Slough traverses the Project site and is a perennial and navigable waterway. Throughout most of this mapped feature, there is no emergent vegetation present; however, on the north and south banks of Threemile Slough there are dense to sparse stands of tule (*Schoenoplectus acutus* var. *occidentalis*) along with submerged aquatic vegetation like Brazilian waterweed (*Egeria densa*), pondweed (*Potamogeton* sp.), and parrot's feather (*Myriophyllum aquaticum*). Water hyacinth (*Eichhornia crassipes*) was also observed floating on the water's surface along with small patches of frogbit (*Limnobium* sp.). Many of the plant species observed within this community are classified as highly invasive species, including Brazilian waterweed, parrot's feather, and water hyacinth.

4.5.5 Sandbar Willow Thickets

Sandbar willow thickets are typically found on depositions along rivers and streams as well as in temporarily flooded floodplains and springs. This community can be found throughout California at elevations ranging from sea level to approximately 8,900 feet. This riparian shrubland community is characterized by the dominance of narrow-leaved willow, also known as sandbar willow. Associate species can include California rose, Himalayan blackberry, California blackberry (*Rubus ursinus*), arroyo willow (*Salix lasiolepis*), and dusky willow (*Salix melanopsis*). This community is typically the first to colonize sand bars and cut banks and if the flooding disturbance regime is not too intense, later successional communities, like Fremont cottonwood forests, can take their place.

Within the study area, sandbar willow thicket was present along the north bank of Threemile Slough. The dominant species was narrow-leaved willow, which was found in large dense patches along the steep north bank. Associate species observed included northern California black walnut, coast live oak, blue elderberry (*Sambucus nigra* ssp. *caerulea*), Himalayan blackberry, and Gooding's black willow.

4.5.6 Wild Oats and Annual Brome Grassland

Wild oats and annual brome grasslands are dominated by non-native grasses from Europe and Asia. This community is very common in valley and foothill grasslands as well in the open spaces among oak woodlands. Typically, it can be found at elevations ranging from approximately 30 to 3,900 feet in elevation. Within this cover type there is often very limited species diversity. Typical species include wild oat (*Avena fatua*), slender wild oats (*Avena barbata*), ripgut grass (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). There is a wide variety of native and non-native forbs that can occur in this cover type as well.

Within the study area, wild oats and annual brome grasslands were present on both the south and north sides of Threemile Slough. In the southern portion of the study area, this community was present on the landward levee slope adjacent to Sherman Island East Levee Road. In the northern portion of the study area, this community was present in the large open area surrounding the PG&E valve box. The species composition varied across the study area with some grasslands being dominated by ripgut grass and others being dominated by wild oat. Associate species in these communities also varied but commonly included other non-native upland grasses and forbs including soft chess, rattail sixweek grass (*Festuca myuros*), Bermuda grass, yellow star-thistle (*Centaurea solstitialis*), storksbill (*Erodium sp*.), and Spanish clover (*Acmispon americanus* var. *americanus*).

4.6 WATERS AND WETLANDS

The Project area was examined for evidence of potentially regulated aquatic resources, such as waters and wetlands, under regulatory authority of the U.S. Army Corps of Engineers (ACOE) under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899. A Preliminary Aquatic Resource Delineation was conducted in August 2024. The Preliminary Aquatic Resource Delineation identified and delineated the geographic extent of Federal jurisdictional waters of the U.S. and wetlands, which are also considered waters of the state (Padre, 2024).

During field survey efforts conducted in August 2024, Padre identified a total of 3.51 acres of Federal jurisdictional waters of the U.S. within the 7.6-acre study area (Figure 4). Threemile Slough is a Navigable Waterway under Section 10 of the Rivers and Harbors Act of 1899 and a Water of the U.S. under Section 404 of the Clean Water Act (CWA) and is subject to ACOE jurisdiction. Threemile Slough is also considered waters of the state regulated by the Regional Water Quality Control Board (RWQCB). There were no other aquatic resources that occurred within the study area above the high tide line (HTL) of Threemile Slough. The bed and bank of Threemile Slough is also regulated under Sections 1600-1617 of the California Fish and Game Code administered by CDFW. Activities within these jurisdictional areas are regulated by the Federal government and/or the State of California.

4.7 WILDLIFE

Wildlife observed within the Project area were characteristic of the delta region and of the riverine and semi-altered habitats that occur onsite. A comprehensive list of wildlife species observed during the surveys is included in Appendix D. Special-status wildlife species occurring, or potentially occurring, within the Project area and near vicinity are discussed in Section 4.8 below.

The vegetation communities on the Project area and surrounding area provide habitat for resident and migratory wildlife species. The composition, density, distribution, and physical characteristics of vegetative communities determine the diversity and abundance of wildlife species utilizing the the Project area. Wildlife species observed and expected within the vegetative cover types present in the Project area are discussed below.

Both the northern and southern portions of the study area consist of highly altered landscapes. In the study area north of Threemile Slough, large portions of the ground have been developed for recreational use within Brannan Island Recreation Area. The vegetated areas within the state park are predominantly non-native annual grasslands. The study area south of Threemile Slough is mostly comprised of a large, disturbed area south of Sherman Island East Levee Road that supports weedy herbaceous species. Both the north and south banks of Threemile Slough have been stabilized with large riprap and support mixed riparian trees and shrubs. Due to the presence of both disturbed habitats and semi-natural lands, wildlife species observed were a mix of species adapted to human disturbance and species that are associated with aquatic habitats. Disturbance adapted species observed included European starling (*Sturnus vulgaris*), American crow (*Corvus brachyrhynchos*), rock pigeon (*Columba livia*), and Eurasian collared-dove (*Streptopelia decaocto*). Additional terrestrial species observed included red-shouldered hawk (*Buteo lineatus*), Swainson's hawk (*Buteo swainsoni*), California ground squirrel (*Otospermophilus beecheyi*), and western fence lizard (*Sceloporus occidentalis*).

Bird species observed along the slough included both resident and migratory species, some of which are closely tied to the aquatic environment. These included mallard (*Anas platyrhynchos*), double-crested cormorant (*Phalacrocorax auritus*), American bittern (*Botaurus lentiginosus*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), osprey (*Pandion haliaetus*), and belted kingfisher (*Megaceryle alcyon*).

Within the Project area, there is suitable nesting habitat for a variety of migratory birds and raptors. Trees along Threemile Slough, including coast live oak and eucalyptus (*Eucalyptus* sp.), occur in tall enough stands to provide potential nesting habitat for large raptors like Swainson's

hawk and red-tailed hawk (*Buteo jamaicensis*). The shrubland habitats along the north and south banks of Threemile Slough also provide potential nesting habitat for songbirds and other migratory birds like song sparrow (*Melospiza melodia*).

Threemile Slough flows through the Project area and provides habitat for a wide variety of aquatic species. A range of fish species may utilize Threemile Slough at the Project site including delta smelt (*Hypomesus transpacificus*), green sturgeon (*Acipenser medirostris*) and salmonid species (*Oncorhynchus* sp.).

4.8 SPECIAL STATUS SPECIES

For the purposes of this Report, a special-status species is a plant or animal species that is:

- Listed as endangered, threatened, or a candidate species under the federal Endangered Species Act (FESA);
- Listed as endangered, threatened, or a candidate species under the California Endangered Species Act (CESA);
- Listed as a fully protected species or Species of Special Concern by the CDFW;
- A plant species that is on the CNPS's Rare Plant Ranking System as List 1 or 2;
- Considered rare, threatened, or endangered under the California Environmental Quality Act (CEQA) Guidelines 15380(d) as the species' survival and reproduction in the wild are in immediate jeopardy, present in such small numbers throughout all or a significant portion of its range that it may become endangered, or likely to become endangered within the foreseeable future throughout all or a significant portion of its range; and/or
- Species protected by specific Federal or State regulations or local ordinances.

Based on the literature review and species lists obtained from USFWS (IPaC Trust Resource Report) (Sacramento Office Project code: 2024-0081760) and from NMFS (USFWS, 2024a; NMFS, 2024) for Jersey Island quadrangle, a list of special-status species that have been reported within a five-mile radius surrounding the Project area has been compiled. Special-status species included on the USFWS and NMFS species lists or with CNDDB occurrences within five miles of the Project area were evaluated for potential occurrence in Table 4-1 (CDFW, 2024a). Table 4-1 also includes rationale for why certain species were excluded from further analysis in this document. Special-status species occurring within five miles of the Project are also depicted in Figure 5.

An analysis of the likelihood of occurrence for each species was conducted based on species ranges, previous observations, contemporary sightings, and presence of suitable habitat elements. The Project may be located outside of the known range of some species, or within the geographic range for a certain species, but suitable habitat is absent onsite. For this analysis, potential special-status species that occur in the general area of the Project, and for which the Project may provide habitat, are discussed in greater detail in Sections 4.8.1 and 4.8.2 below.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
PLANTS			
Carex comosa Bristly sedge	2B.1	Marshes and swamps, coastal prairie, valley and foothill grassland along lake margins and wetlands from 0 to 1,312 feet in elevation. Blooms from July to September.	**Moderate**. Potentially suitable habitat is present at the Project site along Threemile Slough. The nearest recorded historic occurrence (Occ. #4; 1988) is located approximately 3.9 miles southeast of the Project area. The nearest recent occurrence (Occ. #11; 2009) is located approximately 13.5 miles northeast of the Project area. Occurrences of this species are located in tidal marsh habitat along sloughs.
Chloropyron molle ssp. *molle (prev. Cordylanthus mollis* spp. *mollis*) Soft salty bird's-beak	FE, 1B.2	Saltmarsh and coastal wetlands from 0 to 33 feet in elevation. Blooms from July to October.	**None**. There is no suitable salt marsh habitat present at the Project site to support this species. The nearest recorded historic occurrence (Occ. #18; 1972) is located approximately 6.5 miles southwest of the Project area. The nearest recent occurrence (Occ. #28; 2017) is located approximately 12.3 miles northwest of the Project area.
Extriplex joaquinana San Joaquin spearscale	1B.2	Alkaline environments, chenopod scrub, meadows and seeps, playas, valley and foothill grasslands from 0 to 2,700 feet in elevation. Blooms from April to October.	**None**. There is no suitable habitat present at the Project site to support this species. The nearest recorded occurrence (Occ. #22) is located approximately 2.4 miles north of the Project area. However, this is a historical occurrence from 1891. The nearest recent occurrence (Occ. #132; 2015) is located approximately 12.6 miles southwest of the Project area.
Hibiscus lasiocarpos var. *occidentalis* Woolly rose-mallow	1B.2	Freshwater marshes and swamps, often on the side of levees at elevations ranging from 0 to 400 feet in elevation. Blooms from June to September.	**Moderate**. Potentially suitable habitat is present along the north and south banks of Threemile Slough. The nearest recorded occurrence (Occ. #36) is located approximately 2.1 miles north of the Project area. However, this is a historical observation from 1891. The nearest, recent occurrence (Occ. #197; 2012) is located approximately 4.1 miles southeast of the Project area on a small levee.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Lathyrus jepsonii var. *jepsonii* Delta tule pea	1B.2	Freshwater and brackish marshes. Often associated with *Typha* and *Juncus* spp. found along marsh edges. Occurs from 0 to 20 feet in elevation. Blooms from April to August.	**Present**. Delta tule pea was observed within the Project area during surveys conducted on August 15, 2024. The plant was not blooming but was identifiable at the time of the surveys. The nearest recorded occurrence of this species (Occ. #145; 2009) is located approximately 1.4 miles south of the Project area on the banks of Threemile Slough.
Lilaeopsis masonii Mason's lilaeopsis	1B.1	Freshwater and brackish marshes, riparian scrub in tidal zones with muddy or silty soils ranging from 0 to 30 feet in elevation. Blooms from April to November.	**Moderate**. Suitable habitat is preset at the Project site, particularly along the south bank of Threemile Slough, though suitable mudflat substrate is limited due to the presence of existing rip rap. Small areas of mud substrate are present in interstitial spaces between rocks observed in several locations on the south bank. Occurrences of this species, if present, would be limited to small populations or occurrences of individual plants. The nearest recorded occurrence (Occ. #37; 2009) is located approximately 390 feet east of the Project area and 556 feet west of the Project area, along Threemile Slough within Brannan Island State Recreation Area.
Limosella australis Delta mudwort	2B.1	Freshwater and brackish marshes, usually on the muddy banks of streams. Found at elevations ranging from sea level to approximately 10 feet. Blooms from May to August.	**Moderate**. Suitable habitat is preset at the Project site, particularly along the south bank of Threemile Slough, though suitable mudflat substrate is limited due to the presence of existing rip rap. Small areas of mud substrate are present in interstitial spaces between rocks observed in several locations on the south bank. Occurrences of this species, if present, would be limited to small populations or occurrences of individual plants. The nearest recorded historic occurrence (Occ. #57; 1986) is located approximately 265 feet east of the Project area on the northeast side of Brannan Island State Recreation Area. The nearest, recent occurrence (Occ. #8; 2009) is located approximately 0.4 miles west of the Project area on the opposite side of Brannan Island.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Oenothera deltoides ssp. *howellii* Antioch Dunes evening-primrose	FE, SE, 1B.1	Inland dunes and remnant river bluffs at elevations ranging from sea level to approximately 100 feet. Blooms from March to September.	**Moderate**. Limited suitable habitat is present for this species within the study area on the north side of Threemile Slough in areas with sandy substrate, though no sand dunes occur and sandy substrate within the study area occurs in areas of high disturbance. Occurrence #5 is partially mapped within the study area. This occurrence of Antioch Dunes evening-primrose has been observed consistently since 1980 on the remnants of native dune habitat and was observed during surveys conducted on August 15, 2024, approximately 200 feet east of the Project study area.
Plagiobothrys hystriculus Bearded popcornflower	1B.1	Often in vernal swales of valley and foothill grasslands and vernal pool margins at elevations ranging from sea level to approximately 900 feet. Blooms from April to May.	**None**. There is no suitable vernal pool habitat to support this species at the Project site. The nearest recorded occurrence (Occ. #8; 2005) is located approximately 3.6 miles northwest of the Project area in a vernal swale.
Potamogeton zosteriformis Eel-grass pondweed	2B.2	In freshwater marsh wetlands at elevations ranging from sea level to approximately 4,265 feet. Blooms from June to July.	**Low**. Aquatic habitats at the Project site are brackish and would not provide suitable habitat for eel-grass pondweed. The nearest recorded occurrence (Occ. #7) is located approximately 2.9 miles southeast of the Project area on Webb Island; however, this is a historical occurrence from 1949. All other recorded occurrences are located over 75.0 miles from the Project area and contemporary occurrences are in freshwater lakes and creeks, primarily in Shasta County, CA.
Sagittaria sanfordii Sanford's arrowhead	1B.2	Assorted freshwater habitats including swamps and marshes at elevations ranging from 0 to approximately 2,130 feet. Blooms from May to October, sometimes into November.	**Moderate**. Potentially suitable habitat is present along Threemile Slough at the Project site. The nearest recorded occurrence (Occ. #84; 2009) is located approximately 4.2 miles north of the Project location on an exposed sandy shoreline of the Sacramento River with similar site conditions to those present at the Project site.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Symphyotrichum lentum Suisun marsh aster	1B.2	Freshwater and brackish marshes and swamps at elevations ranging from sea level to approximately 10 feet. Blooms from April to November.	**Moderate**. Suitable habitat is present along the banks of Threemile Slough at the Project site. The Project area is located within the mapped limits of Occurrence #32 from 2009, where Suisun marsh aster was found on both sides of Threemile Slough and along the southern portion of Brannan Island.
INVERTEBRATES			
Apodemia mormo langei Lange's metalmark butterfly	FE	Stabilized sand dunes of the Antioch Dunes, closely associated with Antioch Dunes buckwheat (*Eriogonum nudum* var. *psychicola*).	**None**. The Lange's metalmark butterfly is endemic to the Antioch Dunes and is not known to occur outside of the Antioch Dunes National Wildlife Refuge. The Project site is located outside of the known range of this species.
Branchinecta lynchi Vernal pool fairy shrimp	FT	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Regionally inhabits small, clear-water sandstone depression pools and grass swales, earth slump or basalt-flow depression pools.	**None**. There is no suitable vernal pool habitat to support this species at the Project site. The nearest recorded occurrence (Occ #667; 2019) is located approximately 10.0 miles west of the Project area.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT	Ranges from California's Central Valley from Shasta County through Madera County. Dependent on its host plant, the blue elderberry shrub (*Sambucus mexicana*) in the central valley and low foothills.	**Moderate.** The Project site is within the known range of valley elderberry longhorn beetle (VELB) and several blue elderberry shrubs were identified within the Project study area and adjacent locations. The nearest recorded occurrence of VELB (Occ. #53; 1987) is located approximately 20.7 miles northeast of the Project area. MRHCP modeled habitat for the VELB occurs on the north bank of Threemile Slough and in terrestrial areas south of Threemile Slough at the Project location (ICF, 2020).
Lepidurus packardi Vernal pool tadpole shrimp	FE	Inhabits vernal pools and swales in the Central Valley containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud bottomed and highly turbid.	**None**. There is no suitable vernal pool habitat to support this species at the Project site. The nearest recorded occurrence (Occ. #161; 2019) is located approximately 10.1 miles west of the Project area.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
FISHES			
Acipenser medirostris Green sturgeon – Southern DPS	FT, CSC	Anadromous fish species found in near shore marine and estuarine environments from Alaska to Baja California, Mexico. Juveniles have been collected in the San Francisco Bay up to the lower reaches of the Sacramento and San Joaquin Rivers. Green sturgeon depend on large rivers to spawn, typically in deep pools in large turbulent mainstem rivers. The Sacramento River watershed is the only confirmed present and historical spawning area. Spawning occurs in the Sacramento River and has recently been documented in the Feather River and Yuba River. The San Francisco Bay Delta Estuary provides year-round rearing habitat for juveniles and foraging habitat for non-spawning adults and subadults in summer months (NMFS, 2018)	**High**. The Project area is located within the vicinity of recorded occurrence #9 from 2019, where observations of green sturgeon have been recorded in the Delta consistently since 1963. In addition, juvenile green sturgeon have been captured annually between 2015 and 2019 at the Sherman Island sampling station, approximately 7.7 miles downstream from the Project area (CDFW, 2019).
Hypomesus transpacificus Delta smelt	FT, SE	Endemic to the Sacramento/San Joaquin Delta, they occur in the Delta primarily below Isleton on the Sacramento River, below Mossdale on the San Joaquin River, and in Suisun Bay. Delta smelt mainly inhabits the freshwater-saltwater mixing zone of the estuary, except during its spawning season, when it moves into freshwater during the early spring months from March until May.	**High**. Suitable habitat occurs at the Project area. Individuals were captured during the 2023 CDFW 20-millimeter (mm) survey approximately 3.8 miles downstream of the Project area (station 706) (IEP, 2024). Delta smelt have not been detected at the nearest sampling station (station 707) since 2016 (IEP, 2024). The nearest recorded CNDDB occurrence (Occ. #7; 2019) is located approximately 0.6 miles west of the Project area, on the opposite side of Brannan Island in the Delta.
Oncorhynchus mykiss irideus pop. 11 Steelhead - Central Valley DPS	FT, CSC	Anadromous species occurring in the Pacific Ocean that migrate through the Sacramento and San Joaquin River systems, Sacramento-San Joaquin Delta, and San Francisco Bay to spawning habitat.	**High**. The species could be found in the vicinity of the Project area seasonally during migration to spawning habitat upstream of the site; however, habitat onsite is not suitable for spawning. The Project area is located within the vicinity of recorded CNDDB occurrence #27 from 2012, where observations of steelhead have been recorded in the Delta consistently since 1976.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Oncorhynchus tshawytscha pop. 11 Chinook salmon - Central Valley spring-run ESU	FT, ST	Anadromous species occurring in the Pacific Ocean that spawn in the Sacramento and San Joaquin Rivers and their tributaries.	**High**. The species could be found in the vicinity of the Project area seasonally during migration to spawning habitat upstream of the site. Habitat onsite is not suitable for spawning. The nearest recorded CNDDB occurrence (Occ. #17; 2004) is located approximately 32.0 miles upstream of the Project area, in Sacramento. CDFW spring Kodiak trawl surveys captured spring-run Chinook salmon at the confluence of the Sacramento River and Threemile Slough approximately one mile downstream of the Project area in April 2023 (station 707)(IEP, 2024).
Oncorhynchus tshawytscha pop. 7 Chinook salmon - Sacramento River winter-run ESU	FE, SE	Anadromous species occurring in the Pacific Ocean that spawn in the Sacramento River and its tributaries.	**High**. The species could be found in the vicinity of the Project area seasonally during migration to spawning habitat upstream of the site. Habitat onsite is not suitable for spawning. The nearest recorded occurrence (Occ. #2; 2004) is located approximately 32.0 miles upstream of the Project area, in Sacramento. CDFW spring 20-mm surveys captured chinook salmon at the confluence of the Sacramento River and Threemile Slough approximately one mile downstream of the Project area in March 2024 (station 707)(IEP, 2024).
Central Valley fall-run chinook salmon ESU *Oncorhynchus tshawytscha*	CSC	Anadromous species occurring in the Pacific Ocean that migrate through the San Francisco Bay, Sacramento-San Joaquin Delta, and Sacramento River to spawning habitat.	**High.** The species can occur in the Project area seasonally during migration to spawning habitat upstream of the site. Habitat onsite is not suitable for spawning. CDFW spring Kodiak trawl surveys captured Central valley fall-run Chinook salmon at the confluence of the Sacramento River and Threemile Slough approximately one mile downstream of the Project area in April 2023 (station 707)(IEP, 2024).

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Spirinchus thaleichthys Longfin smelt – San Francisco Bay-Delta DPS	FPE, ST	Occupies a variety of coastal waters including estuaries, bays, and rivers. During breeding, this species spawns in freshwater tributaries near the ocean.	**High**. Suitable habitat occurs at the Project area. Individuals were routinely captured upstream and downstream of the Project area during the 2023 CDFW 20-millimeter (mm) survey (stations 705, 706, 707, 711) (IEP, 2024). Individuals were also captured approximately 3.8 miles downstream of the Project area in April of 2024 (station 706) (IEP, 2024). The Project area occurs in the vicinity of CNDDB recorded occurrence #17 from 2012 where observations of longfin smelt have been recorded consistently since 1946.
AMPHIBIANS			
Ambystoma californiense pop. 1 California tiger salamander – Central California DPS	FT, ST	Occurs in grassland habitat. Needs underground refuges, especially ground squirrel burrows during summer and vernal pools or other seasonal water sources for breeding in winter.	**Low**. There is no suitable aquatic breeding habitat at the Project site or in the surrounding area to support this species. Due to the Project site's isolated location on two islands in the delta, California tiger salamander is unlikely to disperse into the study area from known occurrences. The nearest recorded occurrence (Occ. #849; 2007) is located approximately 9.4 miles northwest of the Project area in the Montezuma Hills west of the Sacramento River and there are no CNDDB occurrences of this species on Brannan Island or Sherman Island. Terrestrial areas north and south of Threemile Slough are modeled as CTS potential upland habitat in PG&E's MRHCP (ICF, 2020). The terrestrial habitat north of Threemile Slough within the state park supports small mammal burrows, which are important components of CTS upland habitat; however, the density of burrows within the study area was extremely low and suitable breeding habitat in the surrounding area and within Brannan Island is limited. Therefore, the probability of occurrence for CTS is considered low.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Rana draytonii California red-legged frog	FT, CSC	Found in marshes, lakes, reservoirs, ponds, slow moving segments of streams, and other usually permanent water in lowlands, foothill woodlands, and grasslands. Requires aquatic habitat with extensive emergent vegetation.	**None**. There is no suitable aquatic habitat at the Project site to support this species. The nearest recorded occurrence (Occ. #531; 2002) is located approximately 12.1 miles southwest of the Project area in a shallow, perennial stream.
Spea hammondii Western spadefoot	FPT, CSC	Primarily found in grasslands but can be found in other open areas of woodlands, coastal sage scrub, and chaparral. Breeding requires ponded water, often occurring seasonally from rainfall.	**None**. There is no suitable aquatic habitat at the Project site to support this species. The nearest recorded occurrence (Occ. #1,366) is located approximately 18.0 miles southeast of the Project location. However, this is a historical occurrence from 1922 and is likely extirpated. The nearest occurrences from the last 20 years is located approximately 30.3 miles from the Project site (Occ. #630 and #1497).
REPTILES			
Emys marmorata Western pond turtle	FPT, CSC	Ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Needs basking sites and suitable upland habitat (sandy banks, grassy open fields) for egg laying.	**High**. Threemile Slough provides suitable aquatic habitat to support this species, and suitable basking sites were observed within the study area during surveys. Potentially suitable nesting habitat is present along the north and south banks of Threemile Slough, particularly in sandy substrate. The nearest recorded occurrence (Occ. #1,344; 2016) is located approximately 1.8 miles east of the Project location near Seven Mile Slough.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Thamnophis gigas Giant gartersnake	FT, ST	Freshwater marshes and streams. Has adapted to drainage canals and irrigation ditches with slow moving water, especially around rice fields. Prefers locations with vegetation close to the water for basking. Breeds in forests and streamside trees where it can hunt its prey by ambush in the dense cover. Has also been known to forage in residential areas.	**Moderate**. Potentially suitable aquatic habitat is present at the Project site on the north and south banks of Threemile Slough. Emergent vegetation present within Threemile Slough could provide suitable cover and foraging habitat for giant gartersnake (GGS). Suitable upland habitat occurs in adjacent terrestrial areas, particularly north of Threemile Slough where small mammal burrows are present, though the density of small mammal burrows within the study area was low. The nearest recorded occurrence (Occ. #150; 1998) is located approximately 1.4 miles southwest of the Project location where an individual was observed on the water side of a levee along the Sacramento River. A more recent occurrence is located approximately 2.5 miles southeast of the Project area on the south side of Twitchell Island along the San Joaquin River where GGS were observed basking in 2016 (CNDDB Occ. #407). MRHCP modeled habitat for giant gartersnake upland and aquatic habitat occurs on Threemile Slough and surrounding upland areas at the Project location (ICF, 2020).
BIRDS			
Aquila chrysaetos Golden eagle	FP, WL	Forages over open grasslands, savannahs, and deserts. Nests in large trees or cliffs.	**Low**. Although potentially suitable large trees are present in the vicinity of the study area, they are unlikely to support nesting of golden eagle due to their location in a public state recreational area with elevated levels of human disturbance. The nearest recorded occurrence (Occ. #342; 1984) is located approximately 3.9 miles northwest of the Project area where a nest was observed in a power pole.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Athene cunicularia Burrowing owl	SC, CSC, BCC	Dry, open grasslands, treeless plains with sparse vegetation such as prairie, pastures, desert, or shrub steppe, and airports. Underground nesting habitat in burrows and often associated with prairie dogs and ground squirrels, whose burrows they use for nests.	**Low**. The Project area is located within the mapped limits of occurrence #486 from 1989 where one individual burrowing owl was observed at Brannan Island State Recreation Area. Although California ground squirrels were observed at the Brannan Island State Recreation Area, burrow density within the Project study area was extremely low and no burrows suitable for burrowing owl occupation were observed within the study area. A more recent recorded occurrence (Occ. #2081; 2010) is located approximately 3.4 miles west of the Project area.
Buteo swainsoni Swainson's hawk	ST	Nests in riparian forests, remnant riparian trees, planted wind breaks, residential shade trees, and solitary upland oaks. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations.	**High**. Suitable nesting habitat is present within the study area and suitable foraging habitat occurs onsite and in the surrounding area. One Swainson's hawk adult was observed soaring over Brannan Island during surveys conducted on August 15, 2024. The nearest recorded occurrence (Occ. #1,674; 2003) is located approximately 0.3 miles north of the Project area on Twitchell Island.
Circus hudsonius Northern harrier	CSC, BCC	Nest (ground nester) and hunts in a variety of open habitats dominated by herbaceous vegetation. Breeds and winters in open spaces such as fields, savanna, and freshwater and brackish marshes and their adjacent grasslands.	**Low-Nesting/High-Foraging**. Suitable foraging habitat is present at the Project site. Nesting habitat is limited due to the high level of disturbance present in the upland portions of the study area. The nearest recorded occurrence (Occ. #91; 2007) is located approximately 4.0 miles southwest of the Project area.
Elanus leucurus White-tailed kite	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Forages over grasslands, marshes, and oak savannas close to isolated, dense-topped trees for nesting and perching.	**Moderate-Nesting/High-Foraging**. Suitable foraging habitat is present at the Project site. Potentially suitable nesting habitat is also present in the trees and shrubs surrounding the study area. The nearest recorded occurrence (Occ. #193; 2007) is located approximately 0.5 miles southwest of the Project area, just east of Threemile Slough, where a breeding pair was observed hunting and courting in the company of one juvenile. Habitat in the vicinity of this occurrence consisted of grassland and pastureland with scattered trees.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status[1]**	**Habitat**	**Probability of Occurrence**
Falco peregrinus anatum American peregrine falcon	FDL, SDL	Found in a variety of open habitats. Nests consists of a scrape or a depression or ledge in an open cliff sites, banks, dunes, mounds, or man-made structures near wetlands, lakes, rivers or other water.	**Low-Nesting/High-Foraging**. There is no suitable nesting habitat within one mile of the Project site although this species may be observed foraging within the study area. Occurrence #79 from 2018 is mapped to a non-specific area within the Jersey Island quadrangle which includes the Project site. This species is known to nest on bridges in the region.
Melospiza melodia pop. 1 Song sparrow ("Modesto" population)	CSC	Endemic resident of the north-central portion of the Central Valley. Prefers habitats with moderately dense vegetation, standing or running water, semi-open canopies, and open ground or leaf litter for foraging. Preferred habitat is believed to be freshwater marshes with emergent vegetation including tule (*Schoenoplectus* sp.), cattails (*Typha* sp.), or valley oak (*Quercus lobata*) riparian forests with an understory of blackberry (*Rubus* sp.).	**Moderate**. Suitable nesting and foraging habitat is present at the Project site. Song sparrows were observed during surveys conducted on August 15, 2024, although it is not clear if it was the Modesto population. The nearest recorded occurrence (Occ. #41; 2008) is located approximately 1.3 miles southwest of the Project area, on the northern end of Decker Island.
Rallus obsoletus obsoletus California Ridgway's rail	FE, SE, FP	Require tidal sloughs that have direct tidal circulation, predominant cover of pickleweed with stands of California cordgrass (*Spartina foliosa*) at lower elevations, high marsh cover consisting of tall stands of pickleweed, gumplant, wrack, and abundant invertebrate populations for foraging.	**None**. There is no suitable saltmarsh habitat present at the Project site to support this species. The nearest recorded occurrence (Occ. #102; 1994) is located approximately 17.1 miles southwest of the Project area.
Riparia riparia Bank swallow	ST	Can be found along rivers and streams near the steep eroded banks where they nest. Can also be found nesting in quarries and road cuts.	**Low-Nesting/High-Foraging**. There is no suitable nesting habitat within the study area to support this species due to a lack of step eroded banks where cavity nests could occur. There is, however, an occurrence (Occ. #201; 2000) located approximately 990 feet northeast of the Project area at the Brannan Island State Recreation Area on a sandy outcrop along Seven Mile Slough. This species has commonly been observed on Decker, Sherman, and Bradford Island in recent years and may forage in the Project area.

Table 4-1. Special-Status Species Considered for Potential Occurrence in the Vicinity of the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Scientific Name **Common Name**	**Status**[1]	**Habitat**	**Probability of Occurrence**
MAMMALS			
Lasiurus frantzii Western red bat	CSC	Roosts in forest and woodland habitats from sea level to mixed conifer forests but feeds over a variety of habitats including grasslands and shrublands. Roosts almost exclusively in riparian areas. Prefers cottonwoods, sycamores, and willows. It makes relatively short migrations between summer and winter ranges, which occur between March-May in spring and September and October in autumn.	**Moderate**. Potentially suitable roosting habitat is present in the riparian trees on Brannan Island and Sherman Island. The nearest recorded occurrence (Occ. #64; 1999) is located approximately 0.4 miles west of the Project area in cottonwood and sycamore trees on Brannan Island.
[1]Status: FE = Federal Endangered FPE = Federal Proposed Endangered FT = Federal Threatened FPT = Federal Proposed Threatened FDL = Federal Delisted SE = California State Endangered ST = California State Threatened SC = California State Candidate SDL = California State Delisted FP = CDFW Fully Protected WL = CDFW Watch List CSC = California Species of Special Concern BCC = USFWS Bird of Conservation Concern		1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California 1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly threatened in California 2B.1 = Rare, threatened, or endangered in California but more common elsewhere; seriously threatened in California 2B.2 = Rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California	

4.8.1 Special-Status Plants

This section includes a discussion of special-status plant species that have potential to occur within the Project area based on habitat availability and known locations of species within the vicinity of the Project area. Eight species were determined to have a moderate to high likelihood of occurrence within the Project area and are discussed in detail below.

4.8.1.1 Bristly sedge (*Carex comosa*)

Bristly sedge (*Carex comosa*) is a California Rare Plant Rank (CRPR) 2B.1 listed species. It is native throughout California and is found elsewhere in North America and beyond. It grows in wetland areas including lake-margins of marshes and swamps, coastal prairie, and valley and foothill grasslands. This sedge produces dense clumps of erect stems up to about 100 centimeters and it blooms between July and September. Potentially suitable habitat is present at the Project site along Threemile Slough. The nearest recorded occurrence (Occ. #4; 1988) is a historic occurrence located approximately 3.9 miles southeast of the Project area. The nearest recent occurrence (Occ. #11; 2009) is located approximately 13.5 miles northeast of the Project area. Occurrences in this area are located in tidal marsh habitat along sloughs. This species was not observed during surveys conducted during the blooming period in August; however, suitable habitat occurs within the study area.

4.8.1.2 Woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*)

Woolly rose-mallow is a CRPR List 1B.2 species. It is a perennial herbaceous species that blooms between June and September. It occurs in freshwater marsh habitat at elevations up to 400 feet and is often found growing in riprap on levees. Potentially suitable habitat is present along the north and south banks of Threemile Slough. The nearest recorded occurrence (Occ. #36) is located approximately 2.1 miles north of the Project area. However, this is a historical observation from 1891. The nearest, recent occurrence (Occ. #197; 2012) is located approximately 4.1 miles southeast of the Project area on a small levee. This species was not observed during surveys conducted in August during the blooming period; however, suitable habitat occurs within the study area.

4.8.1.3 Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)

Delta tule pea is a CRPR List 1B.2 species. It is a perennial herb associated with both brackish marshes and freshwater marshes throughout the Delta and Central Valley. The delta tule pea occurs at elevations ranging from approximately 0 to 15 feet and blooms between May and July (sometimes April through August). Delta tule pea was observed within the study area during surveys on August 15, 2024, on the south bank of Threemile Slough. The plants were not blooming but were still identifiable. The nearest recorded occurrence (Occ. #145; 2009) is located approximately 1.4 miles south of the Project area on the banks of Threemile Slough. Based on observations of individuals within the study area, this species is present.

4.8.1.4 Mason's liliaeopsis (*Lilaeopsis masonii*)

Mason's lilaeopsis is a state-listed rare species, and a CRPR List 1B.1 species. This species is found from approximately 0 to 35 feet in elevation and is associated with tidally influenced marsh habitats, mudflats, and levee banks in the Delta. It blooms between April and November (sometimes between June and August), but oftentimes the blooming window is much

more narrow given dynamic tidal environment in which this plant occurs. Suitable habitat is preset at the Project site, particularly along the southern bank of Threemile Slough though suitable mudflat substrate is limited due to the presence of existing rip rap. Small areas of mud substrate are present in interstitial spaces between rocks observed in several locations on the south bank. Occurrences of this species, if present, would be limited to small populations or occurrences of individual plants in small areas of mudflat between individual rocks. The nearest recorded occurrence (Occ. #37; 2009) is located approximately 390 feet east of the Project area and 556 feet west of the Project area, along the edge of Brannan Island State Recreation Area. This species was not identified during surveys conducted in August; however, small areas of suitable habitat occur within the study area.

4.8.1.5 Delta mudwort (*Limosella australis*)

Delta mudwort is a CRPR List 2B.1 species. It is a stoloniferous, aquatic, perennial herb in the Scrophulariaceae (snapdragon) family, and is restricted to muddy, intertidal flats and banks in brackish marshes, freshwater marshes, and riparian scrub in the Sacramento-San Joaquin Delta. It is found in association with other rare plants, especially Mason's lilaeopsis, delta tule pea, and Suisun Marsh aster. It blooms between May and August. Suitable habitat is preset at the Project site, particularly along the southern bank of Threemile Slough though suitable mudflat substrate is limited due to the presence of existing rip rap. Small areas of mud substrate are present in interstitial spaces between rocks observed in several locations on the south bank. Occurrences of this species, if present, would be limited to small populations or occurrences of individual plants in small areas of mudflat between individual rocks. The nearest recorded occurrence (Occ. #57; 1986) is a historic occurrence located approximately 265 feet east of the Project area on the northeast side of Brannan Island State Recreation Area. The nearest, recent occurrence (Occ. #8; 2009) is located approximately 0.4 miles west of the Project area on the opposite side of Brannan Island. This species was not identified during surveys conducted in August; however, small areas of suitable habitat occur within the study area.

4.8.1.6 Antioch dunes evening primrose (*Oenothera deltoides* ssp. *howellii*)

Antioch dunes evening primrose is a federal- and state-listed Endangered species and a CRPR List 1B.1 species. This species is associated with inland dunes habitat at elevations of approximately 0 to 100 feet. It blooms between March and September. Limited suitable habitat is present for the species within the study area on the north side of Threemile Slough in areas with sandy substrate, though no dunes occur within the study area and sandy substrate within the study area occurs in areas of high disturbance. CNDDB occurrence #5 overlaps with the study area on the north side of Threemile Slough. This occurrence of Antioch Dunes evening-primrose has been observed consistently since 1980 on the remnants of native dune habitat in the Brannan Island State Recreation Area and was observed during surveys conducted on August 15, 2024, approximately 200 feet east of the Project study area, though the plants observed were highly desiccated from summer heat and were no longer blooming. This species was not identified in the study area during surveys conducted in August; however, marginally suitable habitat occurs within sandy substrate in the study area.

4.8.1.7 Sanford's arrowhead (*Sagittaria sanfordii*)

Sanford's arrowhead is a CRPR List 1B.2 species. This species occurs in shallow freshwater wetland areas at elevations ranging from approximately 0 to 2,135 feet. It is a perennial

herbaceous species that blooms between May and October. Potentially suitable habitat is present along Threemile Slough at the Project site. The nearest recorded occurrence (Occ. #84; 2009) is located approximately 4.2 miles north of the Project location on an exposed sandy shoreline of the Sacramento River with similar site conditions to those present at the Project site. This species was not observed during surveys conducted during the blooming period in August; however, suitable habitat occurs within the study area.

4.8.1.8 Suisun marsh aster (*Symphyotrichum lentum*)

The Suisun marsh aster is a CRPR 1B.2 species of flowering plant found in freshwater and brackish marshes and swamps. Suisun marsh aster is found at lower elevations, ranging from sea level to approximately 10 feet. This species typically blooms between May and November. Suitable habitat is present along the banks of Threemile Slough at the Project site. The Project area is located within the mapped limits of CNDDB occurrence #32 from 2009, where Suisun marsh aster was found on both sides of Threemile Slough and along the southern portion of Brannan Island. This species was not observed during surveys conducted during the blooming period in August; however, suitable habitat occurs within the study area.

4.8.2 Special-Status Wildlife

This section includes a discussion of special-status wildlife species that are known to occur or have potential to occur within the Project area based on habitat availability and known occurrences of species in the vicinity of the Project. Certain species, such as vernal pool invertebrate species listed in Table 4-1 above, may occur within the quadrangle and/or within five miles of the Project area; however, based upon a thorough analysis of the Project area, these species were determined to be absent due to a lack of suitable habitat and, therefore, are not included in this section. Other species may have been eliminated from consideration because the Project area is beyond the recorded geographic and/or elevational range for these species.

4.8.2.1 Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

Valley elderberry longhorn beetle (VELB) is a moderate-sized, brightly colored, and sexually dichromatic beetle that is a federally listed Threatened species. Critical habitat for VELB was designated in 1980 and includes the Sacramento Zone north of the American River and south of Highway 160 in the City of Sacramento, and American River Parkway Zone on the south bank of the American River approximately two miles upstream of the Sacramento Zone (USFWS, 1980). The Project area is not within designated Critical habitat, and the nearest critical habitat unit is the Sacramento Zone, located over 30 miles northeast of the Project area.

The range of the VELB extends throughout California's Central Valley and associated foothills from about the 3,000-foot elevation contour on the east and the watershed of the Central Valley on the west. Occurrences of the VELB are primarily in the vicinity of moist valley oak woodlands associated with riparian corridors in the lower Sacramento River and upper San Joaquin River drainages (USFWS, 1984). Blue elderberry plants are obligate hosts for the VELB, providing a source of food and broodwood. Because of the relatively large size of the VELB (0.5 to 1.0 inch), it is generally restricted to the larger branches and stems of older elderberry plants. Emergence holes are circular-to-slightly oval and usually 0.25 to 0.5-inch in diameter. Emergence holes are generally found on plants with branch and trunk girths with an average diameter of 3.3

inches with a range between 0.6 and 10.0 inches. Emergence holes have been found from a few inches above the ground up to ten feet, but over 70 percent are found below four feet (Barr, 1991).

VELB modeled habitat was identified by the PG&E MRHCP on the north bank of Threemile Slough through the Project area and in the disturbed land area south of Threemile Slough (ICF, 2020). The nearest recorded VELB occurrence (Occ. #53; 1987) is located approximately 20.7 miles northeast of the Project area.

Padre biologists mapped blue elderberry shrubs during biological surveys conducted on August 15, 2024, to determine the extent of potentially suitable VELB habitat within the study area and adjacent lands. Three blue elderberry shrubs were identified in the study area north of Threemile Slough and provide suitable habitat for VELB (Figure 3). One of the elderberry shrubs is located on the north bank of Threemile Slough within the alignment of the two active pipelines, L-131Y and L-131Z proposed for remediation. This elderberry shrub may need to be removed for construction access to the north bank of Threemile Slough for remediation of the active pipelines in the northern portion of the Threemile Slough crossing. The other two blue elderberry shrubs occur at the perimeter of the study area and the dripline of both shrubs extend into the workspace. Both of these shrubs are on the very perimeter of the workspace and will not be directly impacted or removed for completion of the Project.

4.8.2.2 Green sturgeon (*Acipenser medirostris*) – Southern DPS

The green sturgeon is a federally listed Threatened species in the southern range or distinct population segment (DPS). It is also a California Species of Special Concern. Critical habitat for green sturgeon southern DPS was designated in 2009 and includes the west coast of California, the San Francisco Bay-Delta to the confluence of the Sacramento and San Joaquin Rivers, and the Sacramento River (NMFS, 2009). The Project area is within the Sacramento-San Joaquin Delta critical habitat segment.

Green sturgeon is an anadromous species, but little is known about its biology because they are much less abundant than white sturgeon and regarded as inferior quality for consumption (Moyle, 2002). Juvenile green sturgeon has been collected in the San Francisco Bay up to the lower reaches of the Sacramento and San Joaquin rivers; however, spawning occurs in cool sections of the upper Sacramento River where there are deep, turbulent flows and clean, hard substrates. The Sacramento River watershed is the only confirmed present and historical spawning area. Spawning occurs in the Sacramento River and has recently been documented in the Feather River and Yuba River (tributaries to the Sacramento River) (NMFS, 2018). In the autumn, the post-spawning adults move back down the river and re-enter the ocean. After hatching, larvae and juveniles migrate downstream toward the Sacramento-San Joaquin Delta and estuary where they spend a few years maturing before the move out to the ocean. The San Francisco Bay Delta Estuary provides year-round rearing habitat for juveniles and foraging habitat for non-spawning adults and subadults in summer months (NMFS, 2018). The Project area is located within the vicinity of CNDDB recorded occurrence #9 from 2019, where observations of green sturgeon have been recorded in the Delta consistently since 1963. In addition, juvenile green sturgeon were captured annually between 2015 and 2019 at the Sherman Island sampling station, approximately 7.7 miles downstream from the Project area (CDFW, 2019).

In water work associated with the pipeline depth of burial remediation and pipeline decommissioning and removal is planned to occur between August 1 and October 31. This is the

seasonal aquatic work window for avoidance and minimization of impacts to special-status fish species seasonal migrations and spawning periods. This timeframe coincides with the period when listed anadromous fish species are least likely to occur in the Project area. Green sturgeon can utilize high tide habitat; therefore, it could benefit the species to begin in-water work during low tide.

4.8.2.3 Delta smelt (*Hypomesus transpacificus*)

The delta smelt is a federally Threatened and state Endangered species endemic to the Bay-Delta estuary. Critical habitat for delta smelt includes Suisun, Grizzly, and Honker bays, Goodyear, Suisun, Cutoff, First Mallard, and Montezuma sloughs, and the Sacramento-San Joaquin Delta (USFWS, 1996). Decline in populations is primarily attributed to habitat loss, high diversions of freshwater, reduced water flow, and reduced quality and quantity of suitable nursery habitat. Other contributing factors may include the presence of toxic compounds in the water, competition and predation by nonnative species, reduced food supply, disease, high outflows, and low spawning stock (Goals Project, 2000). Adult delta smelt inhabit open water areas where they feed on small zooplankton. They spawn in freshwater from late winter to early summer. Spawning varies from year to year but is generally between December and July. Adhesive eggs sink and attach to substrates such as cattails, tules, tree roots, and submerged branches. They hatch after two weeks and larvae begin to feed on zooplankton within a few days.

Delta smelt spawning occurs primarily in shallow freshwater or slightly brackish water upstream of the mixing zone (Wang, 1991) in backwater sloughs and channel edge waters. Delta smelt are known to spawn in the lower reaches of the Sacramento and San Joaquin rivers as well as various sites within the Delta in shallow waters and dead-end sloughs. Important spawning habitat includes Barker, Lindsey, Cache, Prospect, Georgiana, Beaver, Hog, and Sycamore sloughs, the Sacramento River, and tributaries of northern Suisun Bay (USFWS, 1996). The center of spawning occurs around Bradford Island in the Delta and in the Sacramento River just below Rio Vista (Wang, 1991). Spawning varies from year to year but is generally between December and July. Rearing habitat includes an area eastward from Carquinez Straits, including Suisun, Grizzly, and Honker bays, Montezuma Slough and its tributary sloughs, up the Sacramento River to its confluence with Threemile Slough, and south along the San Joaquin River including Big Bend. An adequate river flow is necessary to transport larvae from upstream spawning areas to rearing habitat in Suisun Bay. Suitable transport conditions may be required from February to August.

In December 2021, the USFWS, CDFW, California Department of Water Resources, and Bureau of Reclamation began experimentally releasing captively produced delta smelt into the Sacramento-San Joaquin River Delta in an experiment intended to help inform future supplementation of the species in the wild. A total of five releases occurred between December 2021 and February 2022, totaling over 50,000 captive bred delta smelt released in Rio Vista, Sacramento Deep Water Ship Channel, and Suisun Marsh (USFWS, 2021; University of California, Davis [UC Davis], 2022; San Francisco Estuary, 2022). The effects of survey specific sampling times and locations in relation to times and locations of captive release smelt have not been fully evaluated; however, Interagency Ecological Program (IEP) data from March 2022 showed an increase in abundance in delta smelt at stations near the release sites (IEP, 2024).

The nearest recorded CNDDB occurrence (Occ. #7; 2019) is located approximately 0.6 miles west of the Project area, on the opposite side of Brannan Island in the Delta. Preliminary results of the 20-mm IEP survey conducted in April 2023 found delta smelt at station 706 located approximately 3.8 miles downstream of the Project site (IEP, 2024).

The Threemile Slough Project area occurs within the Central Zone of the range of delta smelt, which includes the legal delta and the entire designated critical habitat for delta smelt (USFWS, 2006a). Threemile Slough is in the center of delta smelt spawning habitat and at the upper limits of delta smelt rearing habitat; however, much of the Project area consists of deep water, riverine habitats with low-quality areas of shaded riverine aquatic cover along the banks. The north bank of Threemile Slough within the study area consists of a steep bank with a rapid drop off into deep water and provides a narrow band of shallow water habitat (defined as waters between Mean High Water and 3 meters below Mean Lower Low Water Mark) preferred for delta smelt spawning or brackish shallow water habitat in the low salinity zone preferred for delta smelt rearing and maturation (USFWS, 2006). The south bank of Threemile Slough within the study area consists of a more gradual sloped bank and supports a wider area of shallow water habitat. Based on the May 2024 bathymetric survey conducted for the Project, approximately 27 linear feet of shallow water habitat occurs along the north bank of Threemile Slough and approximately 55 linear feet of shallow water habitat occurs along the pipeline alignments on the south bank of Threemile Slough at the decommissioning crossing location. The shallow water habitat on both banks is covered by rock rip rap. Consequently, Threemile Slough at the pipeline crossing location provides limited spawning and rearing habitat for delta smelt along the banks of the waterway. Threemile Slough also provides migratory habitat for delta smelt to spawning habitat in the region.

In water work associated with the pipeline depth of burial remediation and pipeline decommissioning and removal is planned to occur between August 1 and October 31. This is the seasonal aquatic work window for avoidance and minimization of impacts to special-status fish species seasonal migrations and spawning periods. This timeframe coincides with the period when listed anadromous fish and resident fish species, including delta smelt, are least likely to occur in the Project area.

4.8.2.4 Central Valley steelhead (*Oncorhynchus mykiss irideus*)

Central Valley steelhead is a federally listed Threatened species. Steelhead have been separated into 14 evolutionary significant units (ESU) based on similarity in life history, location, and genetic markers. Of these 14 ESUs, the California Central Valley ESU could occur in the vicinity of the Project. Final designation of critical habitat for the Central Valley DPS of steelhead was issued on September 2, 2005 (NMFS, 2005). The Project area is within the Sacramento Delta Hydrologic Unit 5510 of designated critical habitat.

Steelhead are an anadromous form of the rainbow trout native to the Pacific Ocean and coastal drainages (Behnke, 1992). Steelhead live most of their life cycle in the Pacific Ocean then migrate upstream to spawn between October and January. Spawning typically occurs between December and April. Steelhead are iteroparous and do not die after spawning and thus may spawn again the following year. Most naturally produced Central Valley steelhead rear in freshwater for one to three years before emigrating to the ocean. Steelhead eggs hatch in about 30 days at 51°F (Leitritz and Lewis, 1980). Studies of Central Valley steelhead have shown that the population is polymorphic, where two-year-old non-anadromous males are breeding with

anadromous females. The polymorphism in the Central Valley population is due to the extreme variation in rainfall and climate which can result in flashfloods and/or droughts lasting years. The species flexibility has allowed it to persist in the Central Valley through the additions of dams and reduction of accessible spawning habitat.

Historically, steelhead were more widely distributed within the Sacramento River and its tributaries, but the construction of dams has restricted upstream migration. However, the mainstem of the Sacramento River and other low gradient portions of the river and its tributaries provide potential migration and juvenile rearing habitat, including Threemile Slough in the Project area. CNDDB occurrence #27 is located in the Sacramento River and Threemile Slough at the location of the Project site, where observations of steelhead have been recorded in the Delta consistently since 1976. The species could be found in the vicinity of the Project area seasonally during migration to spawning habitat upstream of the site; however, habitat onsite is not suitable for spawning.

In water work associated with the pipeline depth of burial remediation and pipeline decommissioning and removal is planned to occur between August 1 and October 31. This is the seasonal aquatic work window for avoidance and minimization of impacts to special-status fish species seasonal migrations and spawning periods. This timeframe coincides with the period when listed anadromous fish species are least likely to occur in the Project area.

4.8.2.5 Chinook salmon (*Oncorhynchus tshawyscha*)

The Chinook salmon is an anadromous species spending most of its adult life in the ocean and then returning to freshwater streams to spawn. They spend three to six years maturing in the ocean before they migrate upstream to spawn. Adult Chinook salmon die after spawning. Juveniles spend from several months to over a year rearing in their natal streams before emigrating to the ocean. Preferred spawning grounds for Chinook salmon are in gravel areas of large rivers and tributaries (Goals Project, 2000). Chinook salmon have been separated into 17 distinct groups or ESU based on similarity in life history, location, and genetic markers. The Central Valley spring- and fall-run, and Sacramento River winter-run ESU's have the potential to occur within Threemile Slough in the Project area during their migration to upstream spawning habitat and for juvenile rearing when habitat conditions are suitable.

Central Valley Spring-Run Chinook Salmon

The Central Valley spring-run Chinook salmon is a federally Threatened species and California Threatened species. Final designation of Critical Habitat for the Central Valley Spring-Run chinook salmon was issued September 2, 2005 (NMFS, 2005). The Project area is within the North Delta unit of designated Critical Habitat.

Central Valley spring-run Chinook salmon migration period occurs from March through September with a peak in May and June (PFMC, 2014). The spawning period is late July through late October (NMFS, 2014). The juvenile downstream emergence period is between November and March with a three to 15-month freshwater residency period between November and January (Year-2), concluding with an estuarine emigration period between November and June.

Spring-run Chinook Salmon were historically the most abundant salmonid in the Central Valley. Now only remnant runs remain in in Butte, Mill, Deer, Antelope, and Beegum Creeks, tributaries to the Sacramento River. CDFW spring Kodiak trawl surveys captured spring-run

Chinook salmon at the confluence of the Sacramento River and Threemile Slough approximately one mile downstream of the Project area in April 2023 (station 707)(IEP, 2024). Seasonally, this species could occur within the Project area during migration to spawning habitat upstream of the site; however, habitat onsite is not suitable for spawning.

Central Valley Fall-Run Chinook Salmon

The Central Valley fall-run chinook salmon are a California Species of Special Concern. The migration period for fall and late-fall run Chinook salmon is August through April with peaks in September through October and December, respectively. The spawning period for this species is late September through late April with peaks in late October and early February, respectively (Goals Project, 2000). The juvenile downstream emergence period is between December and June with freshwater residency periods of 4 to 7 months between December and June for fall-run and seven to 13 months between April of year 1 and April of year-2 for late fall-run. The residency periods end with an estuarine emigration period between March and July for fall-run and between October and May for late fall-run (Goals Project, 2000).

Fall-run chinook salmon are currently the most abundant of the Central Valley races, contributing to large commercial and recreational fisheries in the ocean and popular sport fisheries in the freshwater streams. Fall-run chinook salmon are raised at five major Central Valley hatcheries which release more than 32 million smolts each year. CDFW spring Kodiak trawl surveys captured Central valley fall-run chinook salmon at the confluence of the Sacramento River and Threemile Slough approximately one mile downstream of the Project area in April 2023 (station 707)(IEP, 2024). Seasonally, this species could be found within the Project area, during migration to spawning habitat upstream of the site; however, habitat onsite is not suitable for spawning.

Sacramento Winter-Run Chinook Salmon

Sacramento River winter-run chinook salmon is a federally and state-listed Endangered species. Critical habitat was designated for the Sacramento River winter-run chinook salmon on July 16, 1993 (NMFS, 1993). Critical habitat includes the Sacramento River from Keswick Dam in Shasta County to Chipps Island at the westward margin of the Sacramento-San Joaquin Delta; all waters from Chipps Island westward to Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and the Carquinez Strait; all waters of San Pablo Bay westward of the Carquinez Bridge; and all waters of the San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. The Project area is not within critical habitat but is about 0.5-mile east of the Sacramento River unit of designated critical habitat.

Winter-run chinook salmon are an anadromous species spending most of its adult life in the ocean and then returning to freshwater streams to spawn. Preferred spawning grounds for winter-run chinook salmon are in the Sacramento River and tributaries with deep water and large gravel (Goals Project, 2000). The migration period for winter-run chinook salmon is December through July with a peak in March. The spawning period is late April through early August with a peak in early June (Goals Project, 2000). The juvenile downstream emergence period is between July and October with a five-to-ten-month freshwater residency period between July and April, concluding with an estuarine emigration period between November and May.

Sacramento winter-run chinook salmon spawn in the upper reaches of the Sacramento River in waters between the Keswick Dam and the Anderson-Cottonwood Irrigation District (ACID) Dam. Winter-run chinook salmon are immature when upstream migration begins and need to hold in suitable habitat for several months prior to migrating to spawning grounds. CDFW spring 20-mm surveys captured chinook salmon at the confluence of the Sacramento River and Threemile Slough, approximately one mile downstream of the Project area in March 2024 (station 707)(IEP, 2024). Seasonally, the species could be found in the vicinity of the Project area during migration to spawning habitat upstream of the site; however, habitat onsite is not suitable for spawning.

4.8.2.6 Longfin smelt (*Spirinchus thaleichthys*) – San Francisco Bay-Delta DPS

The San Francisco Bay-Delta DPS of Longfin smelt is a Federal Candidate species and State Threatened species. It is native to the Delta and was once abundant. The decline in longfin smelt abundance is primarily associated with the diversion of freshwater from the Delta. Another contributing factor is reproductive failure during drought years. Consecutive drought years leading to reproductive failure could result in the extirpation of longfin smelt because of their two-year life cycle (Goals Project, 2000). Longfin smelt occur in the Sacramento-San Joaquin Delta but can range as far as the South San Francisco Bay and the open ocean. They are most abundant in Suisun Bay and San Pablo Bay. Adult longfin smelt, like the delta smelt, inhabit open water areas of the Delta and feed on zooplankton. They tolerate a wide range of salinity conditions.

Longfin smelt migrate upstream to spawn in freshwater between November and May with a peak in spawning from February through April. The species is thought to spawn over sandy or gravelly substrate with rock or plant material to attach their adhesive eggs to when deposited (Moyle, 2002). The abundance of longfin smelt increases with the amount of freshwater outflow. Longfin smelt have a low tolerance to warm waters, with adults rarely found in water warmer than 64° F and young-of-the-year rarely found in water above 73°F (Hobbs and Moyle, 2015). Warm water and decrease in flows associated with drought conditions make this species sensitive to drought. Loss of estuarine wetland and slough habitat as juvenile rearing habitat is also a threat to the species (Garwood, 2017).

Longfin smelt were routinely captured upstream and downstream of the Project area during the 2023 CDFW 20-millimeter (mm) surveys (stations 705, 706, 707, 711) (IEP, 2024). Individuals were also captured approximately 3.8 miles downstream of the Project area in April of 2024 (station 706) (IEP, 2024). The Project area occurs in the vicinity of CNDDB occurrence #17 from 2012 where observations of longfin smelt have been recorded consistently since 1946.

In water work associated with the pipeline depth of burial remediation and pipeline decommissioning and removal is planned to occur between August 1 and October 31. This is the seasonal aquatic work window for avoidance and minimization of impacts to special-status fish species seasonal migrations and spawning periods. This timeframe coincides with the period when listed anadromous fish and resident fish species, including longfin smelt, are least likely to occur in the Project area.

4.8.2.7 California tiger salamander (*Ambystoma californiense*)

California tiger salamander (CTS) is both a Federal and State listed Threatened species. The California tiger salamander typically inhabits grassland and oak woodland habitats below 1,500 feet that have scattered ponds, intermittent streams, and/or vernal pools that are suitable

for breeding. Tiger salamanders aestivate in rodent burrows throughout the summer and emerge after the first few sustained rainstorms in November. Adults will migrate up to 3,300 feet from aestivation sites to aquatic breeding habitat. The breeding season extends from December through February. Adults remain in breeding ponds for several days before exiting to forage in terrestrial habitat.

The nearest recorded occurrence (Occ. #849; 2007) is located approximately 9.4 miles northwest of the Project area and there are no CNDDB occurrences of this species on Brannan Island or Sherman Island. There is no suitable aquatic breeding habitat at the Project site or in the surrounding area to support California tiger salamander. Due to the Project site's isolated location on two islands in the delta, California tiger salamander is unlikely to disperse into the study area from the nearest known occurrences in the Montezuma Hills.

Terrestrial areas north and south of Threemile Slough are modeled as CTS potential upland habitat in PG&E's MRHCP (ICF, 2020). The terrestrial habitat north of Threemile Slough within the state park supports ground squirrel colonies and small mammal burrows, which are important components of CTS upland habitat; however, the density of burrows within the study area was extremely low and suitable breeding habitat in the surrounding area and within Brannan Island is limited. Therefore, the probability of occurrence of CTS in the Project area is considered low. This species was addressed in this document because of the MRHCP modeled habitat at this location.

4.8.2.8 Western pond turtle (*Emys marmorata*)

Western pond turtle is a Federal Proposed Threatened species and a California Species of Special Concern. The western pond turtle occurs in open water habitats throughout much of California, although at much lower numbers and fewer localities than historical populations, especially in urban areas. Western pond turtle prefers slack or slow water habitats with dense stands of submergent or emergent vegetation for food and cover, and with abundant basking habitat. Western pond turtle is a semi-aquatic species inhabiting streams, marshes, ponds, and irrigation ditches within woodland, grassland, and open forest communities, but they require upland sites for nesting and over-wintering. The presence of nearby nesting sites and lack of exotic predators are also good habitat components (Bury, 1986).

The nearest recorded occurrence (Occ. #1,344; 2016) is located approximately 1.8 miles east of the Project location near Sevenmile Slough. Threemile Slough provides suitable aquatic habitat to support western pond turtle and suitable basking sites were observed within the study area during surveys. Potentially suitable nesting habitat is limited due to human disturbance, but it is present along the north and south banks of Threemile Slough, particularly in sandy substrate.

4.8.2.9 Giant gartersnake (*Thamnophis gigas*)

Giant gartersnake (GGS) is a California and federally listed Threatened species found in emergent marsh habitats associated with waterways during spring and summer and hibernates in adjacent upland habitat during the winter. Due to extensive habitat loss, giant gartersnakes now inhabit remaining wetlands as well as highly modified habitats, such as agricultural areas. Active rice fields and their associated irrigations systems serve as an alternative habitat that is commonly used by giant gartersnake. These fields provide the habitat components typically required by giant gartersnake. Essential components of giant gartersnake habitat include:

- A fresh-water aquatic component with adequate water from early spring through fall to provide foraging habitat and cover.
- Emergent herbaceous wetland vegetation to provide foraging habitat, cover, and basking areas.
- An upland component near the aquatic habitat that can be used for thermoregulation, cover, and retreat.
- An upland refugia component at higher elevation sites that serve as winter hibernacula and provide cover and refuge from flood waters (Hansen and Brode, 1980; USFWS, 1997).

The nearest recorded occurrence (Occ. #150; 1998) is located approximately 1.4 miles southwest of the Project location where an individual was observed on the water side of a levee along the Sacramento River at Horseshoe Bend. A more recent nearby occurrence is located approximately 2.5 miles southeast of the Project area on the south side of Twitchell Island along the San Joaquin River where GGS were observed basking in 2016 (CNDDB Occ. #407).

Potentially suitable aquatic habitat is present at the Project site on the north and south banks of Threemile Slough. Emergent vegetation present within Threemile Slough could provide suitable cover and foraging habitat for giant gartersnake; however, only small pockets of emergent wetland vegetation occur within the Project area. Suitable upland habitat occurs in adjacent terrestrial areas, particularly north of Threemile Slough where small mammal burrows are present, though the density of small mammal burrows within the study area was low.

MRHCP modeled habitat for giant gartersnake includes aquatic habitat along the banks of Threemile Slough and upland habitat within terrestrial habitat on Sherman Island and Brannan Island (ICF, 2020).

4.8.2.10 Swainson's Hawk (*Buteo* swainsoni)

Swainson's hawk is a California Threatened species that breeds in open habitats in western North America from Alaska south to Mexico. In California, it breeds mainly in the Central Valley, Klamath Basin, Northeastern Plateau, and Mojave Desert (CDFG, 1994). It winters primarily on the pampas of southern South America and Mexico, though a few overwinter in California, the southwestern U.S., and Florida. It was listed when it became absent from most of its former range in California, where its population declined by more than 90 percent during the 1900's (CDFG, 1994).

Throughout its range in California's Central Valley, it usually arrives in March and April and leaves in September or October; however, there is a small population of Swainson's hawk that over-winters in the Sacramento-San Joaquin River Delta (Herzog, 1996). Loss of habitat is the major threat to this species in California. Residential and commercial development continues to replace Swainson's hawk habitat. Pesticides and herbicides are also a major threat, particularly on their wintering grounds. They are also sensitive to disturbance while nesting and may abandon nests if disturbed before the eggs hatch (CDFG, 2006).

This species forages in grassland or areas of sparse trees or shrubs, and often forages in agricultural areas in the Central Valley. It nests in the scattered trees within these habitats such

as those along waterways. During the breeding season, it feeds primarily on small mammals and reptiles. During other seasons, large insects (especially grasshoppers) are the bulk of their diet.

The nearest recorded nest occurrence (CNDDB Occ. #1674; 2003) is located approximately 0.3 miles north of the Project area on Twitchell Island and consisted of a multi-year nest occurrence.

Suitable nesting habitat is present within the study area and suitable foraging habitat occurs onsite and in the surrounding area. There are many suitable nesting trees for Swainson's hawk within half a mile of the Project site including trees within the riparian corridor of Threemile Slough in the Project area. One Swainson's hawk was observed soaring over Brannan Island during surveys conducted on August 15, 2024, and many observations of Swainson's hawk have been made in recent years conducting other surveys in this area. There is high potential for Swainson's hawk nest occurrence within 0.5-mile of the Project area.

4.8.2.11 Northern harrier (*Circus hudsonius*)

Northern harrier is a California species of special concern. The northern harrier inhabits meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands. They can be found rarely in wooded areas. It forages mostly on voles and other small mammals, birds, frogs, small reptiles, crustaceans, insects, and rarely on fish. Breeding occurs April to September, with peak activity June through July. Destruction of wetland habitat, native grassland, and moist meadows, and the burning and plowing of nesting areas during early stages of breeding cycle, are major reasons for the species' decline (Remsen 1978).

The nearest recorded occurrence (Occ. #91; 2007) is located approximately 4.0 miles southwest of the Project area. Suitable foraging habitat is present at the Project site. The northern harrier is a ground nesting species; therefore, potential for nest occurrences in the study area is limited due to the high level of disturbance present.

4.8.2.12 White-tailed kite (*Elanus leucurus*)

White-tailed kite is a California Fully Protected species. It is a small raptor with a total length of about 12 inches and is often identified from a distance by its hovering or "kiting" behavior while hunting. White-tailed kites predate mostly on voles and other diurnal mammals, but will occasionally prey on birds, insects, reptiles, and amphibians. It typically forages over open grasslands and emergent wetlands. White-tailed kites nest in dense foliage in treetops near grassy foothills, marshes, riparian woodland, savanna, and partially cleared fields. Preferred nesting trees include oak, willow, sycamores, or other tree stands. White-tailed kites range from western California and southwestern Oregon to southeastern Arizona, and along the Gulf Coast from Texas to Florida, and peninsular Florida (Wheeler and Clark, 1995).

The nearest recorded occurrence (Occ. #193; 2007) is located approximately 0.5 miles southwest of the Project area, just east of Threemile Slough. Suitable foraging habitat is present at the Project site. Potentially suitable nesting habitat is also present in the trees and shrubs surrounding the Project site.

4.8.2.13 Song sparrow ("Modesto" population) (*Melospiza melodia*)

The Modesto population of the song sparrow is endemic to California, where it resides only in the north-central portion of the Central Valley. Highest densities occur in the Butte Sink

area of the Sacramento Valley and in the Sacramento-San Joaquin Delta. Song sparrows breed from mid-March to early August and are resident species of the Sacramento Valley and Delta. Song sparrows are frequently seen within mature riparian corridors, such as the Cosumnes and Stanislaus Rivers, and less frequently within irrigation canals and levees. The Modesto population of song sparrow has an affinity for emergent freshwater marshes dominated by bullrush and cattails as well as riparian willow (*Salix* sp.) thickets. Song sparrows also nest in riparian forests of valley oak (*Quercus lobata*) with a sufficient understory of blackberry, along vegetated irrigation canals and levees (Shuford et al., 2008); however, nests appear to be more successful in early succession riparian wetland communities.

The nearest recorded occurrence (Occ. #41; 2008) is located approximately 1.3 miles southwest of the Project area, on the northern end of Decker Island. Suitable nesting and foraging habitat are present at the Project site. Song sparrows were observed during surveys conducted on August 15, 2024, although it is not clear if it was the Modesto population.

4.8.2.14 Bank swallow (*Riparia riparia*)

Bank swallow is a State-listed Threatened species. The bank swallow is the smallest swallow in California. In the summer, bank swallows breed in the northern half of North America into Alaska and then migrate south in the winter to the southern United States into Mexico. It is a colonial breeder that excavates burrows in riverbanks and railroad and highway embankments. The banks are generally greater than three feet in height to preclude predators, and soils must be sufficiently friable to excavate a nest cavity. It currently ranges from central to northern California wherever suitable nesting habitat exists, with major colonies found along the Sacramento and Feather rivers. The bank swallow forages mostly on flying insects that it captures on the wing.

There is no suitable nesting habitat at the Project site to support this species. There is, however, a nearby nesting occurrence (Occ. #201; 2000) located approximately 990 feet northeast of the Project area at the Brannan Island State Recreation Area on a sandy outcrop along Sevenmile Slough 0.2-miles north of the confluence with Threemile Slough. This species has been commonly observed on Decker, Sherman, and Bradford Island in recent years. There is no open cliff face or suitable nesting habitat on the north or south bank of Threemile Slough within the study area. Bank swallows have the potential to forage and migrate through the Project area; however, they are unlikely to nest within the Project area.

4.8.2.15 Western red bat (*Lasiurus blossevillii*)

Western red bat is a California species of special concern. The western red bat is locally common in some areas of California from Shasta County to the Mexican border and west of the Sierra Nevada. It winters in the western lowlands and coastal regions south of San Francisco Bay. It roosts in forest and woodland habitats from sea level to mixed conifer forest up to 8,150 feet, although breeding occurs at lower elevations. Western red bat feed over a variety of habitats including grasslands and shrublands. They roost in trees and shrubs adjacent to streams, fields, or urban areas and make relatively short migrations between summer and winter ranges, which occur between March-May in spring and September and October in autumn. The western red bat feeds on a variety of insects, but its principal prey includes moths, crickets, beetles, and cicadas. Females bear two or three young per year from May through July.

Potentially suitable roosting habitat is present in the riparian trees on Brannan Island although limited roosting habitat is present within the study area and their preferred tree species for roosting (cottonwood and sycamore) do not occur within the study area. The nearest recorded occurrence (Occ. #64; 1999) is located approximately 0.4 miles west of the Project area in cottonwood and sycamore trees in the Brannan Island State Recreation Area.

4.9 WILDLIFE CORRIDORS

Wildlife migration corridors are generally defined as connections between fragmented habitat patches that allow for physical and genetic exchange between otherwise isolated wildlife populations. Migration corridors may be local, such as those between foraging and nesting or denning areas, or they may be regional in extent. Migration corridors are not unidirectional access routes; however, reference is usually made to source and receiver areas in discussions of wildlife movement networks. “Habitat linkages” are migration corridors that contain contiguous strips of native vegetation between source and receiver areas. Habitat linkages provide cover and forage sufficient for temporary inhabitation by a variety of ground-dwelling animal species. Wildlife migration corridors are essential to the regional fitness of an area as they provide avenues of genetic exchange and allow animals to access alternative territories as fluctuating dispersal pressures dictate.

Waterways, particularly areas with contiguous riparian vegetation, offer migration corridors for mammals, reptiles, and birds; however, the riparian corridor along Threemile Slough is discontinuous at the Project area and consists of a very sparse riparian strip, typically the width of an individual tree. Mammals and reptiles present within the area likely use the upland agricultural and range lands as well as riparian cover as a travel corridor regardless of the season. The Project site and surrounding area consists of separate islands (Sherman Island; Brannan Island, and Twitchell Island), which limits the suitability as a migration corridor for terrestrial wildlife. Habitat present on site does, however, provide migratory habitat for birds such as warblers, hummingbirds, etc. who migrate to higher elevations in the spring and lower elevations in the fall. The riparian habitat within the Project area offers shelter, forage, and water for migrating species traversing to the Sierra Nevada Range to nest. Resident species may make local migrations for foraging and/or nesting habitat along the river. Additionally, the Sacramento River and Threemile Slough in the vicinity of the Project area provides critical seasonal migration habitat for anadromous and other native fish species moving upstream to spawning grounds and provides connections for resident fish species to other aquatic habitats within the watershed.

The CDFW ranks areas throughout the state of California for their importance in terrestrial connectivity. The terrestrial connectivity dataset summarizes information on terrestrial connectivity, including the presence of mapped corridors or linkages and the juxtaposition to large contiguous natural areas to support conservation planning efforts (CDFW, 2024b). The Project area and surrounding areas are ranked as *connections with implementation flexibility*, which is identified as having connectivity importance, but have not been identified as channelized areas, species corridors, or habitat linkages at this time (CDFW, 2024b).

5.0 REGULATORY SETTING

5.1 FEDERAL

5.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA), administered by the USFWS and the NMFS (collectively referred hereafter as the "Services"), provides protection to species listed as Threatened (FT) or Endangered (FE), or proposed for listing as Threatened (PFT) or Endangered (PFE). The Services also maintain lists of Federal candidate species (FC), that include taxa for which substantial information on biological vulnerability and potential threats exists and are maintained to support the appropriateness of proposing to list the taxa as an endangered or threatened species.

Projects that will result in the "take" of a federally listed or proposed species (as defined by FESA Section 9) are required to consult with the Services. The objective of consultation is to determine whether the project will jeopardize the continued existence of a listed or proposed species, and to determine what mitigation measures will be required to avoid jeopardy. Consultations are conducted under Sections 7 or 10 of FESA depending on the involvement by the federal government.

Section 10 consultation is conducted when there is no federal involvement in a project except compliance with FESA. The USFWS issued a section 10(a)(1)(B) incidental take permit to PG&E for implementation of the Multi-Region Habitat Conservation Plan (MRHCP) under Section 10 of the FESA. PG&E's MRHCP provides 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 (O&M) activities in the Multi-Regions (Sacramento Valley and Foothills, North Coast, and Central Coast) which includes the Project area (IFC, 2020). The PG&E MRHCP was developed in collaboration with the USFWS and was implemented in 2020.

Under Section 7, the Services are authorized to issue Incidental Take Permits (ITP) for the take of a listed species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency. A Biological Assessment is usually required as part of the Section 7 consultation to provide sufficient information for the USFWS and NMFS to fully determine the Project's potential effect on listed species.

5.1.2 Magnuson-Stevens Fishery Conservation and Management Act

The NMFS administers the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 USC 1801 et seq.). The MSA is the primary law governing marine fisheries management in U.S. Federal waters. The MSA was first enacted in 1976 and amended in 1996. Amendments to the 1996 MSA require the identification of Essential Fish Habitat (EFH) for federally managed species and the implementation of measures to conserve and enhance this habitat. Any project requiring Federal authorization is required to complete and submit an EFH Assessment with the application and either show that no significant impacts to the essential habitat of managed species are expected or identify mitigations to reduce those impacts. Under the MSA, Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC 1802(10)). The EFH provisions of the MSA offer resource managers a means to heighten consideration of fish habitat in resource management.

Pursuant to section 305(b)(2), Federal agencies shall consult with the NMFS regarding any action they authorize, fund, or undertake that might adversely affect EFH.

5.1.3 Migratory Bird Treaty Act / Bald Eagle and Golden Eagle Protection Act

The USFWS administers the Federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) and the Bald and Golden Eagle Protection Act (16 USC 668-688). The MBTA prevents the removal of trees, shrubs, and other structures containing active nests of migratory bird species that may result in the loss of eggs or nestlings. Adherence to construction windows either before the initiation of breeding activities or after young birds have fledged is a typical step to protect migratory birds and comply with the MBTA. The Bald Eagle and Golden Eagle Protection Act prohibits the taking or possession of bald and golden eagles, their eggs, or their nests without a permit from the USFWS.

5.1.4 Clean Water Act

ACOE and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredge and fill material into jurisdictional waters of the U.S. and wetlands under Section 404 of the Clean Water Act.

ACOE is responsible for the issuance of permits for the placement of dredged or fill material into waters of the U.S. pursuant to Section 404 of the Clean Water Act (33 USC 1344). As defined by the Corps at 33 CFR 328.3(a)(3), waters of the U.S. are those waters that are used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; interstate waters; and territorial seas.

ACOE asserts jurisdiction over traditional navigable waters (TNW) and certain tributaries and adjacent wetlands that meet current federal definitions. Under ACOE and EPA regulations, wetlands are defined as: “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

In non-tidal waters, the lateral extent of ACOE jurisdiction is determined by the OHWM which is defined as the: “…*line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas*.” (33 CFR 328[e]).

Wetlands could also be regulated as waters of the U.S. if they were adjacent to jurisdictional waters (other than waters that are themselves wetlands).

The EPA and ACOE issued a Revised Definition of waters of the United States that aimed to establish a durable definition of waters of the U.S. based on pre-2015 regulations, relevant Supreme Court decisions, the science, and the agencies’ technical expertise. The Revised Definition became effective March 20, 2023, but on September 8, 2023, the EPA and ACOE amended the Revised Definition to conform with a recent Supreme Court decision in the case of *Sackett v. Environmental Protection Agency (Sackett)*. Federal regulation concerning tributaries

and adjacent wetlands has recently been revised in an amended Revised Definition of Waters of the United States to conform with the Sackett decision (Conforming Rule) (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency, 2023).

5.1.5 Section 10 of the Rivers and Harbors Act of 1899 (33USC 403)

In addition to Section 404, the ACOE regulates activities affecting "navigable waters of the United States" under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403). Navigable waters are defined as "…*those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce* (33 CFR 322.2[a])."

Structures or work under or over a navigable WoUS is considered to have an impact on the navigable capacity of the waterbody (33 CFR 322.3[a]). Threemile Slough is a Section 10 waterway.

5.1.6 Section 14 of the Rivers and Harbors Act of 1899 (33USC 408)

The ACOE Civil Works Program is responsible for reviewing all Projects approvals that alter or occupy Civil Works projects. Section 408 provides that the ACOE may grant permission for another party to alter a Civil Works project upon a determination that the alternative proposed will not be injurious to the public interest and will not impair the usefulness of the Civil Works project. There is a federal levee on the south bank of Threemile Slough; however, if pipeline remediation and decommissioning activities are approved by minor alteration agreement issued by the Central Valley Flood Protection Board, a Section 408 review and permission will not be required.

5.2 STATE

5.2.1 California Endangered Species Act

The California Endangered Species Act of 1984 (CESA) (Fish and Game Code Section 2050) regulates the listing and take of state endangered (SE) and threatened species (ST). Take is defined as "hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill" (Fish and Game Code §86). Under Section 2081 of CESA, CDFW may authorize an incidental take permit allowing the otherwise unlawful take of a SE or ST species.

CDFW maintains lists of Candidate-Endangered species (SCE) and Candidate-Threatened species (SCT). These candidate species are afforded the same level of protection as listed species. CDFW designates Species of Special Concern (CSC) that are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational values. These species do not have the same legal protection as listed species but may be added to official lists in the future. The SSC list is intended by CDFW as a management tool for consideration in future land use decisions.

5.2.2 Fully Protected Species

California Fish and Game Code Sections 3511, 4700, 5050, and 5515 provide particular and special state protection to a list of wildlife species and prohibit take or possession at any time. The CDFW cannot authorize incidental take of fully protected species with few exceptions.

5.2.3 Nesting Birds

California Fish and Game Code Section 3503 prohibits the take, possession or needless destruction of nests or eggs of birds. It also prohibits the take, possession, or destruction of hawks or owls and the nests or eggs of any hawk or owl.

5.2.4 California Native Plants

CDFW manages the California Native Plant Protection Act (NPPA) of 1977 (F&G Code Section 1900, et seq.), which was enacted to identify, designate, and protect rare plants. F&G Code Section 1913 provides utilities with an exemption from CESA permitting requirements for listed plants within the utility right of way. Specifically, Section 1913(b) states: "…the removal of endangered or rare native plants from a canal, lateral ditch, building site, road, or other right-of-way by the owner of the land or his agent, or the performance by a public agency or a publicly or privately owned public utility of its obligation to provide service to the public, shall not be restricted because of the presence of rare or endangered plants." Section 1913(c) of the CNPPA requires the landowner to provide the CDFW with at least 10 days notice to allow for plant salvage prior to affecting the species. In addition to NPPA designated rare plants, all California Rare Plant Rank (CRPR) 1 (A and B), Rank 2 (A and B), Rank 3, and some Rank 4 plants meet the definition of Rare or Endangered under the CEQA Guidelines §15125 and/or §15380. Potential impacts to these species are considered during CEQA review of a proposed project.

5.2.5 Stream Features

Pursuant to Section 1602 of the Fish and Game Code, a Lake or Streambed Alteration Agreement (LSAA) between the CDFW and state or local governmental agency, public utility, or private citizen is required before the initiation of a construction project that will: (1) divert, obstruct, or change the natural flow or the bed, channel, or bank of a river, stream, or lake; (2) use materials from a streambed; or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The CDFW claims jurisdiction over the bed, bank, and channel of drainage features with regard to activities regulated under Section 1602 of the California Fish and Game Code.

5.2.6 Porter Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (CA Water Code §§ 13000-13999.10) mandates that waters of the State of California shall be protected. Current policy in California is that activities that may affect waters of the State shall be regulated to attain the highest quality. Waters of the State include any surface water or groundwater, including saline waters, within the boundaries of the state. The Porter-Cologne Act establishes that the state assumes responsibility for implementing portions of the federal CWA, rather than operating separate state and Federal water pollution control programs in California. Consequently, the state is involved in activities such as setting water quality standards, issuing discharge permits, and operating grant programs. Pursuant to Section 401 of the Clean Water Act, the ACOE cannot issue a federal permit until the State of California first issues a water quality certification to ensure that a project will comply with state water quality standards. The authority to issue water quality certifications in the Project area is vested with the Central Valley Regional Water Quality Control Board (CVRWQCB).

In April 2019, the State Water Resources Control Board adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material (Procedures), for inclusion

in the Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures took effect in May 2020.

5.3 LOCAL AND REGIONAL PLANS

The California Public Utilities Commission (CPUC) has preemptive jurisdiction over the siting, design, construction, maintenance, and operation of PG&E Project activities; therefore, the Project is not subject to local discretionary regulations.

6.0 SIGNIFICANCE CRITERIA

The impact of the Project on biological resources was evaluated in terms of mandatory findings of significance at Section 15065 of CEQA and Appendix G of the State CEQA Guidelines (Association of Environmental Professionals, 2022). The various components of the Project were considered in association with site conditions and were evaluated against CEQA criteria pertaining to biological issues. In accordance with these CEQA Guidelines, a project will normally result in a significant impact if any of the following conditions would result from project implementation:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or NMFS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulation, or by the CDFW, USFWS, or NMFS;
- 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;
- 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 site;
- Conflict with any local polices or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and,
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Additionally, the CEQA Guidelines Initial Study Land Use and Planning checklist notes that conflicts with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project should be considered during a project's environmental review.

7.0 PROJECT IMPACT ANALYSIS

7.1 IMPACT CATEGORIES

Short-term and long-term impacts are analyzed for the proposed Project. Each impact statement is classified as to the level of significance, based on the significance criteria from Section 6.0, and the availability of measures to feasibly mitigate project effects. Impact categories include:

- **Potentially Significant Impact** is an adverse effect that cannot be mitigated. This category of impact is one for which a solution has not been formulated, either because of the limits of technical and/or scientific knowledge, or unfeasibility from a technical, economic, and/or political perspective. Under CEQA, a Significant Unavoidable impact would require a “finding of overriding consideration” by the Lead Agency to approve the project;
- **Less than Significant with Mitigation** is an adverse environmental effect that can be mitigated to less than significant levels. Measures have been identified that can feasibly be implemented and will avoid the impact altogether by not taking a certain action or parts of an action; minimize impacts by limiting the degree or magnitude of the action and its implementation; rectify the impact by repairing, rehabilitating, or restoring the affected environment; or compensate for the impact by replacing or providing substitute resources or environments;
- **Less than Significant Impact** is an environmental effect that is less than significant or has no identified impact. These impacts may be adverse, but are not of sufficient magnitude, intensity, or duration to disrupt the environment, and have no serious consequences. As a result, no mitigation is required; and
- **No Impact** is when the Project would not result in any impact in the category, or the category does not apply.

7.2 IMPACTS TO BIOLOGICAL RESOURCES

Effects on biological resources include temporary impacts associated with the removal of the previously abandoned pipeline crossings. In addition, there will be approximately 0.12-acre of fill resulting from the placement of rock over the L-131Y and L-131Z pipelines to remediate the depth of burial and restore the cover over the pipeline to the five feet of cover that previously existing at the time of pipeline installation. Temporary impacts associated with the Project include habitat disturbance, vegetation removal, and localized turbidity. General construction disturbances will temporarily alter the natural movement and behavior of wildlife in the Project area. Construction may also result in indirect impacts that affect the quality of habitat in the Project area. Temporary impacts will be restored to pre-project conditions following completion of the Project. The placement of rock over the exposed pipelines to remediate the depth of burial and restore cover will not change the type of bottom substrate currently existing in this portion of the channel because the bottom of Threemile Slough in this area is currently composed of rocks ranging in size between approximately nine inches to several feet in diameter (Longitude 123, 2024).

The PG&E MRHCP is a model-based HCP, that incorporates the use of modeled habitat developed in collaboration with the USFWS for covered species. Modeled habitat is used as a tool to determine mitigation acreages and apply HCP take coverage. MRHCP Field Protocols (FPs) 1-19 and species-specific AMMs for covered species with modeled habitat in the Project area will be implemented during construction to minimize potential impacts to covered species and comply with the MRHCP. The AMMs are outlined in Table 7-1 and their implementation was considered when analyzing the potential impacts of the Project.

Table 7-1. PG&E MRHCP Field Protocols and AMMs for Covered Species to be Implemented as Part of the Project

Field Protocols / AMMs	Measure Description
FP-01	Conduct annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the Plan Area that are applicable to their job duties and work. Tailboard and site-specific training will also be conducted prior to commencing work.
FP-02	Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).
FP-03	Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.
FP-04	Route off-road access paths and site work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).
FP-05	Notify conservation landowners at least 2 business days prior to conducting covered activities on protected lands (state- or federally owned wildlife areas, ecological reserves, or conservation areas); more notice will be provided if practicable or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E will notify the conservation landowner within 48 hours after initiating emergency work. Although this notification is intended only to inform conservation landowner, PG&E will attempt to work with the conservation landowner to address landowner concerns.
FP-06	Minimize potential for covered species to become trapped, injured, or killed in pipes, culverts, or under materials or equipment. Inspect pipes and culverts wide enough to be entered by a covered species that could inhabit the area where pipes are stored for wildlife species prior to moving pipes and culverts. Contact a biologist if a covered species or other federally-listed species is suspected or discovered.
FP-07	Vehicle speeds on unpaved roads will not exceed 15 miles per hour.
FP-08	Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.
FP-10	Minimize the covered activity footprint and minimize the amount of time spent at a work site to reduce the potential for take of species.
FP-11	Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's *Stormwater Field Manual for Construction Best Management Practices*) to prevent construction site runoff into waterways.
FP-12	Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.
FP-13	Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or

Field Protocols / AMMs	Measure Description
	steep-walled holes every morning prior to initiating daily activities to ensure wildlife is not trapped. Field crews will not handle covered species. If any covered wildlife species is found, work will stop and a biologist will be notified. A biologist with appropriate take permits will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.
FP-14	If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial “weed free” seed mix. (Except in suitable habitat for Mount Hermon June beetle, Ohlone tiger beetle and Zyante band-winged grasshopper.)
FP-15	Prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.
FP-16	Maintain a buffer of 250 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not practicable because the covered activity footprint is within the buffered area, other measures as prescribed by the biologist or the HCP administrator to minimize impacts such as flagging access routes or paths, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity.
FP-17	Directionally fall trees away from an exclusion zone, if an exclusion zone has been defined. If this is not practicable, remove the tree in sections. Avoid damage to adjacent trees to the extent practicable. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs more than 6 inches in diameter.
FP-18	Nests with eggs and/or chicks will be avoided: contact a biologist or the Avian Protection Program Manager for further guidance. Work will be stopped until the crew can obtain clarification from a biologist or the Avian Protection Program Manager on how to proceed.
FP-19	Inspect and maintain exclusion fencing installed to exclude species from work areas.
VELB-1	All personnel, including PG&E employees and contractors, who are likely to encounter elderberry plants or valley elderberry longhorn beetle, especially during vegetation management activities, are required to receive training on valley elderberry longhorn beetle. When covered ground-disturbing activities will be implemented within 20 feet of elderberry, a qualified individual will identify a work exclusion zone (i.e., 5–20 feet of the dripline of all elderberry shrubs), with pin flagging or other appropriate means, within which ground disturbance, tree felling, and equipment and vehicle operation will be avoided or minimized. Except for cut stump treatment of removed trees (non-elderberry), herbicides will not be used within this zone. When performing vegetation maintenance work in compliance with Public Resources Code Sections 4291–4293, pruning, rather than removal of elderberry plants, will be performed where feasible.
GGS-1	Conduct work during the active season (May 1–October 1) to the extent practicable. A biologist will conduct a survey and identify where exclusion fencing is needed. If needed, a solid exclusion fence will be installed around the perimeter of work sites and will be inspected weekly. Burrows and other refuge habitat will be avoided to the extent practicable. If work will be conducted during the inactive period (October 2–April 30) then PG&E will conduct preparation work during the snake’s active period to make construction areas ready for work during the inactive season. Preparation work includes, at a minimum, adding baserock to access roads and work sites, grading access roads and work sites, and installing work zone exclusion fencing. If giant gartersnakes are encountered during construction activities, snakes will be allowed to move away from construction or a biologist will follow USFWS handling protocols and move snakes to the nearest appropriate habitat out of harm’s way.
Wetland-1	Identify vernal pools and other aquatic habitat for covered aquatic invertebrates and amphibians and establish buffers. Maintain a buffer of 250 feet around vernal pools and

Field Protocols / AMMs	Measure Description
	vernal pool complexes. If maintaining the buffer is not practicable because the areas are either in or adjacent to facilities, the field crew will implement other measures as prescribed by the biologist to minimize impacts. These measures may include flagging access, requiring foot access, restricting work until the dry season, or requiring the presence of a biological monitor during the activity. Activities must maintain the downstream hydrology to the vernal pool or complex.
Wetland-2	Identify wetlands, ponds, and riparian areas and establish and maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not practicable because the work sites are within any part of the buffered area, the field crew will implement other measures as prescribed by the biologist to minimize habitat impacts. These measures may include flagging access, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity. Activities must maintain the hydrology necessary to support the wetland, pond, or riparian area (inclusive of downstream).

The following analysis provides an assessment of potential impacts from the proposed Project activities and includes the appropriate PG&E MRHCPs FPs and AMMs, Project-specific applicant proposed AMMs, and/or prescribed mitigation measures to reduce impacts to special-status species or other biological resources to a level of less than significant.

IMPACT BIO-1: Construction of the Project may result in impacts to special-status plant species.

DISCUSSION: There are recorded occurrences of Suisun marsh aster on both banks of the Threemile Slough within the Project area (CDFW, 2024a) and Delta tule pea was observed along the south bank of Threemile Slough during field surveys. Other special-status species, such as Mason's lilaeopsis, delta mudwort, bristly sedge, woolly rose-mallow, Antioch dunes evening primrose, and Sandford's arrowhead have not been previously documented within the study area but have the potential to occur based on habitat suitability and proximity to documented occurrences.

There is potential for temporary impact to special-status plant species if they occur within the excavation footprint for decommissioning and removal of the previously abandoned pipelines on the banks of Threemile Slough. Up to 0.51-acre of temporary impact to the banks of Threemile Slough that provide suitable habitat for special-status plant species may occur (Figure 3). Temporary impacts will be restored to pre-project contours and there will be no permanent loss of suitable habitat for special-status plant species. As a public utility, PG&E is exempt from CESA permitting requirements for listed plants under Section 1913(b) of the California Fish and Game Code.

RECOMMENDED MITIGATION MEASURE – MM BIO-1: The following recommended mitigation measures would reduce Project impacts to special-status plants in the Project area to less than significant.

1. Prior to the start of construction, and during the appropriate blooming period, a qualified botanist will survey the Project impact area on the banks of Threemile Slough to determine whether special-status plants occur within the impact footprint and to document the current baseline conditions prior to the start of construction.

2. If a special-status plant population is found, it will be flagged for avoidance, if feasible.
3. If special-status plant species cannot be avoided, any temporary impact to special-status plant populations will be restored to pre-existing condition upon Project completion using various restoration methods.. Restoration methods will include topsoil salvage for replacement after excavation areas are backfilled, allowing for preservation of roots, rhizomes, and seedbank material which will facilitate revegetation of the temporary impact area with species that previously existed at the location. A Site Restoration Plan will be prepared with specific details of the topsoil salvage and replacement. The Site Restoration Plan will also address species-specific restoration methods such as plant salvage and transplantation and/or seed collection and replanting, as appropriate, and establish performance criteria and monitoring to ensure restoration to pre-project conditions.

BIO-1 IMPACT CATEGORY: Less than significant with mitigation.

IMPACT BIO-2: In-water work associated with rock placement for exposed pipeline remediation and decommissioning and removal of the previously abandoned pipelines could impact special-status fish species, if present, in the Project area while in-water work is occurring.

DISCUSSION: The depth of burial remediation and pipeline decommissioning and removal components of the Project will require in-water work in Threemile Slough. This in-water work could impact special-status fish species, if present, in the Project area during pipeline reburial and removal activities. In-water work, including excavation and rock placement, will temporarily increase turbidity to the aquatic environment immediately surrounding the pipeline removal location. Increases in turbidity can result in temporary suspension of sediments, organic matter, or contaminated constituents contained within the sediments. If these materials are introduced into the water column, they can create localized conditions that adversely affect habitat. Large-scale increases of organic matter within a water column, usually associated with fine sediments, such as silts and clays, can increase dissolved nutrient concentrations, resulting in increased algal blooms or decrease dissolved oxygen when the suspended sediments are anoxic or have a high chemical oxygen demand.

A Turbidity Monitoring Plan will be developed for the project, which will include provisions for monitoring turbidity during underwater excavation and other in-water work activities that have the potential to increase turbidity. Turbidity curtains may be used if turbidity monitoring indicates that turbidity levels would exceed permitted thresholds, and the site conditions, such as strong currents, at the time of construction do not make their use infeasible. In water work and the installation of a turbidity curtain, if determined necessary, could temporarily prevent fish movement and preclude fish use of the aquatic habitat at the discrete in water work location for a short period of time.

Implementation of the Project may result in short-term temporary impacts to the approximately 55 linear foot band of shallow water habitat on the south side of Threemile Slough during decommissioning and removal of the previously abandoned pipelines. These impacts will be temporary, will be restored to pre-construction contours, and will not

result in the loss of shallow water habitat.

In addition, the placement of rock to remediate shallow depth of burial and pipeline exposures on the active pipeline crossing will reduce the steep slope on the north bank in the shallow water zone and result in an expansion of shallow water habitat near the north bank from the current 27 linear feet to approximately 40 linear feet within the proposed rock placement footprint. Since the steep slope on the north bank currently consists of rip rap and the proposed pipeline remediation will consist of similar sized rock, the proposed placement of rock in the shallow water zone will not change the character of the bottom substrate that currently exists and will expand the shallow water zone to restore the north bank to the pre-eroded condition that existed at the time of pipeline installation.

RECOMMENDED MITIGATION MEASURE – MM BIO-2: The applicant has proposed Project-specific measures to reduce the potential for impact to special-status fish species and has incorporated them into the Project design. The following measures will be implemented during the depth of burial remediation and decommissioning activities involving in-water work within Threemile Slough.

1. An environmental training program will be developed and presented by a qualified biologist. All contractors and employees involved with the Project will be required to attend the training program. At a minimum, the program will 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.
2. Construction activities in surface water at or below the HTL on the banks of Threemile Slough will be conducted within the agency approved aquatic work window for avoidance of listed fish species (August 1 to October 31). This coincides with the timeframe when the aquatic work area is least likely to support special-status fish species based on seasonal migrations and spawning.
3. A qualified biological monitor will be present to monitor Project activities during all in-water work and initial ground disturbance that has the potential to impact special-status species.
4. A Turbidity Monitoring Plan will be implemented during all in-water work to ensure that turbidity levels upstream and downstream of the Project area remain compliant with regulatory requirements.
5. If determined to be necessary and feasible, turbidity curtains may be installed around the in-water work area and/or up and downstream of pipeline removal activities. The feasibility of use of a turbidity curtain will be determined based on site specific conditions at the time of in-water work and the necessity for use of a turbidity curtain will be based on the results of the turbidity monitoring program.

BIO-2 IMPACT CATEGORY: Less than significant with implementation of MM BIO-2.

IMPACT BIO-3: Completion of the Project could potentially impact the VELB due to the presence of blue elderberry shrubs on the north bank of Threemile Slough, specifically within the existing easement for the active L-131Y and L-131Z. Removal of vegetation will be necessary for decommissioning and removal of the pipeline and may include the blue elderberry shrub within the active pipeline easement.

DISCUSSION: There is a large elderberry shrub that occurs over the in-service L-131Y and L-131Z pipeline right-of-way, on the north bank of Threemile Slough. This shrub is within the planned vegetation removal area for access the pipelines to address the depth of burial (Figure 3). Completion of the pipeline remediation activities may require removal of all or a portion of the blue elderberry cluster. The shrub had several stems greater than one inch in diameter and would be considered potential VELB habitat located within riparian habitat. Two additional blue elderberry shrub clusters were mapped at the perimeter of the study area but will not be removed for the project.

The VELB is a covered species under the PG&E MRHCP and both the north bank of Threemile Slough and portions of the study area south of Threemile Slough are modeled habitat for the VELB. The MRHCP provides distinctions between temporary and permanent impacts that accommodate shrub accounting and annual mitigation based on impacts on the VELB habitat, species life history, and past discussions with USFWS regarding impacts (ICF, 2020). The MRHCP provides a consistent ability to track and mitigate impacts on VELB by using the following definitions:

- **Permanent Impact on VELB Habitat**. Any covered activity that results in removal of an entire elderberry shrub with at least one stem greater than 1-inch diameter at ground level will be counted as a permanent impact on one shrub.
- **Temporary Impact on VELB Habitat**. Any covered activity that results in pruning of one or more elderberry shrub stems greater than 1-inch diameter at ground level, where pruning is at 6-feet or below in height, when the plant is left in place will be counted as a temporary impact. Any covered activity that results in pruning of elderberry shrub stems, regardless of stem diameter, beyond 6 feet above ground level during the months of March through May, when adult VELB is most likely to be present will also be counted as a temporary impact.

MRHCP covered activities that result in permanent or temporary impacts to VELB habitat will be overseen by a qualified individual, who will also make stem size determinations and collect other relevant information pertaining to the facility involved, location, and date of the impact. All permanent and temporary impacts will be tracked at the shrub level in PG&E's existing VELB database. Once the vegetation is recommended for removal and removal crews are scheduled, the impacts on elderberry shrubs are noted as completed. The VELB database is used to track the location, date, and type of elderberry shrub impact and will generate an annual summary of impacts, which will be included in the MRHCP annual report for the purposes of tracking impact and mitigation within the MRHCP (ICF, 2020). The accounting methodology used in the MRHCP for impacts on VELB habitat is based on the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS, 2017).

MRHCP SPECIES-SPECIFIC AMMs: This Project may result in permanent impact to VELB habitat and use of the MRHCP for impact assessment and accounting, implementation of appropriate field protocols and species-specific AMMs, and compensatory mitigation will reduce Project impacts to less than significant levels. The Field Protocols are identified in Table 7-1 and MRHCP species-specific AMM is outlined below.

MRHCP VELB-1: All personnel, including PG&E employees and contractors, who are likely to encounter elderberry plants or VELB, especially during vegetation management activities, are required to receive training on VELB. When covered ground-disturbing activities will be implemented within 20 feet of elderberry, a qualified individual will identify a work exclusion zone (i.e., five to 20 feet of the dripline of all elderberry shrubs), with pin flagging or other appropriate means, within which ground disturbance, tree felling, and equipment and vehicle operation will be avoided or minimized. Except for cut stump treatment of removed trees (non-elderberry), herbicides will not be used within this zone. When performing vegetation maintenance work in compliance with Public Resources Code Sections 4291–4293, pruning, rather than removal of elderberry plants, will be performed where feasible.

Permanent impact associated with shrub removal for this Project will be overseen and documented by a qualified individual in compliance with the MRHCP and the *Valley Elderberry Longhorn Beetle Habitat Impact Report Field Form* and included in the MRHCP annual report for the purposes of impact and mitigation tracking. Compensatory mitigation is provided for permanent impacts to the VELB in accordance with the MRHCP Conservation Strategies.

BIO-3 IMPACT CATEGORY: Less than Significant with implementation of MRHCP VELB-1, standard MRHCP Field Protocols, and MRHCP Conservation Strategies.

IMPACT BIO-4: Construction activities within and adjacent to Threemile Slough during the depth of burial remediation and decommissioning and removal phases of the Project, could potentially impact aquatic species such as western pond turtle.

DISCUSSION: Based on biological surveys conducted for this Project, western pond turtle has a moderate potential for occurrence within Threemile Slough in the Project area. Threemile Slough provides suitable aquatic habitat to support the western pond turtle and suitable basking sites were observed within the study area during surveys. Potentially suitable nesting habitat is present along the north and south banks of Threemile Slough, particularly in sandy substrate. Implementation of the Project will result in short-term temporary impacts to potentially suitable aquatic habitat. However, no permanent impacts or loss of habitat for western pond turtle will occur as a result of the Project.

RECOMMENDED MITIGATION MEASURE BIO-4: The applicant has proposed the following measures in combination with the Field Protocols (FP-13) identified in Table 7-1 to reduce the potential for impact to western pond turtle to less than significant levels:

1. A qualified biologist will conduct pre-construction surveys for WPT within 48 hours prior to ground disturbance to ensure that individuals are not present in the work area.

2. Prior to ground disturbance activities, a barrier, such as wildlife exclusion fencing, will be placed around the excavation area to prevent WPT from moving into work areas.
3. 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.

BIO-4 IMPACT CATEGORY: Less than significant with implementation of MM BIO-4 and standard MRHCP Field Protocols.

IMPACT BIO-5: Construction activities within Threemile Slough during the depth of burial remediation and decommissioning and removal phases of the Project could potentially impact aquatic species such as giant gartersnake.

DISCUSSION: Based on biological surveys conducted for this Project, potentially suitable aquatic habitat for giant gartersnake is present at the Project site on the north and south banks of Threemile Slough. Emergent vegetation present within Threemile Slough could provide cover and foraging habitat for giant gartersnake. Suitable upland habitat occurs in adjacent terrestrial areas, particularly north of Threemile Slough where small mammal burrows are present, though the density of small mammal burrows within the study area was low.

The giant gartersnake is a covered species under the PG&E MRHCP and modeled habitat for giant gartersnake includes aquatic habitat along the banks of Threemile Slough and upland habitat within terrestrial habitat on Sherman Island and Brannan Island (ICF, 2020). Implementation of the Project may result in short-term temporary impacts to giant gartersnake modeled habitat but will not result in permanent impacts or loss of habitat because pipeline decommissioning and removal will result in temporary impacts and rock placement activities associated with pipeline remediation will not change the available aquatic habitat in the area or eliminate wetland vegetation that provides cover and potential foraging habitat. Implementation of AMMs from the MRHCP will further reduce the potential for impact to giant gartersnake.

MRHCP SPECIES-SPECIFIC AMM: Consistent with the PG&E MRHCP, the following measures will be implemented during construction activities for protection of giant gartersnake. These measures in combination with the Field Protocols identified in Table 7-1 will reduce Project impacts to less than significant levels:

MRHCP GGS-1: Conduct work during the active season (May 1 to October 1) to the extent practicable. A biologist will conduct a survey and identify where exclusion fencing is needed. If needed, a solid exclusion fence will be installed around the perimeter of work sites and will be inspected weekly. Burrows and other refuge habitat will be avoided to the extent practicable.

If work is conducted during the inactive period (October 2 to April 30) then PG&E will conduct preparation work during the snake's active period to make construction areas ready for work during the inactive season. Preparation work can include, at a minimum, adding baserock to access roads and work sites, grading access roads and work sites, and installing work zone exclusion fencing.

If giant gartersnakes are encountered during construction activities, snakes will be allowed to move away from construction, or an approved biologist will follow USFWS handling protocols and move snakes to the nearest appropriate habitat out of harm's way.

BIO-5 IMPACT CATEGORY: Less than significant with implementation of MRHCP GGS-1 and standard MRHCP Field Protocols.

IMPACT BIO-6: Vegetation removal and construction activities associated with pipeline depth of burial remediation and pipeline decommissioning could impact nesting Swainson's hawks in the Project area.

DISCUSSION: There are many suitable nesting trees for Swainson's hawk within a half mile of the Project site including trees within the riparian corridor of Threemile Slough in the Project area. One Swainson's hawk adult was observed soaring over Brannan Island during surveys conducted on August 15, 2024.

Because Swainson's hawk is a State-listed species and there is suitable nesting habitat in proximity to the Project area, there is the potential that construction near Swainson's hawk nesting areas could disrupt breeding activities if construction occurs during the nesting season. No loss of Swainson's hawk foraging habitat as a result of the Project.

The following mitigation measure would reduce impacts to nesting Swainson's hawks during Project construction.

RECOMMENDED MITIGATION MEASURE - MM BIO-6: The following measure is recommended to reduce Project impacts to nesting occurrences of Swainson's hawk to less than significant levels:

1. If construction occurs outside of Swainson's hawk nesting season (August 16 to February 28), impacts would be avoided, and no mitigation would be necessary.
2. Project activities occurring between March 1 and August 15 will require surveys conducted by a qualified biologist in accordance with the *Swainson's hawk Technical Advisory Committee (TAC) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000) for active Swainson's hawk nests within a 0.5-mile radius of the Project area. Pre-construction surveys will be completed for the two survey periods immediately prior to the start of construction and within 15 days prior to any construction disturbance. A pre-construction survey report will be prepared that outlines the surveys conducted, nest locations identified, and recommended nest protection buffers. If active Swainson's hawk nests are identified near the Project area, then based on nest protection buffers outlined in PG&E's Nesting Bird Management Plan the following shall be required:
    a) Apply a minimum 0.25-mile nest protection buffer from an active nest. Postpone Project activities within the nest protection buffer until after the young have fledged and are no longer dependent on the nest tree.
    b) If it is not possible to postpone Project activities, construction activities may proceed with CDFW approval and nest monitoring by a qualified raptor biologist. If the monitoring biologist observes signs of distress, then they

shall stop construction work and coordinate with the CDFW to establish additional protection measures to ensure avoidance of nest abandonment prior to the re-start of project activities.

BIO-6 IMPACT CATEGORY: Less than Significant with implementation of MM BIO-6.

IMPACT BIO-7: Vegetation removal, ground-clearing activities, and construction disturbance could impact bird species protected under the Migratory Bird Treaty Act (MBTA), raptors, or other special-status bird species.

DISCUSSION: Vegetation present within the Project area could provide nesting habitat for bird species protected by the MBTA, raptors, or other special-status bird species. Vegetation removal, ground-clearing activities, and construction disturbance could potentially impact nesting birds that are protected under the Federal MBTA of 1918 (16 USC 703-711) and Fish and Game codes (Sections 3503, 3503.5, and 3800). The laws and regulations prohibit the take, possession, or destruction of birds, their nests, or eggs. Disturbance that causes nest abandonment and/or loss of reproductive effort could be considered a "take".

RECOMMENDED MITIGATION MEASURE - MM BIO-7: The applicant has proposed the following measures in combination with the Field Protocols (FP-18) identified in Table 7-1 to reduce the potential for impact to nesting birds, raptors and other special-status bird species to reduce Project impact to less than significant levels:

1. Schedule vegetation removal and ground-clearing activities during the non-nesting season (August 16 to February 14), if feasible.
2. If Project-related vegetation removal and ground-clearing activities are scheduled between February 15 and August 15, then pre-construction surveys shall be conducted within 14 days prior to the start of vegetation removal in potential nesting habitat within 500 feet of the Project area to identify nest locations. If an active nest is identified, an appropriate species-specific nest protection buffer will be recommended based on PG&E's Nesting Bird Management Plan and site-specific conditions.
3. A pre-construction nesting survey report will be prepared that outlines the surveys conducted, nest locations identified, and recommended nest protection buffers. Each recommended nest protection buffer will be approved by the PG&E biologist prior to the start of construction activities. Construction activities will be prohibited within the established buffer zones until the young have fledged. If it is not possible to postpone Project activities within established buffers, construction activities may only proceed with notification to the CDFW, approval from the PG&E biologist, and nest monitoring by a qualified biologist. If the monitoring biologist observes signs of distress, then they shall stop construction work and coordinate with the PG&E biologist.
4. If a lapse in Project-related activities occurs for 14 days or longer during the nesting season, another focused survey is required before project activities can be reinitiated.

BIO-7 IMPACT CATEGORY: Less than Significant with implementation of MM BIO-7.

IMPACT BIO-8: The removal of riparian habitat on the banks of Threemile Slough for equipment access and pipeline removal may impact special-status bat species such as western red bat.

DISCUSSION: Based on the review of pertinent literature and the proximity to known occurrences, western red bat has a moderate likelihood of occurrence in the work area. It roosts in trees and shrubs, primarily cottonwood and sycamore trees, adjacent to streams, fields, or urban areas and a historic documented occurrence from 1999 occurs in Brannan Island State Recreation Area. Although not their preferred tree species, removal of the riparian trees and shrubs on the banks of Threemile Slough for equipment access and decommissioning and removal of the previously abandoned pipelines could result in the disturbance of tree roosting bats, such as western red bat, if present. Although suitable roosting habitat is present within the Project area for special-status bat species, the presence of these bat species has not been confirmed.

RECOMMENDED MITIGATION MEASURE – MM BIO-8:

The applicant has proposed the following measures to reduce the potential for impact to tree roosting bats:

1. Prior to tree removal or trimming, seasonally appropriate emergence surveys will be conducted by a qualified bat biologist to fully assess bat presence and behavior. If no special-status bat species are detected, no further mitigation is necessary. If special-status bat species are detected, the following measures will be implemented to minimize the impact of tree removal:
    a) Tree removal will be conducted outside the maternity season (April 1–August 31) to avoid potential mortality to flightless young and outside the bat hibernation season (November– February) to avoid direct mortality of foliage roosting species.
    b) In addition, a phased vegetation removal approach would be followed:
        i. On Day 1, branches and limbs that do not contain crevices or cavities shall be removed using hand tools or chainsaws. The goal is to create a disturbance sufficient to cause any bats roosting in the tree to leave that night and not return, but not at a level of intensity that will cause bats to fly out of the tree during the disturbance itself (during the daytime).
        ii. On Day 2, the remainder of the tree may be removed.
    c) A qualified bat biologist will be present to monitor tree removal.

BIO-8 IMPACT CATEGORY: Less than Significant with implementation of MM BIO-8.

IMPACT BIO-9: The pipeline remediation and the decommissioning and removal of the previously abandoned pipelines will result in impacts to aquatic resources (waters of the U.S. and wetlands) regulated by the ACOE under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The Project will also result in impacts to aquatic resources regulated by the Central Valley RWQCB under Section 401 of the Clean Water Act and CDFW under Section 1600 of the California Fish and Game Code.

DISCUSSION: A preliminary aquatic resource delineation has been conducted for the Project to determine the geographic extent of Federal and State regulatory jurisdiction (Padre, 2024). A total of 0.12-acre of fill will be placed for the remediation of the exposures on the active pipelines and up to 2.58 acres of temporary disturbance to jurisdictional waters of the U.S. and waters of the state may occur during the decommissioning phase of the project, including approximately 0.41-acre of excavation for pipeline removal (Figure 4).

RECOMMENDED MITIGATION MEASURE – MM BIO-9:

1. PG&E will obtain all necessary permits for impacts to jurisdictional aquatic resources from the ACOE, RWQCB, and CDFW prior to implementation of Project activities within jurisdictional areas and the Project will comply with agency permit conditions.
2. Standard best management practices (BMPs), such as the use of silt fencing and non-monofilament straw wattle, will be implemented within the disturbance footprints at each terrestrial excavation location to minimize erosion, increased turbidity, and sedimentation to waters of the U.S. and waters of the state.
3. After pipeline remediation, decommissioning, and removal activities are complete, the temporary disturbance areas will be restored to pre-project contours and condition. Levee disturbance areas will be restored consistent with Central Valley Flood Protection Board and Local Maintaining Agency requirements as required by the permits and authorizations issued by those agencies. Impacts to the banks of Threemile Slough will be restored to pre-existing condition and temporary disturbance areas within the Brannan Island State Recreational Area will be restored consistent with State Parks requirements. A Site Restoration Plan will be developed that will include the restoration of habitat removed for completion of the Project.

BIO-9 IMPACT CATEGORY: Less than Significant with implementation of MM BIO-9.

IMPACT BIO-10: The Project will require the removal of riparian habitat on the banks of Threemile Slough, including vegetation removal on the north bank for equipment access to the pipeline remediation area for rock placement and for removal of the previously abandoned pipelines from the north bank. Vegetation removal from the south bank will be required for equipment access and removal of the previously abandoned pipelines from the south bank.

DISCUSSION: Riparian habitat occurs on both the north and south bank of Threemile Slough including a narrow band of mature trees, primarily coast live oak (*Quercus agrifolia*), on the south bank and dense willow shrub cover on the north bank. This includes one sensitive natural community (SNC) on the south bank, the California sycamore and coast live oak riparian woodland (Figure 3). Workspace within this riparian habitat will be reduced to the minimum necessary for successful completion of the Project and tree removal within the workspace areas will be minimized to the extent feasible; however, vegetation will need to be removed for equipment access and pipeline removal from Threemile Slough. According to the arborist report for the Project, a total of six trees and

two areas of brush will be removed for completion of the Project (Coleman Utility Arboriculture [CUA], 2024). This includes five coast live oak trees, ranging in size from six inches to 32 inches in diameter, and one miscellaneous brush area (approximately 7,000 square feet in size) to be removed on the south bank of Threemile Slough and one coast live oak tree, six inches in diameter, and one miscellaneous brush area (approximately 13,000 square feet in size) to be removed on the north bank of Threemile Slough.

RECOMMENDED MITIGATION MEASURE – BIO-10: The following recommended mitigation measures would reduce Project impacts to riparian habitat removal at the Project area:

- A Site Restoration Plan will be developed that will include the replacement of riparian habitat removed for completion of the Project. Implementation of a Site Restoration Plan upon completion of the Project will restore the temporary disturbance areas to pre-project contours and condition. If onsite restoration of woody vegetation on the federal levee is not acceptable, offsite mitigation may be considered for mitigation of impacts to riparian habitat.

BIO-10 IMPACT CATEGORY: Less than Significant with implementation of MM BIO-10.

8.0 REFERENCES

8.1 LITERATURE

Association of Environmental Professionals. 2022. 2022 CEQA California Environmental Quality Act Statute & Guidelines.

Baldwin, Bruce G., Goldman, Douglas H., Keil, David J., Rosatti, Thomas J. 2012. *The Jepson Manual: Vascular Plants of California, Second Edition*. University of California Press. Berkeley, CA.

Barr, C.B. 1991. *The Distribution, Habitat, and Status of the Valley Elderberry Longhorn Beetle*, *Desmocerus californicus dimorphus* Fisher (Insecta: Coleoptera: Cerambycidae. U.S. Fish and Wildlife Service. Sacramento, CA.

Baxter, R.D. 2000. *Splittail and longfin smelt.* IEP Newsletter 13: 19–21.

Behnke RJ. 1992. Native trout of western North America. American Fisheries Society Monograph nr. 6. 275 p.

Bury, R.B. 1986. Feeding ecology of the turtle, *Clemmys mamorata*. Journal of Herpetology, Vol. 20, No. 4 pp. 515-521.

California Native Plant Society (CNPS), Rare Plant Program. 2024. Inventory of Rare and Endangered Plants of California. Online: https:///www.rareplants.cnps.org.

California Department of Fish and Game (CDFG). 1994. State Fish and Game Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California.

------ 2006. *Swainson's Hawk*. California Wildlife Habitat Relationships System. Sacramento, CA.

California Department of Fish and Wildlife (CDFW). 2019. Results - Juvenile Green Sturgeon Monitoring Summary; 2018 and 2019 Sampling Seasons. Online: https://www.calfish.org/ProgramsData/ConservationandManagement/CentralValleyMonitoring/LowerSacramentoRiverGreenSturgeonTelemetryMonitoring.aspx. Accessed on September 26, 2024.

------ 2023. California Natural Community List. Online: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities.

------ 2024a. California Natural Diversity Data Base (CNDDB) BIOS-6 Query within Five Mile Radius of the Project area. California Department of Fish and Wildlife. Sacramento, CA.

------ 2024b. Biogeographic Information and Observation System (BIOS), Terrestrial Connectivity Dataset. California Department of Fish and Wildlife. Sacramento, CA.

Carter, K. 2005. The Effects of Dissolved Oxygen on Steelhead Trout, Coho Salmon, and Chinook Salmon Biology and Function by Life Stage. California Regional Water Quality Control Board. North Coast Region.

Coleman Utility Arboriculture (CUA). 2024. Arborist Report for R-1964 Rio Vista L-131Y and L-131Z MP 0.56-0.66 Remove Abandoned Pipe, PM# 74059601. September 9, 2024.

Garwood, R.S. 2017. Historic and contemporary distribution of the Longfin Smelt (*Spirinchus thaleichthys*) along the California coast. California Fish and Game Journal, Vol. 103 (2).

Goals Project. 2000. Baylands Ecosystem Species and Community Profiles: Life Histories and Environmental Requirements of Key Plants, Fish and Wildlife. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. P.R. Olofson, editor. San Francisco Bay Regional Water Quality Control Board, Oakland, Calif.

Hansen, G. E., and J. M. Brode. 1980. Status of the giant garter snake *Thamnophis couchi gigas* (Fitch). California Department of Fish and Game, Inland Fisheries Endangered Species Program Special Publication 80-5, 14 pp.

Herzog, Sebastian K. 1996. Wintering Swainson's Hawks in California's Sacramento-San Joaquin River Delta. The Condor 98:876-879.

Hobbs, J.A. and P.B. Moyle. 2015. Last Days of the Longfin? News Deeply-Water Deeply, September 8, 2015.

ICF. 2020. Multiple Region Operations & Maintenance Habitat Conservation Plan Sacramento Valley and Foothills, North Coast, Central Coast. Prepared for Pacific Gas and Electric Company, May 2020.

Interagency Ecological Program (IEP). 2024. IEP Survey Data Portal. Online: https:///iep.ca.gov/Data/IEP-Survey-Data.

Klimley, A.P., Chapman, E.D., Cech Jr, J.J., Cocherell, D.E., Fangue, N.A., Gingras, M., Jackson, Z., Miller, E.A., Mora, E.A., Poletto, J.B. and Schreier, A.M. 2015. *Sturgeon in the Sacramento–San Joaquin Watershed: New Insights to Support Conservation and Management.* San Francisco Estuary and Watershed Science, 13(4).

Leitritz E, Lewis RC. 1980. Trout and salmon culture (hatchery methods). California Fishery Bulletin nr. 164. University of California.

Longitude 123. 2024. Pacific Gas & Electric Company Project Execution Plan Threemile Slough Pipeline Crossings Remediation and Decommissioning. Revision 1, October 18, 2024.

Miles, S. and C. Goudey. 1997. *Ecological Subregions of California: Section and Subsection Descriptions*. USDA Forest Service, Pacific Southwest Region Publication R5-EM-TP-005. San Francisco, CA.

Moyle, Peter. 2002. *Inland Fishes of California*. University of California Press. Berkeley, CA.

Moyle, P.B., R.M. Quinones, Katz, J.V, and J. Weaver. 2015. Fish species of special concern in California, Sacramento: California Department of Fish and Wildlife.

National Marine Fisheries Service (NMFS). 1993. Designated Critical Habitat; Sacramento River Winter-run Chinook Salmon. 58 FR 33212. June 1993.

------ 2005. Endangered and Threatened Wildlife and Plants: Designation of Critical Habitat for Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California, Final Rule. Federal Register 70(170):52488-52627.

------ 2006. Threatened Status for Southern Distinct Population Segment of North American Green Sturgeon: Final Rule. April 7, 2006.

------ 2009. Endangered and Threatened Wildlife and Plants: Final Rulemaking to Designate Critical Habitat for the Threatened Southern Distinct Population Segment of North American Green Sturgeon, Final Rule. Federal Register 74 (195): 52300-52351.

------ 2011. Green Sturgeon *(Acipenser medirostris).* Office of Protected Resources. Online: http://www.nmfs.noaa.gov/pr/species/fish/greensturgeonhtm#documents.

----- 2014. Recovery plan for the evolutionarily significant units of Sacramento River winter-run Chinook salmon and Central Valley spring-run Chinook salmon and the distinct population segment of California Central Valley steelhead. California Central Valley Area Office, Sacramento, CA.

------ 2018. Recovery Plan for the Southern Distinct Population Segment of North American Green Sturgeon (*Acipenser medirostris*). National Marine Fisheries Service West Coast Region California Central Valley Office, Sacramento, California.

------ 2024. Official Species List for PG& E L-131Y and L-131Z Threemile Slough Crossings Pipeline Remediation Project. Official List letter response dated November 5, 2024.

National Oceanic and Atmospheric Administration (NOAA). 1996. Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act. Notices: Federal Register 61 (26) 4722-4725.

Natural Resources Conservation Service (NRCS). 2024. Web Soil Survey for Sacramento County California. Online: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

Pacific Fishery Management Council (PFMC). 2014. Appendix A to the Pacific Coast Salmon Fishery Management Plan, Identification and Description of Essential Fish Habitat, Adverse Impacts, and Recommended Conservation Measures for Salmon. September 2014.

Padre Associates, Inc. 2024. Preliminary Federal Aquatic Resources Delineation Report for the PG&E L-131Y and L-131Z Threemile Slough Crossing Pipeline Replacement Project, Sacramento County, California.

Remsen, J.V. 1978. Bird Species of Special Concern in California: An Annotated List of Declining or Vulnerable Bird Species. California Department of Fish and Game. Wildlife Management Branch Administrative Report No. 78-1. Sacramento, CA.

San Francisco Estuary. 2022. Hatchery Delta Smelt Release to Wild. San Francisco Estuary News Magazine 31 (1) 3-4.

Sawyer, John O., Keeler-Wolf, Todd, Evens, Julie, 2009. *A Manual of California Vegetation Second Edition.* California Native Plant Society. Berkeley, CA.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Sunset Western Garden Collection, 2024. *Sunset Climate Zones*. Online: https://sunsetplantcollection.com/climate-zones/.

Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. Sacramento, CA.

University of California, Davis. 2022. Experimental Release of Cultured Delta Smelt. U.C. Davis Fish Conservation Physiology Lab. February 18, 2022.

U.S. Army Corps of Engineers and U.S. Environmental Protection Agency. 2023. Revised Definition of "Waters of the United States"; Conforming. Federal Register 88 (173): 61964-61969.

U.S. Fish and Wildlife Service (USFWS). 1980. Listing the Valley Elderberry Longhorn Beetle as a Threatened Species with Critical Habitat. Federal Register 45 No. 155, pp. 52803-52807, August 8, 1980.

------ 1984. *Valley Longhorn Beetle Recovery Plan*. Region 1. Portland, OR.

------ 1994. Endangered and Threatened Wildlife and Plants; Critical Habitat Determination for the Delta Smelt. 50 CFR Part 17. December 19, 1994.

------ 1996. Sacramento-San Joaquin Delta Native Fishes Recovery Plan. U.S. Department of Interior. November 29, 1996.

------ 1997. Programmatic formal consultation for U.S. Army Corps of Engineers 404 permitted projects with relatively small effects on the giant garter snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California. Sacramento Fish and Wildlife Office. November 1997.

------ 2006a. Formal Programmatic Consultation on the Issuance of Section 10 and 404 Permits for Projects with Relatively Small Effects on the Delta Smelt (*Hypomesus transpacificus*) and its Critical Habitat within the Jurisdiction of the Sacramento Fish and Wildlife Office of the U.S. Fish and Wildlife Service, California.

------ 2006b. Giant Garter Snake (*Thamnophis gigas*) 5-Year Review – Summary andEvaluation. U.S. Fish and Wildlife Service, Sacramento, California.

------ 2010a. Endangered and Threatened Wildlife and Plants; 12-Month finding on a Petition to Reclassify the Delta Smelt From Threatened to Endangered Throughout Its Range. Federal Register 75 (66): 17667-17680.

------ 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 29 pp.

------ 2021. Press Release: Delta smelt released into wild for first time. December 17, 2021.

------ 2022. Species Status Assessment for the San Francisco Bay-Delta Distinct Population Segment of the Longfin Smelt. U.S. Fish and Wildlife Service. San Francisco Bay-Delta Fish and Wildlife Office, Sacramento, California.

------ 2024a. Official Species List for PG& E L-131Y and L-131Z Threemile Slough Crossings Pipeline Remediation Project (Project Code: 2024-0081760). Sacramento, CA. San Francisco Bay-Delta Fish And Wildlife.

U.S. Geological Society (USGS). 2024. National Water Information System (NWIS) USGS Station 11337190 SAN JOAQUIN R A JERSEY POINT CA, California. Online: https://dashboard.waterdata.usgs.gov/api/gwis/2.1.1/service/site?agencyCode=USGS&siteNumber=11337190&open=15560.

Wang, Johnson C.S. 1986. Fishes of the Sacramento-San Joaquin Estuary and Adjacent Waters, California: A Guide to the Early Life Histories. Interagency Ecological Studies Program forthe Sacramento-San Joaquin Estuary, Technical Report No. 9 (FS/BIO-IATR/86-9).

------ 1991. *Early Life Stages and Early Life History of the Delta Smelt Hypomesus transpacificus in the Sacramento-San Joaquin Estuary, with Comparison of Early Life Stages of the Longfin Smelt, Spirinchus thaleichthys*. Interagency Ecological Studies Program for the Sacramento-San Joaquin Estuary.

Western Regional Climate Center. 2024. Historical Climate Information: Concord Buchanan Field Station (041964). Desert Research Institute. Online: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7633.

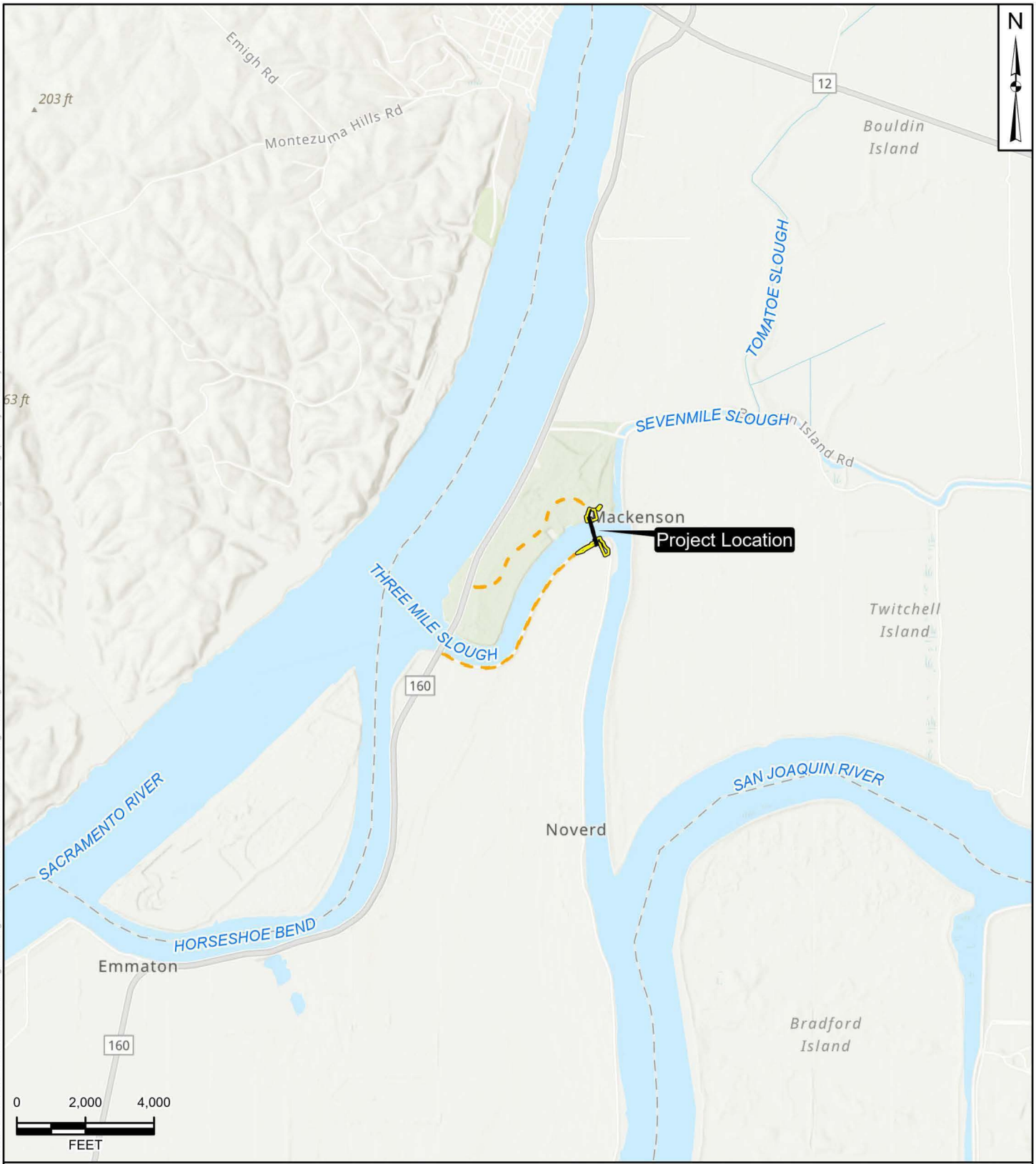
Wheeler, B. and W. Clark. 1995. A Photographic Guide to North American Raptors. Academic Press. London.

Zeiner, D., W. Laudenslayer, Jr. and K. Mayer. 1988. *California's Wildlife, Volume I, Amphibians and Reptiles*. California Department of Fish and Game. Sacramento, CA.

Zeiner, D., W. Laudenslayer, Jr., K. Mayer, and M. White. 1990a. *California's Wildlife, Volume II, Birds*. California Department of Fish and Game. Sacramento, CA.

------ 1990b. *California's Wildlife, Volume III, Mammals*. California Department of Fish and Game. Sacramento, CA.

FIGURES



LEGEND:

Pipeline | Workpace | Access Route

MAP EXTENT:



Source: Esri Online Topo Basemap
Coordinate System:NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-131Y & L-131Z
THREE MILE SLOUGH CROSSING REMEDIATION
SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: August 2024

PROJECT VICINITY MAP

FIGURE 1

Z:\GIS Projects\GIS Maps\GIS Data\Project Specific\PG&E L-131Y and L-131Z Three Mile Slough Crossing\PG&E L-131Y and L-131Z Three Mile Slough Crossing.aprx\Project Vicinity Map 8/22/2024



Source: L123
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-131Y & L-131Z
THREE MILE SLOUGH CROSSING REMEDIATION
SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

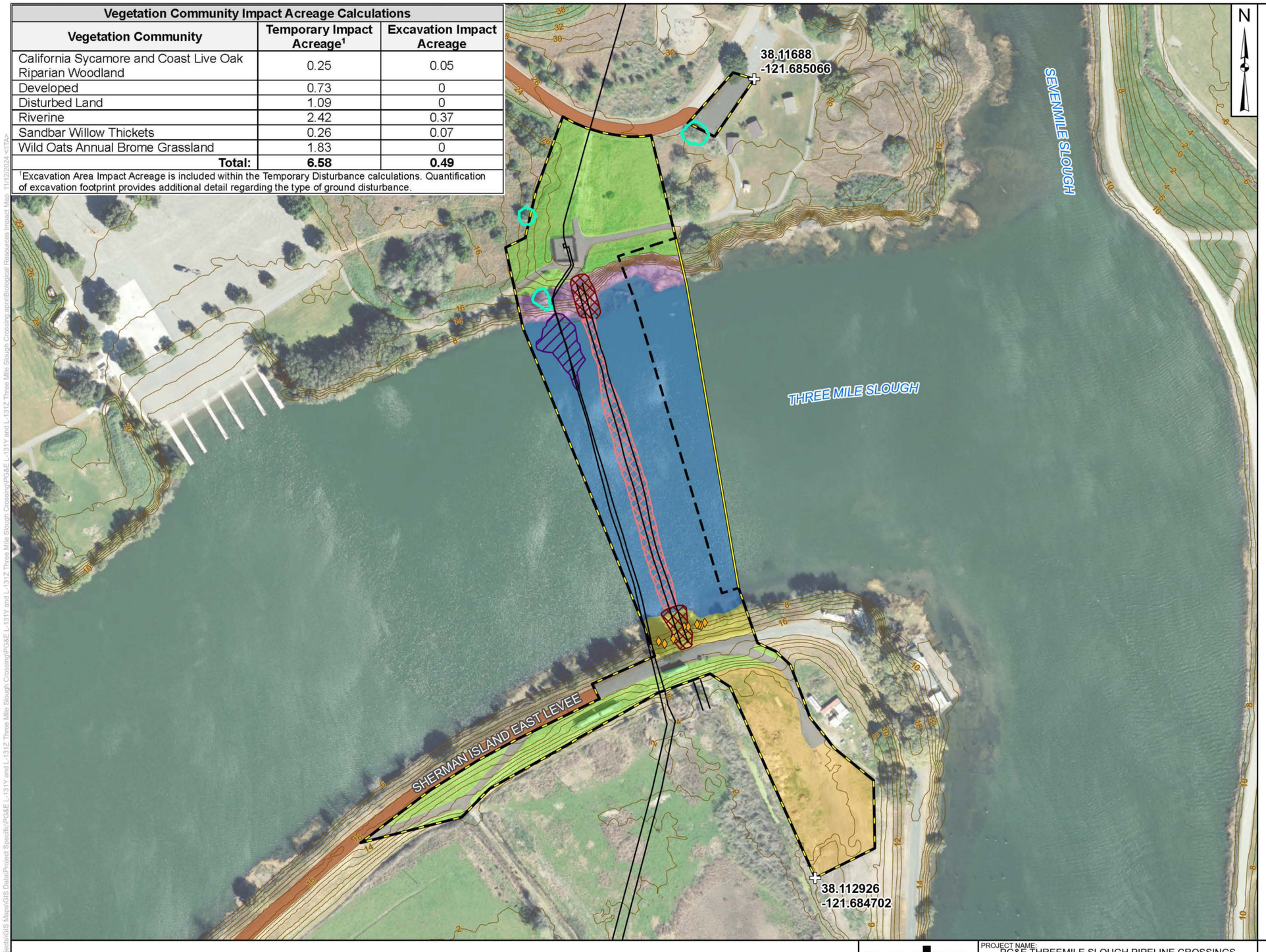
DATE: December 2024

PROJECT OVERVIEW

FIGURE
2

Vegetation Community Impact Acreage Calculations		
Vegetation Community	**Temporary Impact Acreage[1]**	**Excavation Impact Acreage**
California Sycamore and Coast Live Oak Riparian Woodland	0.25	0.05
Developed	0.73	0
Disturbed Land	1.09	0
Riverine	2.42	0.37
Sandbar Willow Thickets	0.26	0.07
Wild Oats Annual Brome Grassland	1.83	0
Total:	**6.58**	**0.49**

[1]Excavation Area Impact Acreage is included within the Temporary Disturbance calculations. Quantification of excavation footprint provides additional detail regarding the type of ground disturbance.



LEGEND:

- Control Point
- Delta Tule Pea *(Lathyrus jepsonii var. jepsonii)*
- Pipeline Alignment
- Study Area (7.6 ac)
- Access Route
- Dripline of Blue Elderberry Shrub *(Sambucus nigra ssp. caerulea)*
- Work Space
- Terrestrial Excavation Area
- In-Water Excavation Area
- Rock Placement Area

Vegetation Communities

- California Sycamore and Coast Live Oak Riparian Woodland
- Developed
- Disturbed Land
- Riverine
- Sandbar Willow Thickets
- Wild Oats and Annual Brome Grassland

MAP EXTENT:



0 90 180
FEET

Source: Esri Online Imagery Basemap, County of Sacramento
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
PG&E THREEMILE SLOUGH PIPELINE CROSSINGS
REMEDIATION AND DECOMMISSIONING
SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171
DATE: November 2024

BIOLOGICAL RESOURCES IMPACT MAP

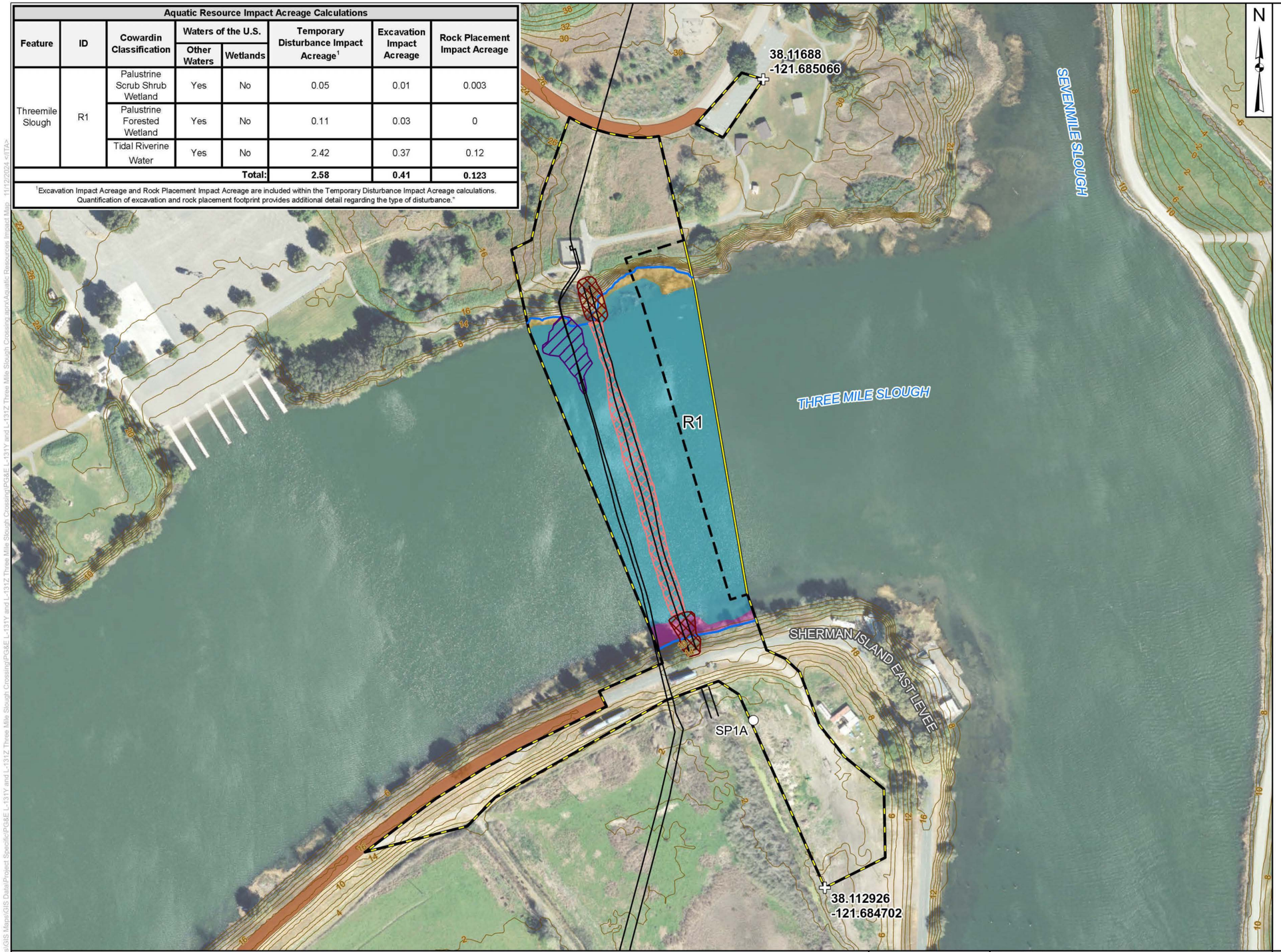
FIGURE 3

<TA>:Z:\GIS Projects\GIS Maps\GIS Data\Project Specific\PG&E L-131Y and L-131Z Three Mile Slough Crossing\PG&E L-131Y and L-131Z Three Mile Slough Crossing\PG&E L-131Y and L-131Z Three Mile Slough Crossing.aprx\Biological Resources Impact Map 11/12/2024 <dT>

Aquatic Resource Impact Acreage Calculations

Feature	ID	Cowardin Classification	Waters of the U.S.		Temporary Disturbance Impact Acreage[1]	Excavation Impact Acreage	Rock Placement Impact Acreage
			Other Waters	Wetlands			
Threemile Slough	R1	Palustrine Scrub Shrub Wetland	Yes	No	0.05	0.01	0.003
		Palustrine Forested Wetland	Yes	No	0.11	0.03	0
		Tidal Riverine Water	Yes	No	2.42	0.37	0.12
				Total:	**2.58**	**0.41**	**0.123**

[1]Excavation Impact Acreage and Rock Placement Impact Acreage are included within the Temporary Disturbance Impact Acreage calculations. Quantification of excavation and rock placement footprint provides additional detail regarding the type of disturbance."



LEGEND:

- Control Point
- Sample Plot Location
- High Tide Line
- Pipeline Alignment
- Study Area (7.6 ac)
- Access Route
- Work Space
- Terrestrial Excavation Area
- In-Water Excavation Area
- Rock Placement Area

Cowardin Classification

- Palustrine Forested Wetland (0.11 ac)
- Palustrine Scrub Shrub Wetland (0.13 ac)
- Tidal Riverine Water (3.27 ac)

MAP EXTENT:



0 90 180
FEET

Source: Esri Online Imagery Basemap, County of Sacramento
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E THREEMILE SLOUGH PIPELINE CROSSINGS REMEDIATION AND DECOMMISSIONING SACRAMENTO COUNTY, CA

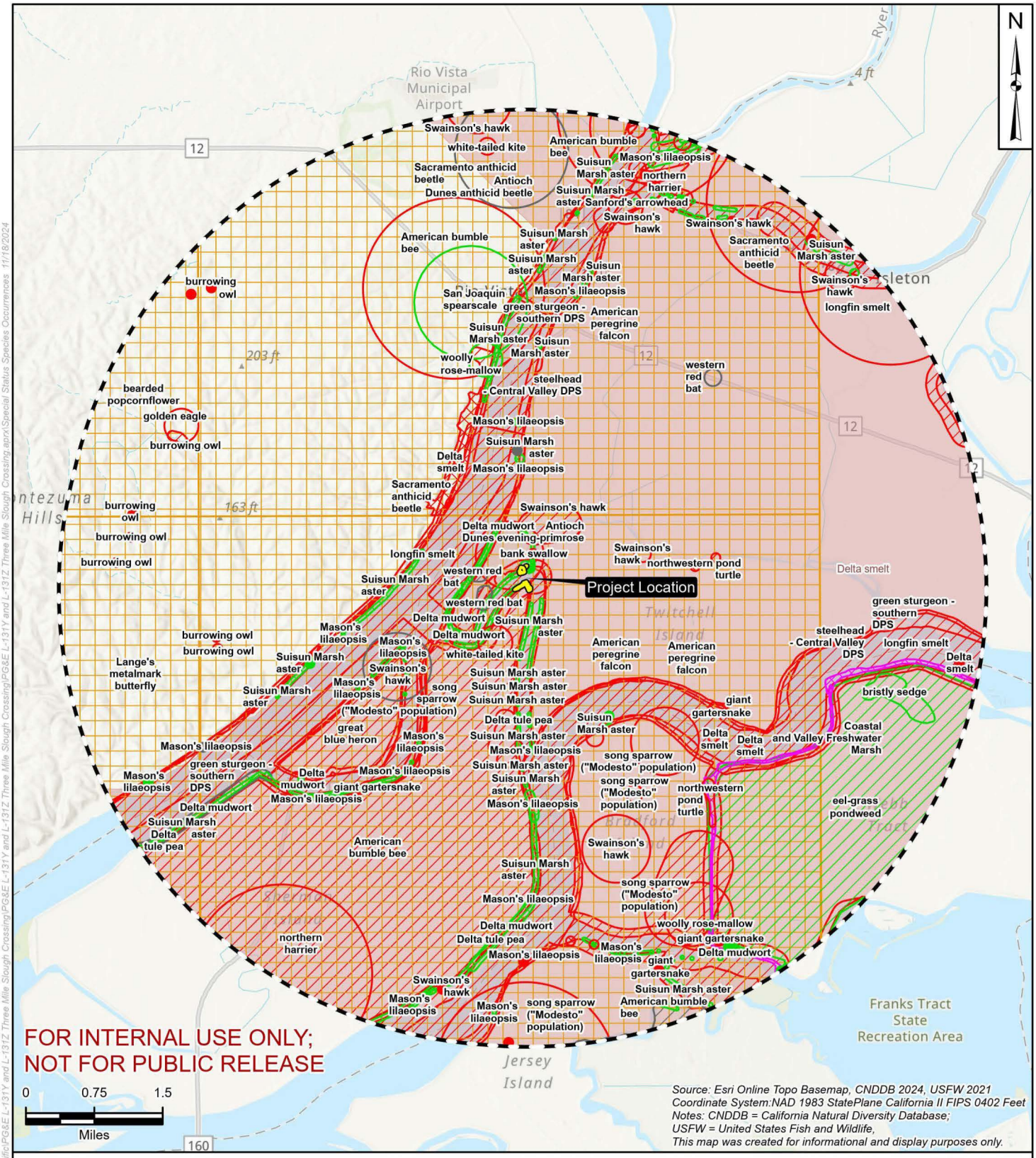
PROJECT NUMBER: 2402-1171

DATE: November 2024

AQUATIC RESOURCES IMPACT MAP

FIGURE 4

<TA>Z:\GIS Projects\GIS Maps\GIS Data\Project Specific\PG&E L-131Y and L-131Z Three Mile Slough Crossing\PG&E L-131Y and L-131Z Three Mile Slough Crossing.aprx\Aquatic Resources Impact Map, 11/12/2024 <TA>



Source: Esri Online Topo Basemap, CNDDB 2024, USFW 2021
Coordinate System:NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: CNDDB = California Natural Diversity Database;
USFW = United States Fish and Wildlife,
This map was created for informational and display purposes only.

LEGEND:

- Workpace
- Buffer Zone (5 miles)
- USFW Critical Habitat

CNDDB Occurrences

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (specific)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)

MAP EXTENT:



padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-131Y & L-131Z
THREE MILE SLOUGH CROSSING REMEDIATION
SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: November 2024

SPECIAL STATUS SPECIES OCCURRENCES

FIGURE 5

Z:\GIS Projects\GIS Maps\GIS Data\Project Specific\PG&E L-131Y and L-131Z Three Mile Slough Crossing\PG&E L-131Y and L-131Z Three Mile Slough Crossing apx\Special Status Species Occurrences 11182024

Photograph A. View across Threemile Slough where the pipelines will be decommissioned, taken from the southern bank on Sherman Island. View northwest (photograph taken 8/15/24).	
Photograph B. View of the south bank of Threemile Slough. Photo shows rip rap along the waterside slope of the Sherman Island levee. View northeast (photograph taken 8/15/24).	

Photograph C. View of delta tule pea (*Lathyrus jepsonii* var. *jepsonii*) growing in Himalayan blackberry (*Rubus armeniacus*) and California rose (*Rosa californica*) patch on the south bank of Threemile Slough (photograph taken 8/15/24).	
Photograph D. View of Sherman Island East Levee Road along the levee crown and the California sycamore and coast live oak riparian woodland community along the southern bank of Threemile Slough. View northeast (photograph taken 8/15/24).	

Photograph E. View of the disturbed land within the study area on Sherman Island. This area has a high level of human disturbance and evidence of trash piles, burn piles, and dredge spoil disposal were observed. This area would be used for parking and construction staging. View northwest (photograph taken 8/15/24).	
Photograph F. View of the wild oats and annual brome grassland on the landward slope of the Sherman Island Levee. This area is routinely mowed. View southwest (photograph taken 8/15/24).	

Photograph G. South view of the approximate alignment of the L-131Y and L-131Z pipelines across Threemile Slough. The area of exposure proposed for remediation is in the foreground of this photo (photograph taken 8/15/24).	
Photograph H. View of the sandbar willow thickets vegetation community located along the northern bank of Threemile Slough. These willows will be removed for access to decommission and remove the previously abandoned pipelines. View northeast (photograph taken 8/15/24).	

Photograph I. View of a blue elderberry shrub (*Sambucus nigra ssp. caerulea*) located over the active L-131Y and L-131Z pipeline crossings on the north bank of Threemile Slough. This elderberry shrub may need to be removed or pruned for construction access to remediate the pipelines. View southwest (photograph taken 7/24/24).	
Photograph J. View of a blue elderberry shrub at the perimeter of the study area on Brannan Island. This elderberry shrub will remain in place and will not be impacted by construction. View west (photograph taken 8/15/24).	

Photograph K. View of the wild oats and annual brome grassland vegetation community located in the study area on Brannan Island. View north (photograph taken 8/15/24).	
Photograph L. View of the developed parking lot located within the study area on Brannan Island. This area will be used for parking and construction staging. View south (photograph taken 8/15/24).	

APPENDIX A

USFWS AND NMFS SPECIES LISTS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654

In Reply Refer To: 11/26/2024 21:23:43 UTC
Project Code: 2024-0081760
Project Name: PG&E Three Mile Slough Pipeline Crossings Remediation and Decommissioning

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed, and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (https://www.fws.gov/program/eagle-management/working-around-eagles). Additionally, wind energy projects should follow the wind energy guidelines (https://www.fws.gov/node/266177) for minimizing impacts to migratory birds and

bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation; and http://www.towerkill.com.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

PROJECT SUMMARY

Project Code: 2024-0081760
Project Name: PG&E Three Mile Slough Pipeline Crossings Remediation and Decommissioning
Project Type: Pipeline - Onshore - Maintenance / Modification - Below Ground
Project Description: Pipeline decommissioning and remediation
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.114616350000006,-121.68576130996959,14z



Counties: Sacramento County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
California Ridgway"s Rail *Rallus obsoletus obsoletus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4240

REPTILES

NAME	STATUS
Giant Garter Snake *Thamnophis gigas*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4482

AMPHIBIANS

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander *Ambystoma californiense*	Threatened

Population: U.S.A. (Central CA DPS)
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2076

Western Spadefoot *Spea hammondii*	Proposed Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5425

FISHES

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/321

Longfin Smelt *Spirinchus thaleichthys*	Endangered

Population: San Francisco Bay-Delta DPS
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9011

Longfin Smelt *Spirinchus thaleichthys*	Proposed Endangered

Population: San Francisco Bay-Delta DPS
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9011

INSECTS

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

FLOWERING PLANTS

NAME	STATUS
Soft Bird's-beak *Cordylanthus mollis ssp. mollis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8541	Endangered

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* https://ecos.fws.gov/ecp/species/321#crithab	Final

IPAC USER CONTACT INFORMATION

Agency: Padre Associates Inc.
Name: Robin Bedard
Address: 350 University Ave., suite 250
City: Sacramento
State: CA
Zip: 95827
Email rbedard@padreinc.com
Phone: 9163335920

From: ccvo consultationrequests - NOAA Service Account
To: Robin Bedard; Sarah Powell
Subject: Fwd: PG&E L-131Y and L-131Z Three Mile Slough Pipeline Remediation Project - Species List Request
Date: Tuesday, November 5, 2024 9:34:56 AM

Hi Robin,

Very sorry about this - we responded but forgot to include you on the email! Please feel free to reach out to Stephen Maurano if you have any questions.

Apologies again!
Tancy

---------- Forwarded message ---------
From: **Stephen Maurano - NOAA Federal** <stephen.maurano@noaa.gov>
Date: Fri, Sep 13, 2024 at 10:27 AM
Subject: Re: PG&E L-131Y and L-131Z Three Mile Slough Pipeline Remediation Project - Species List Request
To: ccvo consultationrequests - NOAA Service Account <ccvo.consultationrequests@noaa.gov>
Cc: _NMFS WCR CVO Consultation Tracking <ccvo.consultations@noaa.gov>, Garwin Yip - NOAA Federal <garwin.yip@noaa.gov>

Mr. Bedard,

This is in response to your September 6, 2024 email requesting NOAA's National Marine Fisheries Service (NMFS) technical assistance for the PG&E L-131Y and L-131Z Three Mile Slough Pipeline Remediation Project located in Jersey Island, California (approximate coordinates of the project location 38° 6'54.85"N, 121°41'6.85"W). Without a full project description, NMFS cannot determine the full extent of the overall action area, however, with the information available, the following listed species and critical habitats could occur in the project area:

Sacramento River winter-run Chinook salmon *(Oncorhynchus tshawytscha)*
endangered (January 4, 1994, 59 FR 440)
critical habitat (June 16, 1993, 58 FR 33212)

Central Valley spring-run Chinook salmon (*O. tshawytscha*)
threatened (June 28, 2005, 70 FR 37160)
critical habitat (September 2, 2005, 70 FR 52488)

California Central Valley steelhead (*O. mykiss*)
threatened (January 1, 2006, 71 FR 834)
critical habitat (September 2, 2005, 70 FR 52488)

Southern distinct population segment of North American green sturgeon (*Acipenser medirostris*)
threatened (April 7, 2006, 71 FR 17757)
critical habitat (October 9, 2009, 74 FR 52300)

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Pacific Fisheries Management Council has identified essential fish habitat (EFH) for Pacific coast salmon species

(*i.e.*, Chinook salmon) in Amendment 14 to the Pacific Coast Salmon Fishery Management Plan. Federal action agencies are mandated by the MSA (section 305(b)(2)) to consult with NMFS on all actions that may adversely affect EFH, and NMFS must provide EFH conservation recommendations to those agencies (section 305(b)(4)(A)).

Please let me know if you have any questions or concerns regarding this information.

Thank you,

Stephen Maurano
Acting Water Operations and Delta Consultations Branch Chief

---------- Forwarded message ---------
From: **Robin Bedard** <rbedard@padreinc.com>
Date: Fri, Sep 6, 2024 at 2:30 PM
Subject: PG&E L-131Y and L-131Z Three Mile Slough Pipeline Remediation Project - Species List Request
To: ccvo.consultationrequests@noaa.gov <ccvo.consultationrequests@noaa.gov>
Cc: Sarah Powell <spowell@padreinc.com>

To Whom It May Concern,

I would like to request an official species list from NMFS for species that may occur in the Jersey Island, California Quadrangle where PG&E L-131Y and L-131Z Three Mile Slough Pipeline Remediation Project will be occurring. The approximate coordinates of the project location are: 38° 6'54.85"N, 121°41'6.85"W. Could you please generate an official species list for the project that should be covered in our biological technical report as part of our environmental review for CEQA.

Please let me know if you need any additional information to general an official species list.

Thank you,
Robin Bedard

Robin E. Bedard
Staff Biologist
Padre Associates, Inc.
350 University Ave. Suite #250
Sacramento, CA 95825
Cell Phone: (760)223-1145

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>
> Please consider the environment before printing this email.

--

Stephen Maurano (he/him/his)
California Central Valley Office | NOAA Fisheries
(916) 214-2675

www.fisheries.noaa.gov



APPENDIX B

CNDDB QUERY RESULTS

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: BIOS selection

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Acipenser medirostris pop. 1 green sturgeon - southern DPS	G2T1 S1	Threatened None	AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern IUCN_EN-Endangered	0 32	14 S:3	0	2	0	0	0	1	0	3	3	0	0
Actinemys marmorata northwestern pond turtle	G2 SNR	Proposed Threatened None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	0 10	1140 S:3	0	1	1	0	0	1	2	1	3	0	0
Anthicus antiochensis Antioch Dunes anthicid beetle	G3 S3	None None		20 20	6 S:1	0	0	0	0	0	1	1	0	1	0	0
Anthicus sacramento Sacramento anthicid beetle	G4 S4	None None	IUCN_EN-Endangered	15 30	13 S:3	0	0	0	0	0	3	3	0	3	0	0
Apodemia mormo langei Lange's metalmark butterfly	G5T1 S1	Endangered None		10 10	1 S:1	0	0	0	0	0	1	0	1	1	0	0
Aquila chrysaetos golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern	117 117	332 S:1	0	0	0	0	0	1	1	0	1	0	0
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	10 10	156 S:1	0	0	0	0	0	1	1	0	1	0	0
Athene cunicularia burrowing owl	G4 S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	10 200	2057 S:8	0	6	1	0	0	1	7	1	8	0	0
Bombus pensylvanicus American bumble bee	G3G4 S2	None None	IUCN_VU-Vulnerable	-12 74	720 S:4	0	0	0	0	0	4	4	0	4	0	0
Buteo swainsoni Swainson's hawk	G5 S4	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	0 20	2577 S:12	1	0	1	0	0	10	5	7	12	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Carex comosa bristly sedge	G5 S2	None None	Rare Plant Rank - 2B.1 IUCN_LC-Least Concern	-21 -21	31 S:1	0	0	1	0	0	0	1	0	1	0	0
Circus hudsonius northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	-10 4	82 S:2	0	0	0	0	0	2	0	2	2	0	0
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	G3 S2.1	None None			60 S:1	0	0	0	0	0	1	1	0	1	0	0
Elanus leucurus white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	-5 19	190 S:2	0	0	0	0	0	2	0	2	2	0	0
Eucerceris ruficeps redheaded sphecid wasp	G1G3 S2	None None		7 7	4 S:1	0	0	0	0	1	0	1	0	0	1	0
Extriplex joaquinana San Joaquin spearscale	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden		127 S:1	0	0	0	0	0	1	1	0	1	0	0
Falco peregrinus anatum American peregrine falcon	G4T4 S3S4	Delisted Delisted	CDF_S-Sensitive	3 10	76 S:3	0	0	0	0	0	3	0	3	3	0	0
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	G5T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	0 2	173 S:3	0	1	1	0	0	1	1	2	3	0	0
Hypomesus transpacificus Delta smelt	G1 S1	Threatened Endangered	AFS_TH-Threatened IUCN_CR-Critically Endangered	0 0	29 S:4	0	0	0	1	0	3	0	4	4	0	0
Lasiurus cinereus hoary bat	G3G4 S4	None None	IUCN_LC-Least Concern	20 20	238 S:2	0	0	0	0	0	2	2	0	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Lasiurus frantzii western red bat	G4 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	20 20	128 S:2	0	0	0	0	0	2	2	0	2	0	0
Lathyrus jepsonii var. jepsonii Delta tule pea	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_BerrySB-Berry Seed Bank SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	0 10	133 S:7	0	0	4	1	0	2	2	5	7	0	0
Lilaeopsis masonii Mason's lilaeopsis	G2 S2	None Rare	Rare Plant Rank - 1B.1	0 13	206 S:29	0	11	12	2	0	4	7	22	29	0	0
Limosella australis Delta mudwort	G5 S2	None None	Rare Plant Rank - 2B.1	0 17	59 S:10	1	4	4	0	0	1	5	5	10	0	0
Melospiza melodia pop. 1 song sparrow ("Modesto" population)	G5T3?Q S3?	None None	CDFW_SSC-Species of Special Concern	0 20	92 S:10	0	0	0	0	0	10	1	9	10	0	0
Oenothera deltoides ssp. howellii Antioch Dunes evening-primrose	G5T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	10 10	10 S:1	0	0	1	0	0	0	0	1	1	0	0
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	G5T2Q S2	Threatened None	AFS_TH-Threatened CDFW_SSC-Species of Special Concern		31 S:1	0	0	0	0	0	1	0	1	1	0	0
Plagiobothrys hystriculus bearded popcornflower	G2 S2	None None	Rare Plant Rank - 1B.1	170 170	15 S:1	0	0	1	0	0	0	0	1	1	0	0
Potamogeton zosteriformis eel-grass pondweed	G5 S3	None None	Rare Plant Rank - 2B.2		20 S:1	0	0	0	0	0	1	1	0	1	0	0
Riparia riparia bank swallow	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	5 5	299 S:1	0	0	0	0	0	1	1	0	1	0	0
Sagittaria sanfordii Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	5 5	143 S:1	0	1	0	0	0	0	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Spirinchus thaleichthys pop. 2	G5TNRQ	Endangered	IUCN_LC-Least Concern	0	35	0	0	0	0	0	3	1	2	3	0	0
longfin smelt - San Francisco Bay-Delta DPS	S1	Threatened		0	S:3											
Symphyotrichum lentum	G2	None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	0	175	0	8	9	2	0	4	3	20	23	0	0
Suisun Marsh aster	S2	None		10	S:23											
Thamnophis gigas	G2	Threatened	IUCN_VU-Vulnerable	-10	381	0	1	3	0	0	1	2	3	5	0	0
giant gartersnake	S2	Threatened		5	S:5											

APPENDIX C

PLANT SPECIES OBSERVED

Plant Species Observed at the PG&E Threemile Slough Pipeline Crossings Remediation and Decommissioning Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
EQUISETACEAE (Horsetail Family)					
Common horsetail	*Equisetum arvense*	H	FAC	N	
ADOXACEAE (Muskroot Family)					
Blue elderberry	*Sambucus nigra* ssp. *caerulea*	S	FACU	N	
AMARANTHACEA (Amaranth Family)					
Alligator weed	*Alternanthera philoxeroides*	H	OBL	I	
APIACEAE (Carrot Family)					
Bur-chervil	*Anthriscus caucalis*	H	NL	I	
Fennel	*Foeniculum vulgare*	H	NL	I	
APOCYNACEAE (Dogbane Family)					
Indian hemp	*Apocynum cannabinum*	H	FAC	N	
ASTERACEAE (Sunflower Family)					
Ragweed	*Ambrosia sp.*	H	FACU		
Mugwort	*Artemisia douglasiana*	H	FAC	N	
Coyote brush	*Baccharis pilularis*	S	NL	N	
Italian thistle	*Carduus pycnocephalus* ssp. *pycnocephalus*	H	NL	I	
Yellow star-thistle	*Centaurea solstitialis*	H	NL	I	
Bull thistle	*Cirsium vulgare*	H	FACU	I	
Fleabane daisy	*Erigeron* sp.	H	NL		
Bristly ox-tongue	*Helminthotheca echioides*	H	FAC	I	
Telegraph weed	*Heterotheca grandiflora*	H	NL	N	
Prickly lettuce	*Lactuca serriola*	H	FACU	I	
Cocklebur	*Xanthium strumarium*	H	FAC	N	
BORAGINACEAE (Borage Family)					
Fiddleneck	*Amsinckia* sp.	H		N	
Alkali heliotrope	*Heliotropium curassavicum* var. *oculatum*	H	FACU	N	
BRASSICACEAE (Mustard Family)					
Black mustard	*Brassica nigra*	H	NL	I	
Perennial pepperweed	*Lepidium latifolium*	H	FAC	I	
CONVOLVULACEAE (Morning-Glory Family)					
Bindweed	*Convolvulus arvensis*	H	NL	I	
FABACEAE (Legume Family)					
Spanish clover	*Acmispon americanus* var. *americanus*	H	UPL	N	
Delta tule pea	*Lathyrus jepsonii* var. jepsonii	H	OBL	N	1B.2
California burclover	*Medicago polymorpha*	H	FACU	I	
Sourclover	*Melilotus indicus*	H	FACU	I	
Clover	*Trifolium* sp.	H			
Vetch	*Vicia* sp.	H			
Winter vetch	*Vicia villosa*	H	NL	I	
FAGACEAE (Oak Family)					
Coast live oak	*Quercus agrifolia*	T	NL	N	
Valley oak	*Quercus lobata*	T	FACU	N	

Plant Species Observed at the PG&E Threemile Slough Pipeline Crossings Remediation and Decommissioning Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
GERANIACEAE (Geranium Family)					
Storksbill	*Erodium* sp.	H			
HALORAGACEA (Water-Milfoil Family)					
Parrot's feather	*Myriophyllum aquaticum*	H	OBL	N	
JUGLANDACEAE (Walnut Family)					
Northern California black walnut	*Juglans hindsii*	T	FAC	N	1B.1
MALVACEAE (Mallow Family)					
Bull mallow	*Malva nicaeensis*	H	NL	I	
ONAGRACEAE (Evening Primrose Family)					
Hairy willow herb	*Epilobium ciliatum*	H	FACW	N	
Water primrose	*Ludwigia sp.*	H	OBL	I	
Smartweed	*Persicaria sp.*	H			
PLATANACEAE (Sycamore Family)					
Western sycamore	*Platanus racemosa*	T	FAC	N	
POLYGONACEAE (Buckwheat Family)					
False waterpepper	*Persicaria hydropiperoides*	H	OBL	N	
Willow weed	*Persicaria lapathifolia*	H	FACW	N	
Curly dock	*Rumex crispus*	H	FAC	I	
ROSACEAE (Rose Family)					
California rose	*Rosa californica*	S	FAC	N	
Himalayan blackberry	*Rubus armeniacus*	V	FAC	I	
RUBIACEAE (Madder Family)					
California button willow	*Cephalanthus occidentalis*	S	OBL	N	
SALICACEAE (Willow Family)					
Narrow-leaved willow	*Salix exigua*	S	FACW	N	
Gooding's black willow	*Salix goodingii*	T	FACW	N	
VERBENACEAE (Vervain Family)					
Shore vervain	*Verbena littoralis*	H	FACU	I	
ZYGOPHYLLACEAE (Caltrop Family)					
Puncture vine	*Tribulus terrestris*	H	NL	I	
ARECACEAE (Palm Family)					
Fan palm		T	FAC/FACW		
CYPERACEAE (Sedge Family)					
Sedge	*Carex* sp.	H			
Santa Barbara sedge	*Carex barbarae*	H	FAC	N	
Tall cyperus	*Cyperus eragrostis*	H	FACW	N	
Tule	*Schoenoplectus acutus* var. *occidentalis*	H	OBL	N	
HYDROCHARITACEAE (Waterweed Family)					
Brazilian waterweed	*Egeria densa*	H	OBL	I	
Frogbit	*Limnobium sp.*	H	OBL		
JUNCACEAE (Rush Family)					
Lamp rush	*Juncus effusus*	H	FACW	N	
POACEAE (Grass Family)					
Giant reed	*Arundo donax*	G	FACW	I	

Plant Species Observed at the PG&E Threemile Slough Pipeline Crossings Remediation and Decommissioning Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
Wild oat	*Avena* sp.	G		I	
Slender wild oat	*Avena barbata*	G	NL	I	
Wild oat	*Avena fatua*	G	NL	I	
Ripgut grass	*Bromus diandrus*	G	NL	I	
Soft chess	*Bromus hordeaceus*	G	FACU	I	
Bermuda grass	*Cynodon dactylon*	G	FACU	I	
Beardless wild rye	*Elymus triticoides*	G	NL	N	
Rattail sixweeks grass	*Festuca myuros*	G	FACU	I	
Hare barley	*Hordeum murinum* ssp. *leporinum*	G	FACU	I	
Dallis grass	*Paspalum dilatatum*	G	FAC	I	
Harding grass	*Phalaris aquatica*	G	FACU	I	
Common reed	*Phragmites australis*	G	FACW	N	
Rabbitfoot grass	*Polypogon monspeliensis*	G	FACW	I	
PONTEDERIACEAE (Pickerel-Weed Family)					
Water hyacinth	*Eichhornia crassipes*	H	OBL	I	
POTAMOGETONACEAE (Pondweed Family)					
Berchtold's pondweed	*Potamogeton berchtoldii*	H	OBL	N	
Crisp-leaved pondweed	*Potamogeton crispus*	H	OBL	I	
TYPHACEAE (Cattail Family)					
Narrow-leaved cattail	*Typha angustifolia*	H	OBL	I	

Wetland Indicator Status

OBL = Obligate wetland species, occurs almost always in wetlands (>99% probability)
FACW = Facultative wetland species, usually found in wetlands (67-99% probability)
FAC = Facultative species, equally likely to occur in wetland and non-wetlands (34-66% probability)
FACU = Facultative upland species, not usually found in wetlands (1-33% probability)
UPL = Upland species, almost never found in wetlands (<1% probability)
NI = No indicator has been assigned due to a lack of information to determine indicator status
NL = Not listed, assumed upland species

Sensitivity / Listing Status

FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate SE = California State Endangered ST = California State Threatened	1B.1 = Threatened in California and elsewhere, seriously threatened in California 1B.2 = Threatened in California and elsewhere, moderately threatened in California 2B = Plants rare, threatened, or endangered in California but more common elsewhere 3 = Plants about which more information is needed 4 = Plants of limited distribution
Growth Habit	**Native Status**
F = Fern G = Grass H = Herb S = Shrub T = Tree	N = Native I = Introduced

APPENDIX D

WILDLIFE SPECIES OBSERVED

Wildlife Species Observed at the PG&E Threemile Slough Pipeline Crossing Remediation and Decommissioning Project Site

Common Name/ Family	*Scientific Name*	Sensitivity / Listing Status[1]
REPTILES		
PHRYNOSOMATIDAE (spiny lizards)		
Western Fence Lizard	*Sceloporus occidentalis*	
BIRDS		
ANATIDAE (Ducks, Geese, and Swans)		
Mallard	*Anas platyrhynchos*	M
COLUMBIDAE (Pigeons and Doves)		
Rock Pigeon	*Columba livia*	
Eurasian Collared-Dove	*Streptopelia decaocto*	
PHALACROCORACIDAE (Cormorants)		
Double-crested Cormorant	*Phalacrocorax auritus*	M, WL
ARDEIDAE (Bitterns, Herons, and Allies)		
American Bittern	*Botaurus lentiginosus*	M
Great Blue Heron	*Ardea herodias*	M
Great Egret	*Ardea alba*	M
CATHARTIDAE (New World Vultures)		
Turkey Vulture	*Cathartes aura*	M
PANDIONIDAE (Ospreys)		
Osprey	*Pandion haliaetus*	M, WL
ACCIPITRIDAE (Hawks, Kites, Eagles, and Allies)		
Red-shouldered Hawk	*Buteo lineatus*	M
Swainson's Hawk	*Buteo swainsoni*	M, ST, BCC
TYTONIDAE (Barn Owls)		
Barn Owl	*Tyto alba*	M
ALCEDINIDAE (Kingfishers)		
Belted Kingfisher	*Megaceryle alcyon*	M
PICIDAE (Woodpeckers and Allies)		
Acorn Woodpecker	*Melanerpes formicivorus*	M
Nuttall's Woodpecker	*Picoides nuttallii*	M
FALCONIDAE (Caracaras and Falcons)		
American Kestrel	*Falco sparverius*	M
TYRANNIDAE (Tyrant Flycatchers)		
Say’s Phoebe	*Sayornis saya*	M
Ash-throated Flycatcher	*Myiarchus cinerascens*	M
LANIIDAE (Shrikes)		
Loggerhead Shrike	*Lanius ludovicianus*	M, CSC, BCC
CORVIDAE (Jays and Crows)		
California Scrub-Jay	*Aphelocoma californica*	M
American Crow	*Corvus brachyrhynchos*	M
HIRUNDINIDAE (Swallows)		
Bank Swallow	*Riparia riparia*	M, ST
Barn Swallow	*Hirundo rustica*	M
TROGLODYTIDAE (Wrens)		
Marsh Wren	*Cistothorus palustris*	M

Wildlife Species Observed at the PG&E Threemile Slough Pipeline Crossing Remediation and Decommissioning Project Site

Common Name/ Family	*Scientific Name*	Sensitivity / Listing Status[1]
TURDIDAE (Thrushes)		
Western Bluebird	*Sialia mexicana*	M
STURNIDAE (Starlings)		
European Starling	*Sturnus vulgaris*	
FRINGILLIDAE (Fringilline and Cardueline Finches and Allies)		
House Finch	*Haemorhous mexicanus*	M
EMBERIZIDAE (Emberizids)		
Song Sparrow	*Melospiza melodia*	M
MAMMALS		
DIDELPHIDAE (Opossums)		
Virginia Opossum	*Didelphis virginiana*	
Sensitivity / Listing Status[1]		
M = Protected under the federal Migratory Bird Treaty Act (MBTA) ST = California State Threatened CSC = California Species of Special Concern BCC = USFWS Birds of Conservation Concern WL = CDFW Watch List		

APPENDIX E

Special Status Wildlife Species
with the Potential to Occur at the Project Site

Special-Status Species Potential to Occur Table

TABLE E-1
SPECIAL STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR AT THE PROJECT SITE

Scientific Name	Common Name	Listing Status: Federal/State	Habitat Description	Potential for Occurrence within the Project Site
Invertebrates				
Apodemia mormo langei	Lange's metalmark butterfly	FE/__	Stabilized sand dunes of the Antioch Dunes, closely associated with Antioch Dunes buckwheat (*Eriogonum nudum* var. *psychicola*).	**None.** The Lange's metalmark butterfly is endemic to the Antioch Dunes and is not known to occur outside of the Antioch Dunes National Wildlife Refuge. The Project site is located outside of the known range of this species.
Branchinecta lynchi	Vernal pool fairy shrimp	FT/--	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**None**. There is no suitable vernal pool habitat to support this species at the Project site. The nearest recorded occurrence (Occ #667; 2019) is located approximately 10.0 miles west of the Project area.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT/--	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	**Moderate.** The Project site is within the known range of valley elderberry longhorn beetle (VELB) and several blue elderberry shrubs were identified within the Project study area and adjacent locations. The nearest recorded occurrence of VELB (Occ. #53; 1987) is located approximately 20.7 miles northeast of the Project area. MRHCP modeled habitat for the VELB occurs on the north bank of Three Mile Slough and in terrestrial areas south of Three Mile Slough at the Project location (ICF, 2020).
Lepidurus packardi	vernal pool tadpole shrimp	FE/--	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed & highly turbid.	**None.** There is no suitable vernal pool habitat to support this species at the Project site. The nearest recorded occurrence (Occ. #161; 2019) is located approximately 10.1 miles west of the Project area.
Fish				
Acipenser medirotris pop. 1	Green sturgeon – southern DPS	FT, CH/SSC	Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium-sized sand, gravel, cobble, or boulder.	**Moderate.** The project site lacks the conditions needed for green sturgeon spawning to occur. However, adult green sturgeon can occur during upstream migration to spawning locations. The Project area is located within the vicinity of recorded occurrence #9 from 2019, where observations of green sturgeon have been recorded in the Delta consistently since 1963. In addition, juvenile green sturgeon have been captured annually between 2015 and 2019 at the Sherman Island sampling station, approximately 7.7 miles downstream from the Project area (CDFW, 2019). Juveniles can occur year-round while rearing and during their outmigration to the Delta. Critical habitat for this species occurs in the project site.

Scientific Name	Common Name	Listing Status: Federal/State	Habitat Description	Potential for Occurrence within the Project Site
Acipenser transmontanus	White sturgeon	--/CT	Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium-sized sand, gravel, cobble, or boulder. Primarily reside in the San Francisco Estuary.	**Moderate.** Adult white sturgeon could occur in the project area during upstream migration to spawning areas on the Sacramento River. Juveniles could occur while rearing and during their outmigration to the Delta.
Hypomesus transpacificus	Delta smelt	FT, CH/SE	Euryhaline (tolerant of a wide salinity range) species that is confined to the San Francisco Estuary, principally in the Delta and Suisun Bay. They occur in the Delta primarily below Isleton on the Sacramento River side and below Mossdale on the San Joaquin River side. They are found seasonally throughout Suisun Bay and in small numbers in larger sloughs of Suisun marsh. They move into sloughs and channels of the western Delta (e.g., Lindsey Slough) when spawning (mainly March-April). Can be washed into San Pablo Bay during high-outflow periods, but do not establish permanent populations there.	**Moderate.** Suitable habitat occurs at the Project area. Delta smelt were captured during 2022 surveys within 1 mile of the Project area (Bashevkin et al., 2024). The nearest recorded CNDDB occurrence (Occ. #7; 2019) is located approximately 0.6 miles west of the Project area, on the opposite side of Brannan Island in the Delta. Critical habitat for the species occurs in the project site.
Lampetra ayresii	River lamprey	--/SSC	Adults need clean, gravelly riffles in permanent streams to spawn successfully. Ammocoetes live in silty backwaters and eddies with muddy or sandy substrate into which they burrow.	**Moderate.** Can occur in lower Sacramento and San Joaquin rivers, however, the project site lacks suitable habitat needed for adult spawning and ammocoetes. May be present at the project site during migration periods.
Lampetra tridentatus	Pacific lamprey	--/SSC	Adults need clean, gravelly riffles in permanent streams to spawn successfully. Ammocoetes live in silty backwaters and eddies with muddy or sandy substrate into which they burrow.	**Moderate.** Can occur in lower Sacramento and San Joaquin rivers. Species occupies much of its native range, but at much smaller numbers than previously observed. In addition, the project site lacks suitable habitat needed for adult spawning and ammocoetes. May be present at the project site during migration periods.
Lavinia exilicauda exilicauda	Central California roach	--/SSC	Occurs in small, warm tributaries to larger streams that flow through open foothill woodlands of oak and foothill pine. Located in the foothills in much of the same region that contains the pikeminnow-hardhead-sucker assemblage.	**Low.** Has been observed in the lower Sacramento River but typically occurs upstream of large reservoirs or in tributary streams.
Lavinia symmetricus	Sacramento hitch	--/SSC	Sacramento hitch inhabit warm lowland waters including clear streams, turbid sloughs, lakes, and reservoirs.	**Low.** Historically found throughout the Sacramento and San Joaquin valleys, but the species is experiencing long-term decline. In the Sacramento River, hitch appear to be spread across much of their native range, however, populations are scattered and found in low numbers.

Scientific Name	Common Name	Listing Status: Federal/State	Habitat Description	Potential for Occurrence within the Project Site
Mylopharodon conocephalus	Hardhead	--/SSC	Hardhead are often found at low to mid elevations in relatively undisturbed habitats of larger streams with high water quality (clear, cool).	**Low.** In the Sacramento River, they are common, however, populations are declining and becoming small and isolated.
Oncorhynchus mykiss irideus pop. 11	Steelhead – Central Valley DPS	FT, CH/SSC	This DPS enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin rivers, Delta, and San Pablo and San Francisco bays.	**Moderate**. Primarily present during in-migration (adults) and out-migration (juveniles) periods. Spawning occurs upstream of the project site, however, critical habitat for the species occurs in Three Mile Slough. The Project area is located within the vicinity of recorded CNDDB occurrence #27 from 2012, where observations of steelhead have been recorded in the Delta consistently since 1976.
Oncorhynchus tshawytscha pop. 7	Chinook salmon - Sacramento River winter-run ESU	FT/SE	Anadromous species using riverine, estuarine, and saltwater habitat. Adult migration occurs from January through May. Juvenile outmigration occurs from November through mid-March.	**Moderate**. Primarily present during in-migration (adults) and out-migration (juveniles) periods. Spawning occurs in tributaries of the upper Sacramento River.
Oncorhynchus tshawytscha pop. 11	Chinook salmon - Central Valley spring-run ESU	FT, CH/ST	Anadromous species using riverine, estuarine, and saltwater habitat. Adult migration occurs from March through May. Juvenile outmigration occurs from November through April.	**Moderate**. Primarily present during in-migration (adults) and out-migration (juveniles) periods. Spawning occurs in tributaries of the upper Sacramento River, however, critical habitat for the species occurs in the project site.
Oncorhynchus tshawytscha pop. 13	Chinook salmon – Central Valley fall-/ late fall-run ESU	--/SSC	Anadromous species using riverine, estuarine, and saltwater habitat. Adult migration occurs from June through December. Juvenile outmigration occurs from March through July.	**Moderate.** Primarily present during in-migration (adults) and out-migration (juveniles) periods. Spawning occurs upstream of the project site. CDFW spring Kodiak trawl surveys captured Central valley fall-run Chinook salmon at the confluence of the Sacramento River and Three Mile Slough approximately one mile downstream of the Project area in April 2023 (station 707)(IEP, 2024).
Pogonichthys macrolepidotus	Sacramento splittail	--/SSC	Splittail spawn in shallow water over flooded vegetated habitat with a detectable water flow. Splittail larvae and juveniles remain in riparian or annual vegetation along shallow edges on floodplains	**Moderate.** Historically, Sacramento splittail were found as far north as Redding, CA. However, they are now largely confined to the Delta, Suisun Bay, Suisun Marsh, and the Napa and Petaluma rivers. May occur in Three Mile Slough during in-migration (adults) and out-migration (juveniles) periods.
Spirinchus thaleichthys	longfin smelt – San Francisco Bay-Delta DPS	FE/ST	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt but can be found in completely freshwater to almost pure seawater.	**Moderate.** Suitable habitat occurs at the Project area. Individuals were routinely captured upstream and downstream of the Project area during the 2023 CDFW 20-millimeter (mm) survey (stations 705, 706, 707, 711) (IEP, 2024). The Project area also occurs in the vicinity of CNDDB recorded occurrence #17 from 2012 where observations of longfin smelt have been recorded consistently since 1946.

Scientific Name	Common Name	Listing Status: Federal/State	Habitat Description	Potential for Occurrence within the Project Site
Amphibians				
Ambystoma californiense pop. 1	California tiger salamander – Central California DPS	FT/ST	Frequents grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. Usually breeds in temporary ponds such as vernal pools, but may also breed in slower parts of streams and some permanent waters. Ponds with large populations of California tiger salamander larvae usually contain very few larvae of other amphibian species. Requires long-lasting vernal pools to complete larval development of a minimum of approximately 10 weeks. Adults can migrate up to 1.5 mi from breeding ponds in upland habitat.	**Low.** There is no suitable aquatic breeding habitat at the Project site or in the surrounding area to support this species. Due to the Project site's isolated location on two islands in the delta, California tiger salamander is unlikely to disperse into the study area from known occurrences. The nearest recorded occurrence (Occ. #849; 2007) is located approximately 9.4 miles northwest of the Project area in the Montezuma Hills west of the Sacramento River and there are no CNDDB occurrences of this species on Brannan Island or Sherman Island. Terrestrial areas north and south of Three Mile Slough are modeled as CTS potential upland habitat in PG&E's MRHCP (ICF, 2020). The terrestrial habitat north of Three Mile Slough within the state park supports small mammal burrows, which are important components of CTS upland habitat; however, the density of burrows within the study area was extremely low and suitable breeding habitat in the surrounding area and within Brannan Island is limited. Therefore, the probability of occurrence for CTS is considered low.
Rana draytonii	California red-legged frog	FT/--/SSC	Found in marshes, lakes, reservoirs, ponds, slow moving segments of streams, and other usually permanent water in lowlands, foothill woodlands, and grasslands. Requires aquatic habitat with extensive emergent vegetation.	**None.** There is no suitable aquatic habitat at the Project site to support this species. The nearest recorded occurrence (Occ. #531; 2002) is located approximately 12.1 miles south
Spea hammondii	western spadefoot Northern DPS	FPT/SSC	Occurs throughout the Central Valley and adjacent foothills primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying. Most of the year is spent in underground burrows up to 36 inches deep, which they construct themselves.	**None**. There is no suitable aquatic habitat at the Project site to support this species. The nearest recorded occurrence (Occ. #1,366) is located approximately 18.0 miles southeast of the Project location. However, this is a historical occurrence from 1922 and is likely extirpated. The nearest occurrences from the last 20 years is located approximately 30.3 miles from the Project site (Occ. #630 and #1497).

Scientific Name	Common Name	Listing Status: Federal/State	Habitat Description	Potential for Occurrence within the Project Site
Reptiles				
Actinemys marmorata	Northwestern pond turtle	FPT/SSC	Highly aquatic species found in a broad range of aquatic habitats including rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes, and other inundated wetlands. May use brackish, semi-permanent, or ephemeral features when inundated. Requires basking sites and loose soil in surrounding uplands suitable for nest excavation. Occurs throughout non-desert California from 0 to 6,700 feet.	**High.** Three Mile Slough provides suitable aquatic habitat to support this species, and suitable basking sites were observed within the study area during surveys. Potentially suitable nesting habitat is present along the north and south banks of Three Mile Slough, particularly in sandy substrate. The nearest recorded occurrence (Occ. #1,344; 2016) is located approximately 1.8 miles east of the Project location near Seven Mile Slough.
Thamnophis gigas	Giant garter snake	FT/ST	Freshwater marshes and streams. Has adapted to drainage canals and irrigation ditches with slow moving water, especially around rice fields. Prefers locations with vegetation close to the water for basking. Breeds in forests and streamside trees where it can hunt its prey by ambush in the dense cover. Has also been known to forage in residential areas.	**Moderate.** Potentially suitable aquatic habitat is present at the Project site on the north and south banks of Three Mile Slough. Emergent vegetation present within Three Mile Slough could provide suitable cover and foraging habitat for giant gartersnake (GGS). Suitable upland habitat occurs in adjacent terrestrial areas, particularly north of Three Mile Slough where small mammal burrows are present, though the density of small mammal burrows within the study area was low. The nearest recorded occurrence (Occ. #150; 1998) is located approximately 1.4 miles southwest of the Project location where an individual was observed on the water side of a levee along the Sacramento River. A more recent occurrence is located approximately 2.5 miles southeast of the Project area on the south side of Twitchell Island along the San Joaquin River where GGS were observed basking in 2016 (CNDDB Occ. #407). MRHCP modeled habitat for giant gartersnake upland and aquatic habitat occurs on Three Mile Slough and surrounding upland areas at the Project location (ICF, 2020).
Birds				
Aquila chrysaetos	Golden eagle	--/FP, WL	Forages on ground in cropland and grassland. Nests near or over freshwater. Prefers emergent marsh of dense cattails or tules for nesting, but also nests in thickets of willow, blackberry, wild rose, and tall herbs. Nesting area must be large enough to support a minimum colony of about 50 pairs. Occurs primarily in the Central Valley and in coastal areas south of Sonoma County.	**Low-Nesting/Moderate Foraging.** Although potentially suitable large trees are present in the vicinity of the study area, they are unlikely to support nesting of golden eagle due to their location in a public state recreational area with elevated levels of human disturbance. The nearest recorded occurrence (Occ. #342; 1984) is located approximately 3.9 miles northwest of the Project area where a nest was observed in a power pole. There are numerous eBird observations in the vicinity of the study area.

Scientific Name	Common Name	Listing Status: Federal/State	Habitat Description	Potential for Occurrence within the Project Site
Athene cunicularia	burrowing owl	--/CE, SSC	Nests and forages in grasslands, agricultural fields, and low scrub habitats, especially where ground squirrel burrows are present; occasionally inhabits artificial structures and small patches of disturbed habitat.	**Moderate.** The Project area is located within the mapped limits of occurrence #486 from 1989 where one individual burrowing owl was observed at Brannan Island State Recreation Area. A more recent recorded occurrence (Occ. #2081; 2010) is located approximately 3.4 miles west of the Project area. There are numerous eBird observations in the vicinity of the study area.
Buteo swainsoni	Swainson's hawk	--/ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**High.** Suitable nesting habitat is present within the study area and suitable foraging habitat occurs onsite and in the surrounding area. One Swainson's hawk adult was observed soaring over Brannan Island during surveys conducted on August 15, 2024. The nearest recorded occurrence (Occ. #1,674; 2003) is located approximately 0.3 miles north of the Project area on Twitchell Island. There are numerous eBird observations in the vicinity of the study area.
Circus hudsonius	northern harrier	--/SSC	Occurs in annual grassland up to lodgepole pine and alpine meadow habitat as high as 10,000 feet. Breeds from sea level to 5,700 feet in the Central Valley and Sierra Nevada Mountains, and up to 3,600 feet in northeastern California. Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetland, though seldom found in wooded areas. Uses tall grasses and forbs in wetlands, or at the wetland/field border, for cover. Roosts and nests on the ground in shrubby vegetation, usually at marsh edges. Mostly nests in emergent wetlands or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water.	**Low-Nesting/High-Foraging.** Suitable foraging habitat is present at the Project site. Nesting habitat is limited due to the high level of disturbance present in the upland portions of the study area. The nearest recorded occurrence (Occ. #91; 2007) is located approximately 4.0 miles southwest of the Project area. There are numerous eBird observations in the vicinity of the study area.
Elanus leucurus	white-tailed kite	--/FP	Inhabits rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Moderate-Nesting/High-Foraging.** Suitable foraging habitat is present at the Project site. Potentially suitable nesting habitat is also present in the trees and shrubs surrounding the study area. The nearest recorded occurrence (Occ. #193; 2007) is located approximately 0.5 miles southwest of the Project area, just east of Three Mile Slough, where a breeding pair was observed hunting and courting in the company of one juvenile. Habitat in the vicinity of this occurrence consisted of grassland and pastureland with scattered trees. There are numerous eBird observations in the vicinity of the study area.

Scientific Name	Common Name	Listing Status: Federal/State	Habitat Description	Potential for Occurrence within the Project Site
Falco peregrinus anatum	American peregrine falcon	FDL/SDL	Found in a variety of open habitats. Nests consists of a scrape or a depression or ledge in an open cliff sites, banks, dunes, mounds, or man-made structures near wetlands, lakes, rivers or other water.	**Low-Nesting/High-Foraging.** There is no suitable nesting habitat within one mile of the Project site although this species may be observed foraging within the study area. Occurrence #79 from 2018 is mapped to a non-specific area within the Jersey Island quadrangle which includes the Project site. This species is known to nest on bridges in the region. There are numerous eBird observations in the vicinity of the study area.
Melospiza melodia pop. 1	Song sparrow "Modesto" population	--/SSC	Emergent freshwater marshes dominated by tule (*Scirpus spp*., *Schoenoplectus spp*.) and cattail (*Typha spp.)* as well as riparian willow (*Salix spp*.) thickets. Also nest in riparian forests of valley oak (*Quercus lobata*) with a sufficient understory of blackberry (*Rubus spp*.), along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites.	**Moderate.** Suitable nesting and foraging habitat is present at the Project site. Song sparrows were observed during surveys conducted on August 15, 2024, although it is not clear if it was the Modesto population. The nearest recorded occurrence (Occ. #41; 2008) is located approximately 1.3 miles southwest of the study area. There are numerous eBird observations in the vicinity of the study area.
Rallus obsoletus obsoletus	California Ridgway's rail	FE/SE, FP	Require tidal sloughs that have direct tidal circulation, predominant cover of pickleweed with stands of California cordgrass (*Spartina foliosa*) at lower elevations, high marsh cover consisting of tall stands of pickleweed, gumplant, wrack, and abundant invertebrate populations for foraging.	**None.** There is no suitable saltmarsh habitat present at the Project site to support this species. The nearest recorded occurrence (Occ. #102; 1994) is located approximately 17.1 miles southwest of the Project area.
Riparia riparia	Bank swallow	--/ST	Can be found along rivers and streams near the steep eroded banks where they nest. Can also be found nesting in quarries and road cuts.	**Low-Nesting/High-Foraging.** There is no suitable nesting habitat within the study area to support this species due to a lack of step eroded banks where cavity nests could occur. There is, however, an occurrence (Occ. #201; 2000) located approximately 990 feet northeast of the Project area at the Brannan Island State Recreation Area on a sandy outcrop along Seven Mile Slough. This species has commonly been observed on Decker, Sherman, Twtichell, and Bradford Island in recent years and may forage in the Project area**.** There are several eBird observations in the vicinity of the study area.

Scientific Name	Common Name	Listing Status: Federal/State	Habitat Description	Potential for Occurrence within the Project Site
Mammals				
Lasiurus frantzii	western red bat	--/SSC	Tree bat associated with cottonwoods in riparian areas at elevations below 6,500 ft. Favors roosts where leaves form a dense canopy and branches do not obstruct their flyway. Known to roost in orchards, especially in the Sacramento Valley. Typically feeds along forest edges, in small clearings, and around streetlights where they hunt moths. Day roosts are typically in edge habitats adjacent to streams or open fields, in orchards, and sometimes urban areas. Occasionally uses caves.	**Moderate.** Potentially suitable roosting habitat is present in the riparian trees on Brannan Island and Sherman Island. The nearest recorded occurrence (Occ. #64; 1999) is located approximately 0.4 miles west of the Project area in cottonwood and sycamore trees on Brannan Island.

KEY:

Federal: (USFWS)
- *FDL = Federally Delisted*
- *FE = Listed as Endangered by the Federal Government*
- *FT = Listed as Threatened by the Federal Government*
- *FPT = Proposed for listing as Threatened by the Federal Government*
- *CH = Designated Critical Habitat occurs in a portion of the Study Area*

State: (CDFW)
- *SDL = State Delisted*
- *SE = Listed as Endangered by the State of California*
- *ST = Listed as Threatened by the State of California*
- *CE = Candidate for listing as Endangered by the State of California*
- *CT = Candidate for listing as Threatened by the State of California*
- *SSC = California Species of Special Concern*
- *FP = CDFW Fully Protected Species*

SOURCES: CDFW 2026a; CNPS, 2026; AND USFWS 2026

TABLE E-2
SPECIAL-STATUS PLANT SPECIES AND SENSITIVE NATURAL COMMUNITIES WITH THE POTENTIAL TO OCCUR AT THE PROJECT SITE

Scientific Name	Common Name	Listing Status: Federal/State/CRPR	Habitat Description	Potential for Occurrence within the Project Site
Plants				
Carex comosa	bristly sedge	--/--/2B.1	Perennial rhizomatous herb found in wet areas in coastal prairie and valley and foothill grassland, and along lake margins from 0 to 2,050 feet. Known from the Klamath Ranges, Modoc Plateau and Warner Mountains, inner north coast ranges, high Cascade Range, Central Valley, Bay Area, central coast, and San Bernardino Mountains. Blooms May through September.	**Moderate.** Potentially suitable habitat is present at the Project site along Three Mile Slough. The nearest recorded historic occurrence (Occ. #4; 1988) is located approximately 3.9 miles southeast of the Project area. The nearest recent occurrence (Occ. #11; 2009) is located approximately 13.5 miles northeast of the Project area. Occurrences of this species are located in tidal marsh habitat along sloughs.
Chloropyron molle ssp. molle	Soft salty bird's-beak	FE/--/1B.2	Saltmarsh and coastal wetlands from 0 to 33 feet in elevation. Blooms from July to October.	**None**. There is no suitable salt marsh habitat present at the Project site to support this species. The nearest recorded historic occurrence (Occ. #18; 1972) is located approximately 6.5 miles southwest of the Project area. The nearest recent occurrence (Occ. #28; 2017) is located approximately 12.3 miles northwest of the Project area.
Extriplex joaquinana	San Joaquin spearscale	--/--/1B.2	Annual herb found in alkaline soils of chenopod scrub, meadows and seeps, playas, and valley and foothill grassland from 5 to 2,740 feet. Known from the inner north Coast Range, Great Valley, central coast, San Francisco Bay, and east slope of the inner south Coast Range. Blooms April through October.	**None.** There is no suitable habitat present at the Project site to support this species. The nearest recorded occurrence (Occ. #22) is located approximately 2.4 miles north of the Project area. However, this is a historical occurrence from 1891. The nearest recent occurrence (Occ. #132; 2015) is located approximately 12.6 miles southwest of the Project area.
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	--/--/1B.2	Emergent perennial rhizomatous herb found in freshwater marshes and swamps from 0 to 395 feet. Often occurs in riprap on sides of levees. Most occurrences are very small. Known from Butte, Colusa, Contra Costa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties. Blooms June through September.	**Moderate.** Potentially suitable habitat is present along the north and south banks of Three Mile Slough. The nearest recorded occurrence (Occ. #36) is located approximately 2.1 miles north of the Project area. However, this is a historical observation from 1891. The nearest, recent occurrence (Occ. #197; 2012) is located approximately 4.1 miles southeast of the Project area on a small levee.

Scientific Name	Common Name	Listing Status: Federal/State/CRPR	Habitat Description	Potential for Occurrence within the Project Site
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	--/--/1B.2	Perennial herb found in freshwater and brackish marshes and swamps from 0 to 15 feet. Known from Contra Costa, Napa, Sacramento, San Joaquin, Solano, Sonoma, and Yolo counties. Most populations are small. Blooms May through July, sometimes August through September.	**Present.** Delta tule pea was observed within the Project area during surveys conducted on August 15, 2024. The plant was not blooming but was identifiable at the time of the surveys. The nearest recorded occurrence of this species (Occ. #145; 2009) is located approximately 1.4 miles south of the Project area on the banks of Three Mile Slough.
Lilaeopsis masonii	Mason's lilaeopsis	--/SR/1B.1	Perennial rhizomatous herb found in riparian scrub and in brackish or freshwater marshes and swamps from 0 to 35 feet. Typically occurs in tidal zones in muddy or silty soil formed through river deposition or riverbank erosion. Known from the Central Valley, Bay Area, and central coast. Blooms April through November.	**Moderate**. Suitable habitat is preset at the Project site, particularly along the south bank of Three Mile Slough, though suitable mudflat substrate is limited due to the presence of existing rip rap. Small areas of mud substrate are present in interstitial spaces between rocks observed in several locations on the south bank. Occurrences of this species, if present, would be limited to small populations or occurrences of individual plants. The nearest recorded occurrence (Occ. #37; 2009) is located approximately 390 feet east of the Project area and 556 feet west of the Project area, along Three Mile Slough within Brannan Island State Recreation Area.
Limosella australis	Delta mudwort	--/--/2B.1	Perennial stoloniferous herb typically found on mud banks of brackish and freshwater marshes and swamps, and in riparian scrub from 0 to 10 feet. In California, known only from the tidally influenced portions of the lower Sacramento-San Joaquin Delta in Contra Costa, Sacramento, San Joaquin, and Solano counties. Native status in California is debated. Treated as naturalized in the first and second editions of the Jepson Manual. Blooms May through August.	**Moderate.** Suitable habitat is preset at the Project site, particularly along the south bank of Three Mile Slough, though suitable mudflat substrate is limited due to the presence of existing rip rap. Small areas of mud substrate are present in interstitial spaces between rocks observed in several locations on the south bank. Occurrences of this species, if present, would be limited to small populations or occurrences of individual plants. The nearest recorded historic occurrence (Occ. #57; 1986) is located approximately 265 feet east of the Project area on the northeast side of Brannan Island State Recreation Area. The nearest, recent occurrence (Occ. #8; 2009) is located approximately 0.4 miles west of the Project area on the opposite side of Brannan Island.

Scientific Name	Common Name	Listing Status: Federal/State/CRPR	Habitat Description	Potential for Occurrence within the Project Site
Oenothera deltoides ssp. *howellii*	Antioch Dunes evening-primrose	FE/SE/1B.1	Inland dunes and remnant river bluffs at elevations ranging from sea level to approximately 100 feet. Blooms from March to September.	**Moderate**. Limited suitable habitat is present for this species within the study area on the north side of Three Mile Slough in areas with sandy substrate, though no sand dunes occur and sandy substrate within the study area occurs in areas of high disturbance. Occurrence #5 is partially mapped within the study area. This occurrence of Antioch Dunes evening-primrose has been observed consistently since 1980 on the remnants of native dune habitat and was observed during surveys conducted on August 15, 2024, approximately 200 feet east of the Project study area.
Plagiobothrys hystriculus	bearded popcornflower	--/--/1B.1	Annual herb found in mesic valley and foothill grassland and margins of vernal pools and vernal swales from 0 to 900 feet. Known from Napa, Solano, and Yolo counties. Blooms April through May.	**None.** There is no suitable vernal pool habitat to support this species at the Project site. The nearest recorded occurrence (Occ. #8; 2005) is located approximately 3.6 miles northwest of the Project area in a vernal swale.
Potamogeton zosteriformis	Eel-grass pondweed	--/--/2B.2	In freshwater marsh wetlands at elevations ranging from sea level to approximately 4,265 feet. Blooms from June to July.	**Low.** Aquatic habitats at the Project site are brackish and would not provide suitable habitat for eel-grass pondweed. The nearest recorded occurrence (Occ. #7) is located approximately 2.9 miles southeast of the Project area on Webb Island; however, this is a historical occurrence from 1949. All other recorded occurrences are located over 75.0 miles from the Project area and contemporary occurrences are in freshwater lakes and creeks, primarily in Shasta County, CA.
Sagittaria sanfordii	Sanford's arrowhead	--/--/1B.2	Emergent perennial rhizomatous herb found in standing or slow-moving water of shallow freshwater marshes, swamps, ponds, and ditches from 0 to 2,135 feet. Known from the Klamath Ranges, north and south coasts, Cascade Range foothills, and Central Valley. Blooms May through October, and sometimes into November.	**Moderate.** Potentially suitable habitat is present along Three Mile Slough at the Project site. The nearest recorded occurrence (Occ. #84; 2009) is located approximately 4.2 miles north of the Project location on an exposed sandy shoreline of the Sacramento River with similar site conditions to those present at the Project site.

Scientific Name	Common Name	Listing Status: Federal/State/CRPR	Habitat Description	Potential for Occurrence within the Project Site
Symphyotrichum lentum	Suisun Marsh aster	--/--/1B.2	Perennial rhizomatous herb found in freshwater or brackish marshes and swamps from 0 to 10 feet. Known from the Sacramento Valley, Bay Area, and central coast. Blooms from May to November, and sometimes as early as April.	**Moderate.** Suitable habitat is present along the banks of Three Mile Slough at the Project site. The Project area is located within the mapped limits of Occurrence #32 from 2009, where Suisun marsh aster was found on both sides of Three Mile Slough and along the southern portion of Brannan Island.
Sensitive Natural Communities				
Coastal and Valley Freshwater Marsh	--	--/S2.1/--	A permanently flooded freshwater marsh dominated by emergent perennial monocots 4-5m tall. Often lacks a significant current that allows deep, peaty soils to accumulate. Characteristic species include *Carex* sp., *Eleocharis* sp., *Scirpus* sp., *Schoenoplectus* sp., *Typha* sp., and *Verbena bonariensis*. Most extensive in the upper portion of the Sacramento-San Joaquin River Delta. Commonly occurs in the Sacramento and San Joaquin valleys in river oxbows and other flood plain areas.	**None.** This sensitive natural community does not occur in the project site.
Great Valley Mixed Riparian Forest	--	--/S2.2/--	Tall, dense, winter-deciduous, broadleafed riparian forest. Tree canopy is usually fairly well closed and moderately to densely stocked with several species. Soil is relatively fine-textured alluvium set back from active river channels. Flooding does occur, but erosion and physical battering is not too severe. Occurs on floodplains of low-gradient, depositional streams of the Great Valley, usually below 500 feet. Characteristic species include: *Acer negundo californica, Juglans hindsii, Platanus racemosa, Populus fremontii,* and *Salix* spp.	**None.** This sensitive natural community does not occur in the project site.
Great Valley Valley Oak Riparian Forest	--	--/S1.1/--	A closed-canopy deciduous riparian forest dominated by *Quercus lobata* with a scattered understory, including lianas, *Fraxinus latifolia*, *Juglans hindsii*, and *Platanus racemosa*. Occurs in the highest parts of river floodplains above the active river channels, in areas with silty alluvium deposits and subsurface water. Occurs in the San Joaquin watershed and on the floodplains of the Kings and Kaweah rivers.	**None.** This sensitive natural community does not occur in the project site.

Scientific Name	Common Name	Listing Status: Federal/State/CRPR	Habitat Description	Potential for Occurrence within the Project Site
Valley Oak Woodland	--	--/S2.1/--	On deep, well-drained alluvial soils, usually in valley bottoms, apparently with more moisture in summer than in blue oak woodland. Intergrades with valley oak riparian forest near rivers and with blue oak woodland on drier slopes. Also found on nonalluvial settings in the South Coast and Transverse ranges. Fire may have prevented some valley oak stands from succeeding to Ponderosa pine or Coulter pine forests before fire suppression. Typically consists of open stands with grassy savanna understory rather than a closed woodland. *Quercus lobata* is usually the only tree present. Most stands consist of open-canopy growth form trees and seldom exceed 30-40% absolute cover.	**None.** This sensitive natural community does not occur in the project site.

KEY:

Federal: (USFWS)
FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government

State: (CDFW and NatureServe)
SE = Listed as Endangered by the State of California
SR = Listed as Rare by the State of California
S1 = Critically Imperiled
S2 = Imperiled

Note: NatureServe rankings contain a decimal threat rank defined as follows:
0.1 –Very threatened
0.2 – Moderately threatened

CRPR: (California Rare Plant Rank)
Rank 1B = Plants rare, threatened, or endangered in California and elsewhere
Rank 2B = Plants rare, threatened, or endangered in California but more common elsewhere

Note: Ranks at each level also includes a threat rank (e.g., CRPR 2B.2) and are determined as follows:
0.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 – Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

– NOT VERY THREATENED IN CALIFORNIA (LESS THAN 20% OF OCCURRENCES THREATENED / LOW DEGREE AND IMMEDIACY OF THREAT OR NO CURRENT THREATS KNOWN)

SOURCE: CDFW 2026a; CNPS, 2026; AND USFWS 2026

NMFS Species List

Outlook

Threemile Slough Pipeline Crossings Remediation and Decommissioning Project Official NMFS species list

From Tierra Groff <TGroff@esassoc.com>
Date Mon 2/2/2026 13:36
To NMFS SpeciesList - NOAA Service Account <nmfs.wcrca.specieslist@noaa.gov>

Hello,

Project Name: Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

The Project is needed to ensure continued safe operation of PG&E's regional gas-transmission system and to comply with CSLC lease requirements, federal pipeline safety standards, and environmental protection mandates. Erosion and sediment transport within Threemile Slough have reduced pipeline cover since the 1990 abandonment and installation project, exposing sections of the pipelines. Exposed or shallow pipelines can be damaged by vessel anchors, debris, or high-velocity flow events, potentially resulting in gas leaks and service interruption. Additionally, the abandoned L-131 East and West pipelines no longer serve a functional purpose and represent unnecessary foreign material within the channel bed that could affect scour patterns and aquatic habitat. Removing these decommissioned facilities will eliminate potential interference with navigation and improve long-term environmental stewardship of the waterway. Key Project objectives include the following: 1. Restore active pipeline cover (L-131Y and L-131Z) to the 1990 as-built standard of 5 feet to ensure compliance with Lease 5438.1-E and applicable regulations and protect pipeline integrity. 2. Remove decommissioned pipelines (L-131 East and West lines) to reduce environmental and navigational hazards. 3. Minimize environmental impacts by employing best management practices (BMPs), mitigation measures, biological work windows, and controlling turbidity and water quality impacts. 4. Maintain safe navigation and coordinate activities with the U.S. Coast Guard and Delta boating community. 5. Restore the Project area to pre-Project environmental conditions through comprehensive site restoration and post-construction monitoring.

Quad Name Jersey Island
Quad Number 38121-A6
ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - X
SRWR Chinook Salmon ESU (E) - X
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - X
Eulachon (T) -
sDPS Green Sturgeon (T) - X
ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - X
SRWR Chinook Salmon Critical Habitat - X
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - X
ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -
ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -
ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -
ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -
ESA Pinnipeds

Guadalupe Fur Seal (T) -
Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - X
Groundfish EFH - X
Coastal Pelagics EFH -
Highly Migratory Species EFH -
MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult Monica DeAngelis
monica.deangelis@noaa.gov
562-980-3232

MMPA Cetaceans -
MMPA Pinnipeds -

Tierra Groff, Certified Ecologist, M.S. *(she/her)*
Senior Wildlife Ecologist

ESA | Environmental Science Associates
Oakland, CA

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ESA partners with clients and communities to drive sustainable, resilient, and equitable solutions that shape a better world. Let's stay in touch: **Sign up for our newsletter.**

USFWS Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654

In Reply Refer To: 02/02/2026 21:35:55 UTC
Project Code: 2026-0044191
Project Name: Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed, and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (https://www.fws.gov/program/eagle-management/working-around-eagles). Additionally, wind energy projects should follow the wind energy guidelines (https://www.fws.gov/node/266177) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation; and http://www.towerkill.com.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

PROJECT SUMMARY

Project Code: 2026-0044191

Project Name: Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Project Type: Pipeline - Onshore - Maintenance / Modification - Below Ground

Project Description: The Project is needed to ensure continued safe operation of PG&E's regional gas-transmission system and to comply with CSLC lease requirements, federal pipeline safety standards, and environmental protection mandates. Erosion and sediment transport within Threemile Slough have reduced pipeline cover since the 1990 abandonment and installation project, exposing sections of the pipelines. Exposed or shallow pipelines can be damaged by vessel anchors, debris, or high-velocity flow events, potentially resulting in gas leaks and service interruption.

Additionally, the abandoned L-131 East and West pipelines no longer serve a functional purpose and represent unnecessary foreign material within the channel bed that could affect scour patterns and aquatic habitat. Removing these decommissioned facilities will eliminate potential interference with navigation and improve long-term environmental stewardship of the waterway.

Key Project objectives include the following:

1. Restore active pipeline cover (L-131Y and L-131Z) to the 1990 as-built standard of 5 feet to ensure compliance with Lease 5438.1-E and applicable regulations and protect pipeline integrity.
2. Remove decommissioned pipelines (L-131 East and West lines) to reduce environmental and navigational hazards.
3. Minimize environmental impacts by employing best management practices (BMPs), mitigation measures, biological work windows, and controlling turbidity and water quality impacts.
4. Maintain safe navigation and coordinate activities with the U.S. Coast Guard and Delta boating community.
5. Restore the Project area to pre-Project environmental conditions through comprehensive site restoration and post-construction monitoring.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.114759899999996,-121.68628817612284,14z



Counties: Sacramento County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
California Ridgway's Rail *Rallus obsoletus obsoletus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4240
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

REPTILES

NAME	STATUS
Giant Garter Snake *Thamnophis gigas*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4482

Northwestern Pond Turtle *Actinemys marmorata*	Proposed Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1111
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

AMPHIBIANS

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2891
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

California Tiger Salamander *Ambystoma californiense*	Threatened

Population: U.S.A. (Central CA DPS)
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2076
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

Western Spadefoot *Spea hammondii*	Proposed Threatened

Population: Northern DPS
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5425
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

FISHES

NAME STATUS

Delta Smelt *Hypomesus transpacificus* Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/321
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

Longfin Smelt *Spirinchus thaleichthys* Endangered

Population: San Francisco Bay-Delta DPS
There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/9011
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

Longfin Smelt *Spirinchus thaleichthys* Proposed Endangered

Population: San Francisco Bay-Delta DPS
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9011

INSECTS

NAME STATUS

Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7850

CRUSTACEANS

NAME STATUS

Vernal Pool Fairy Shrimp *Branchinecta lynchi* Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/498
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

Vernal Pool Tadpole Shrimp *Lepidurus packardi* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2246
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/HIWYPCHH2JBTNAWXRNOWRTEBHU/documents/generated/11238.pdf

FLOWERING PLANTS

NAME	STATUS
Soft Bird's-beak *Cordylanthus mollis ssp. mollis*	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8541

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Final

https://ecos.fws.gov/ecp/species/321#crithab

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Tierra Groff
Address: 180 Grand Ave, Suite 1050
City: Oakland
State: CA
Zip: 94612-3718
Email tgroff@esassoc.com
Phone: 4159628428

LEAD AGENCY CONTACT INFORMATION

Lead Agency: State of California

APPENDIX F

Preliminary Federal Aquatic Resources Delineation Report

PRELIMINARY FEDERAL AQUATIC RESOURCES DELINEATION REPORT

PACIFIC GAS & ELECTRIC
THREEMILE SLOUGH PIPELINE CROSSINGS REMEDIATION AND DECOMMISSIONING PROJECT
SACRAMENTO COUNTY, CALIFORNIA

Padre Project No. 2402-1171

Submitted by:

Pacific Gas and Electric Company
Gas Transmission, Environmental Management
4040 West Lane Building #9 (113C)
Stockton, CA 95204

Prepared by:

Padre Associates, Inc.
350 University Avenue, Suite 250
Sacramento, California 95827

NOVEMBER 2024

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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1.0 EXECUTIVE SUMARY

Pacific Gas & Electric Company (PG&E) proposes to remediate two existing natural gas transmission pipelines and decommission and remove two previously abandoned pipelines that cross Threemile Slough. The Threemile Slough Pipeline Crossings Remediation and Decommissioning Project (Project) occurs on Threemile Slough between the Brannan Island State Recreation Area and Sherman Island in Sacramento County, California. Two pipeline crossings, L-131Y and L-131Z, will be remediated to address shallow depth of burial. The Project scope of work also includes the decommissioning and removal of two existing pipeline crossings at the same location that are no longer in use and were previously abandoned in place.

Padre Associates, Inc. (Padre), on behalf of PG&E, has prepared this delineation report to identify and delineate the geographic extent of Federal jurisdictional waters of the U.S. and wetlands. The methodology used in this wetland delineation is consistent with guidance provided by the U.S. Army Corps of Engineers (Corps) and Environmental Protection Agency (EPA) for federal jurisdictional Waters of the U.S. and wetlands.

During field survey efforts conducted in August 2024, Padre identified a total of 3.51 acres of Federal jurisdictional waters within the 7.6-acre study area. Activities within these delineated areas are regulated by the Corps.

Threemile Slough is a Navigable Waterway under Section 10 of the Rivers and Harbors Act of 1899 and a Water of the U.S. under Section 404 of the Clean Water Act (CWA) and is subject to Corps jurisdiction. Adjacent lands meeting the three-parameter definition of a federal wetland are also Corps jurisdictional under Section 404 of the CWA.

2.0 INTRODUCTION AND OBJECTIVES

2.1 BACKGROUND

Padre Associates, Inc. (Padre) has prepared this Federal Jurisdictional Aquatic Resources Delineation Report, on behalf of the Pacific Gas and Electric Company (PG&E), for the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project (Project).

PG&E proposes to remediate two existing natural gas transmission pipelines and decommission and remove two previously abandoned pipelines that cross Threemile Slough. The proposed remediation of the shallowly buried pipeline sections consists of placing rock over the pipelines to achieve the prescribed minimum five feet of cover and restore the cover to the as-built condition. The proposed decommissioning for the two pipelines that were previously filled with cement and abandoned in place is complete removal of the pipelines beneath the slough, and removal of the pipelines from the waterside slope of the Sherman Island Levee and the north bank of the slough. This will require excavation of the north and south banks and underwater excavation along the pipeline alignment within Threemile Slough for removal of the previously abandoned pipelines.

2.2 OBJECTIVES

The objective of the aquatic resource delineation is to identify the geographic extent of waters of the United States, including wetlands that are under Corps jurisdiction. To accomplish this goal, the preliminary aquatic resource delineation can be submitted to the Sacramento District of the Corps to request verification of the location and geographic extent of jurisdictional waters and wetlands or with a permit application for the Project.

2.3 SITE LOCATION AND DIRECTIONS

2.3.1 Location

The Project site is located on Threemile Slough between the Brannan Island State Recreation Area and Sherman Island near the confluence with the Sacramento River. The Project site is located within the *Jersey Island, California* United States Geological Survey (USGS) 7.5-Minute Series topographic quadrangle map (Figure 1). The Project site is in Section 7, Township 3 North, Range 3 East and occurs within Sacramento County, California. Access to the Project site on the north bank of the slough is through the Brannan Island State Park and access to the Project site on the south side of Threemile Slough is from Sherman Island Levee Road.

2.3.2 Directions to the Site

From downtown Sacramento, take Interstate 5 south. Take exit 498 from Interstate 5 south and turn right onto Twin Cities Road. Make a left turn onto River Road and continue until making a right turn onto Walnut Grove Bridge. Make a left turn onto Interstate 160 south and continue until reaching Brannan Island State Recreation Area. Make a left turn into the recreation area.

2.4 CONTACT INFORMATION

Project Contact:

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Pacific Gas & Electric
4040 West Lane, Building #9 (113C)
Stockton, CA 95204
Ph: (925) 786-2655
Email: sean.poirier@pge.com

Delineation Contact:

Sarah Powell
Padre Associates, Inc.
350 University Ave., Suite 250
Sacramento, CA 95825
Ph: (916) 333-5920 ext. 210
Email: spowell@padreinc.com

2.5 SITE GEOMORPHOLOGY AND LANDSCAPE SETTING

The Project site is located within the Delta subsection of the Great Valley ecological section of California (Miles and Goudey, 1997). The Delta subsection is located in low areas, near sea-level, at the confluence of the Sacramento and San Joaquin Rivers. The geomorphology of this subsection is a practically level plain, except for the levees of the Sacramento and San Joaquin Rivers. Elevations in this subsection range from a few feet on levees to sea-level, or lower, on the rest of the plain. Decomposition of organic deposits and consequential land subsidence is the main geomorphic process. Fluvial erosion and deposition are the main geomorphic processes on and adjacent to levees.

Three soil types that have been mapped by the Natural Resources Conservation Service (NRCS) are distributed across the Project area, as described in Section 4.3 below.

The Project is located within the Sacramento Valley subregion of the Great Valley California floristic region (Baldwin et al., 2012). The northern and western portions of the Project area are located within the Brannan Island State Recreation area. The southern portion of the Project area is located adjacent to agricultural and developed lands. The Project area crosses Threemile Slough which has a federal levee on the south side.

2.6 CLIMATE SUMMARY

The Project site is situated in Climate Zone 14, which includes Northern California's inland areas with some ocean influence (Sunset Western Garden Collection, 2024). The site has a climate that is moderated by the Pacific Ocean. The climate is characterized by slightly warmer winters and cooler summers than would be expected without moderation from the marine air. This is due to the opening in Northern California's Coast Ranges created by San Francisco and San Pablo bays which allows marine air to penetrate further inland. Most of the rainfall occurs during the period from November through April.

The nearest weather station with historic data that is representative of the climate at the Project area is the Concord Buchanan Field Station (041964), approximately 22.0 miles southwest of the Project area. The average maximum temperature for the 25-year period between 1999 and 2024 was 73.6° Fahrenheit (F), with a range of 58.3°F in January to 88.4°F in July. The average minimum temperature was 49.6°F with a range of 40.3°F in December and 58.7°F in August. The average annual precipitation is 14.91 inches with a range of 0.00 inches in July to 3.39 inches in December. No precipitation falls as snowfall in this location (Western Regional Climate Center, 2024).

Using climate data from the Concord Buchanan Field Station in Concord, CA, located approximately 22.0 miles southwest of the Project site, it was determined that the delineation field effort occurred during a period of average rainfall. Therefore, climatic conditions at the site can be considered normal. Table 1 below shows analysis of climate data obtained from the Western Regional Climate Center (WRCC) Climate Analysis for Wetlands Table (WETS table) used to determine site conditions at the time of surveys (Western Regional Climate Center, 2024) (Appendix A). The three months prior to the survey are shown on the left, followed by the lower-than-average rainfall, average rainfall, and above average rainfall amounts as determined based on long-term rainfall records. Under the “Rain Fall” column are the actual precipitation values for each of the three months leading up to the survey. Each month’s condition (dry, normal, wet) is assigned based on comparison to the long-term rainfall records and is considered against a weighted number that prioritizes the month prior to surveys over the two preceding months. The condition value and month weight value are then multiplied, and the results are summed and compared to an index evaluating values from 6 to 18. The sum value of 11 that was generated using the Concord Buchanan climate data indicates that the August 2024 delineation surveys were conducted at a time that had normal rainfall conditions.

The fieldwork for this delineation was conducted in August during the middle of the dry season at the Project site. During the dry season, it is common for this region to receive no rainfall; however, the average monthly rainfall data are not always 0.00 inches because during some years the dry months will receive trace amounts of precipitation. This uncommon summer rainfall inflates the total average precipitation for these months. In the majority of years this region will receive no precipitation during the dry season so 0.00 inches of rain is considered normal. In this manner, 0.00 inches of rain can be below average while still being considered normal simultaneously. As a result, the WETS table analysis is often unable to conclude drier than normal conditions during dry season months when it is normal to receive no rainfall. Despite this, a WETS table analysis can still be useful for indicating wetter than normal conditions during surveys conducted in the dry season.

Table 1. 2024 Precipitation Analysis

		Long-term Rainfall Records (Period of Record 1999-2024)							
	Month	3 yrs. in 10 < (Inches)	Average (Inches)	3 yrs. in 10 > (Inches)	2024 Rain Fall (Inches)	Condition[1]	Condition Value[1]	Month Weight Value	Products of previous two columns
First month prior to surveys	July	0.00	0.00	0.00	0.00	N	2	3	6
Second month prior to surveys	June	0.00	0.11	0.04	0.00	D	1	2	2
Third month prior to surveys	May	0.11	0.39	0.37	0.86	W	3	1	3
								Sum[2]	**11**

[1]Condition / Condition Value:
D = Dry / 1
N = Normal / 2
W = Wet / 3

[2]Index for Sum:
6 - 9 = period preceding surveys has been drier than normal
10-14 = period preceding surveys has been normal
15-18 = period preceding surveys has been wetter than normal

Precipitation in the months preceding a delineation can influence wetland indicators observed in the field. It is important to understand the influence that precipitation in months leading up to the surveys may have on field conditions at the time surveys were conducted. The normal rainfall conditions concluded by the precipitation analysis were taken into consideration during analysis of the field data collected for this report.

3.0 REGULATORY AUTHORITY

3.1 FEDERAL REGULATIONS

3.1.1 Waters of the United States

The Corps and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredge and fill material into jurisdictional waters of the U.S. and wetlands under Section 404 of the Clean Water Act.

The Corps is responsible for the issuance of permits for the placement of dredged or fill material into waters of the U.S. pursuant to Section 404 of the Clean Water Act (33 USC 1344). As defined by the Corps at 33 CFR 328.3(a)(3), waters of the U.S. are those waters that are used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; interstate waters; and territorial seas.

The Corps asserts jurisdiction over traditional navigable waters (TNW) and certain tributaries and adjacent wetlands that meet current federal definitions. In non-tidal waters, the lateral extent of Corps jurisdiction is determined by the OHWM which is defined as the: "…*line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas*." (33 CFR 328[e]).

In tidal areas, the Corps jurisdiction under Section 404 extends to the high tide line (HTL), which, in the absence of actual data, is defined as: "…*a line of oil or scum along shore objects, a more or less continuous deposit of fine shells or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide*."

The EPA and Corps issued a Revised Definition of waters of the United States that aimed to establish a durable definition of waters of the U.S. based on pre-2015 regulations, relevant Supreme Court decisions, the science, and the agencies' technical expertise. The Revised Definition became effective March 20, 2023, but on September 8, 2023, the EPA and Corps amended the Revised Definition to conform with the Supreme Court decision in the case of *Sackett v. Environmental Protection Agency (Sackett)*. Federal regulation concerning tributaries and adjacent wetlands has recently been revised in an amended Revised Definition of Waters of the United States to conform with the Sackett decision (Conforming Rule) (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency, 2023).

3.1.2 Federal Wetlands

Wetlands are a special category of waters of the U.S., and are defined at 33 CFR 328.3(b) as: *"...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

The Corps utilizes the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), herein referred to as *1987 Manual*, to identify wetlands subject to regulatory

jurisdiction (jurisdictional wetlands) under the CWA. In Northern California, the Pacific Northwest, and mountainous regions of the western U.S. the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (version 2.0)* prepared by the Corps' Engineer Research and Development Center (2010) is used to delineate jurisdictional wetlands. The spatial extent of the Western Mountains, Valleys, and Coast Region extends to some locations in the San Francisco Bay Area and the decision to use this Regional Supplement instead of the Arid West can be made by the delineator based on landscape and site conditions. The Western Mountains, Valleys, and Coast Regional Supplement was used in this case for consistency with the previous delineation efforts on this site.

The Corps identifies jurisdictional wetlands using a three-parameter definition using vegetation, soil, and hydrological characteristics. Excluding unusual conditions (atypical conditions or disturbed sites), all three parameters must be present for a site to be considered a jurisdictional wetland.

Wetlands can be regulated as waters of the U.S. if they are adjacent to jurisdictional waters. Under the Conforming Rule adjacent wetlands are defined as having a continuous surface connection.

3.1.3 Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)

The Corps is also responsible for authorizing work affecting navigable waters of the United States. Structures or work under or over a navigable water of the United States is considered to have an impact on the navigable capacity of the waterbody (33 CFR 322.3[a]). All waterways subject to the ebb and flow of the tide are considered navigable waterways. Threemile Slough is identified as a Section 10 waterway. The Mean High Water Line is the extent of Corps jurisdiction in tidally influenced Section 10 waterways.

3.1.4 Section 14 of the Rivers and Harbors Act of 1899 (33 USC 408)

The Corps Civil Works Program is responsible for reviewing all Project approvals that alter or occupy Civil Works projects. Section 408 provides that the Corps may grant permission for another party to alter a Civil Works project upon a determination that the alternation proposed will not be injurious to the public interest and will not impair the usefulness of the Civil Works project. The south bank of Threemile Slough is a federal levee along the north side of Sherman Island; however, if pipeline remediation and decommissioning activities are approved by minor alteration agreement issued by the Central Valley Flood Protection Board, a Section 408 review and permission will not be required.

4.0 METHODOLOGY

Methodology used in this delineation is consistent with guidance provided by the Corps and the EPA for Federal jurisdiction.

4.1 LITERATURE REVIEW

Prior to the field delineation, Padre conducted a literature review to determine the general character of the proposed Project site, and to identify potential areas of concern. Documents and resources reviewed included the following:

- Project site map
- U.S. Geological Survey (USGS) 7.5-minute topographic map for the Jersey Island, California quadrangle
- Soil survey and hydric soil list for Sacramento County, California
- National Wetland Inventory (NWI) Maps of the Jersey Island, California quadrangle
- Concord Buchanan WRCC weather station (041964)
- Stream gage data from the USGS Threemile Slough NR Rio Vista CA Station (Station #11337080)
- Tide data from the NOAA Threemile Slough, San Joaquin R., CA (Station #9415193)

4.2 DELINEATION METHODS

Field surveys for the purposes of site characterization and preliminary aquatic resources delineation were conducted by Padre biologists on August 15, 2024. An aquatic resources delineation study area (study area) was identified prior to beginning field surveys. The study area includes all temporary impact areas, staging areas, and access routes. The boundaries of the study area are depicted in Figure 2.

The Corps has prescribed methodologies for delineating waters/wetlands pursuant to the Clean Water Act. Padre used the Corps standard wetland delineation methods in developing survey results for the site. For delineating Waters of the U.S. in non-tidal environments, the Corps' standard is to locate the OHWM. For delineating Water of the U.S. in tidal environments, such as Threemile Slough, the Corps' standard is to locate both the mean high water (MHW) and the spring high tide line (HTL). Methods for delineating the MHW and HTL are described below in Section 4.2.1.

The standard methods for delineating wetlands are detailed in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and further refined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (U.S. Army Corps of Engineers, 2008). These manuals require that, under normal circumstances, an area possess three technical criteria (parameters) to be designated as a potentially jurisdictional wetland. These criteria are the presence of wetland hydrology, the presence of hydric soils, and the prevalence of hydrophytic vegetation. The following sections of this report summarize Padre's approach to surveying and documenting limits of Other Waters of the U.S. with the HTL and MHW as well as indicators of the three parameters throughout the

study area, and subsequently determining the limits of aquatic resources that are potentially jurisdictional waters and wetlands.

4.2.1 Other Waters of the U.S.

Within the study area boundary, Threemile Slough is classified as a tidal, unconsolidated bottom, semi permanently flooded-tidal, riverine system. Threemile Slough is part of the San Francisco Bay-Delta waterways that are used for interstate or foreign commerce. In tidal systems, the limits of Section 404 jurisdiction are defined by the HTL. The jurisdictional limits of Section 10 waterways are delineated by the MHW. To determine the HTL and the MHW within the study area, a combination of stream gage data and physical indicators observed in the field were used.

4.2.1.1 Stream Gage Data Analysis

During the literature review, stream gage data was analyzed to ultimately determine what gage height waterway routinely reaches during high tide events. This gage height is correlated to the HTL and, therefore, the limits of Corps jurisdiction. The nearest USGS stream gage is located approximately 0.7 miles downstream of the study area in the middle section of Threemile Slough (Station #11337080) (USGS, 2024). Using gage height data, combined with the elevation of the gage itself, the elevation at which the HTL is located can be determined. The stream gage is listed at 0 feet elevation and is in very close proximity to the study area so its gage height data can be interpreted to represent the study area very closely. Once the gage height of the high tide is determined, it can be used to confirm field observations of HTL indicators as discussed in section 4.2.1.3 below.

4.2.1.2 Field Data Collection

As previously discussed in section 3.1.1, the high tide line (HTL) can be determined in the field using physical characteristics including a line of oil or scum along shore objects, a continuous deposit of fine shell or debris, vegetation lines, and other physical markings or characteristics. After identifying the most likely location of the HTL using physical characteristics in the field, the elevation of the HTL can be determined using GPS, available topographic contours, or other land surveying techniques. The HTL and the delineated boundary of other waters of the U.S were recorded in the field using an EOS Arrow GPS with submeter accuracy. In some cases, where appropriate, the extent of the feature was delineated or refined using aerial imagery, mapped vegetation communities, or topographic contours. The combined GPS and digitized field data were overlaid onto aerial imagery to produce a preliminary aquatic resources delineation map of the study area (Figure 3).

4.2.1.3 Verification with Stream Gage Data

Once the location of the HTL has been identified using field indicators, the final step is to confirm its location using the stream gage data analysis. The elevation of the HTL delineated in the field should closely match the gage height of the HTL determined using stream gage data. Factors including the distance between the study area and the USGS stream gage can affect the correlation between physically observed indicators of HTL and gage data analysis; however, given the proximity of this site to the USGS stream gage, data obtained from the stream gage is representative of the tidal conditions in the study area.

4.2.2 Wetlands

One delineation sample plot was located within the study area to characterize the presence (or absence) of hydrophytic vegetation, hydric soils, and wetland hydrology outside of the boundaries of other waters of the U.S. The delineation sample plot was positioned to determine the extent of a potential wetland feature. The only location within the study area that showed potential wetland characteristics (presence of hydrophytic vegetation) was tested with a sample plot to determine the presence or absence and potential geographic extent of jurisdictional wetlands. This sample plot was not paired with an additional data point because it did not meet the three parameters and was determined not to be a wetland. See section 5.2 below for additional details on sample plot location and condition.

4.2.2.1 Hydrophytic Vegetation

Hydrophytic vegetation is plant life that occurs in areas that are frequently flooded or have saturated soil for a prolonged duration during the growing season. In accordance with Corps methodology, for a site to display a positive wetland vegetation indicator, a dominance or prevalence of hydrophytic plant species must be present.

To determine the dominance or prevalence of hydrophytic vegetation, circular sample plots are selected. The plot radius size is determined according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (U.S. Army Corps of Engineers, 2008). A five-foot radius plot is used in areas with only herbaceous vegetation, a 15-foot radius plot is used in areas with shrubs and sub-shrubs, and a 30-foot radius plot is used in areas with trees. These values can be adjusted at the site to fit the specific setting. For example, if the sample plot radius overlaps multiple vegetation communities, and potentially the wetland boundary, the radius may be reduced. Within the sample plot, the plants were identified to species using standard taxonomic references (Baldwin et al., 2012). The hydrophytic class of each plant species was determined in accordance with the *National Wetland Plant List, Version 3.5* (U.S. Army Corps of Engineers, 2020) as facultative, facultative-wetland, or obligate wetland species. Sampling results were entered on approved wetland delineation forms (Appendix B). Table 2 contains a list of all plants observed during delineation surveys.

4.2.2.2 Hydric Soils

At the sample plot location, a soil pit was excavated to a depth of approximately 18 inches below ground surface (bgs) to determine the extent of saturation and to examine the soil for evidence of wetland hydrology. Once the pit was excavated, the soil profile was described on the wetland delineation form. After moistening, the soil color was determined using Munsell soil color charts (Munsell Color, 1990). Evidence of redoximorphic characteristics, such as low matrix chroma, gleying, and/or presence of redox features (e.g., concentrations or depletions) resulting from anaerobic conditions were recorded in the description to determine if hydric soil indicators were present in the soil profile. Soil texture was evaluated using field methods described by the Corps (Environmental Laboratory, 1987). The characteristics of the soil were then compared against descriptions of the soil-mapping units for the study area (NRCS, 2024) and analyzed to determine if it met one of the Arid West hydric soil indicators.

4.2.2.3 Wetland Hydrology

The NWI map of the Jersey Island 7.5-minute quadrangle was reviewed prior to the delineation of waters and wetlands within the study area (USFWS, 2024). NWI mapped a total of three wetlands within or immediately adjacent to the Project study area (Appendix C). Threemile Slough is depicted on the NWI map as a tidal, unconsolidated bottom, semi permanently flooded riverine system (R1UBT). The north bank of Threemile Slough is depicted as a freshwater forested/shrub wetland and is classified as palustrine, forested, broad-leaved deciduous, temporary flooded-tidal (PF01S). In addition, a forested/shrub wetland is mapped adjacent to the disturbed field in the southern portion of the study area and overlaps slightly with the study area. This wetland consists of a dredged agricultural ditch adjacent to the west of the study area and is classified as palustrine, forested, broad-leaved deciduous, seasonally saturated, diked/impounded (PFO1Bh).

Determination of wetland hydrology followed the standard procedures outlined in the 1987 Corps Manual (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (U.S. Army Corps of Engineers, 2008). Precipitation events preceding the delineation effort were also tracked to guide analysis of site hydrologic conditions, though delineation surveys were conducted in late summer, during the dry season. The Wetland Determination Data Form – Arid West Region was used in the field to guide inspection for and determination of wetland hydrology. Wetland hydrology indicators as described on the data form and in the Regional Supplement were evaluated while the soils and vegetation specialists were making their evaluations. The investigation consisted of walking the area and noting landscape position, indicators of previous flow vectors, and other signs of water flow or accumulation. Primary and secondary wetland hydrology indicators were noted and checked on the Arid West Data Form.

5.0 RESULTS

5.1 OTHER WATERS OF THE U.S.

Using a GPS, the location of the physical indicators of high tide line (HTL) were recorded on both banks of Threemile Slough.

A transect was walked on the south bank of Threemile Slough within the study area to identify the HTL. At the time surveys were conducted, the tide was low, allowing delineators to stand below physical indicators of HTL. Indicators of HTL that were identified included deposits of flotsam on the bank in the form of dead vegetation, driftwood, and trash. There was limited vegetation present below the HTL on the south bank, in part due to the presence of large riprap. Vegetation observed included herbaceous hydrophytes like alligator weed (*Alternanthera philoxeroides*) and tule (*Schoenoplectus acutus* var. *occidentalis*). A variety of submerged aquatic vegetation was also observed including Brazilian waterweed (*Egeria densa*), Berchtold's pondweed (*Potamogeton berchtoldii*), crisp-leaved pondweed (*Potamogeton crispus*), and parrot's feather (*Myriophyllum aquaticum*). Above the indicators of HTL, the vegetation abruptly transitions to a California sycamore and coast live oak riparian woodland vegetation community, consisting of a narrow band of coast live oak trees (see section 5.2.1).

On the north side of Threemile Slough, most of the bank is inaccessible due to steep eroded cliffs and dense vegetation. Only two small sections of the bank were accessible, so HTL was not walked along the entire north bank within the study area. Points along the HTL were recorded within the two sections of accessible bank and then extrapolated for the rest of the study area based on these points, topographic contours, and aerial imagery. Most areas at the top of the bank were covered in dense patches of Himalayan blackberry (*Rubus armeniacus*). Where visible, almost no vegetation was present below the HTL except for small patches of tule within Threemile Slough. Above the indicators of HTL, the vegetation transitions into a sandbar willow thicket vegetation community (see section 5.2.1).

Stream gage data analysis identified that the approximate location of the HTL was at 7 feet elevation (USGS, 2024). After plotting the GPS points recorded in the field for physical indicators of HTL, it was determined that the approximate location of the HTL was at 8 feet elevation. Although at slightly different elevations, the indicators observed in the field closely matched the expected HTL derived from stream gage data, and the HTL was therefore mapped at approximately the 8-foot elevation contour.

5.2 WETLANDS

5.2.1 Hydrophytic Vegetation

The study area is located south of the City of Rio Vista, between Brannan Island and Sherman Island. The surrounding area consists primarily of agricultural and developed land. A State Park and recreational area is located on the north and western sides of Threemile Slough and the eastern and southern sides of the slough are comprised of agricultural fields.

Six vegetation communities were identified onsite during field surveys (Figure 2). Wild oats and annual brome grasslands were present on Sherman Island along the landward levee slope adjacent to Sherman Island East Levee Road and throughout the majority of the upland study area on Brannan Island. A non-natural vegetation community with a significant amount of human

disturbance was also present within the southern portion of the study area on Sherman Island. This community was classified as disturbed land. Along the south bank of Threemile Slough, a California sycamore and coast live oak riparian woodland was present along the shoreline. On the north bank of Threemile Slough, a sandbar willow thicket was present along the steep banks. There were small pockets of emergent hydrophytic vegetation growing on both banks of Threemile Slough but these were not large enough to be considered separate vegetation communities. Threemile Slough is classified as a riverine community. Lastly, there were developed areas present including roads and a parking lot within the study area on both Brannan and Sherman Islands.

Vegetation communities were determined based on species composition and descriptions from *A Manual of California Vegetation* (MCV) (Sawyer et al., 2009) but were modified as needed to accurately describe the existing habitat observed within the study area. Plant species lists are provided for the study area in Table 2. Vegetation Communities mapped within the study area are shown in Figure 2. Below is a brief description of the six vegetation communities mapped within the study area.

5.2.1.1 California Sycamore and Coast Live Oak Riparian Woodland

California sycamore and coast live oak riparian woodlands are typically found on the banks of intermittent streams, springs, seeps, and gullies and on the adjacent floodplains. This community can be found throughout California's Central Valley and the South Coast, Transverse, and Peninsular Mountain Ranges at elevations ranging from sea level to approximately 7,800 feet. This riparian woodland community is characterized by the dominance of western sycamore (*Plantanus racemosa*) or coast live oak (*Quercus agrifolia*) in the tree canopy. Associate species in the tree canopy can include white alder (*Alnus rhombifolia*), California black walnut (*Juglans hindsii*), Fremont cottonwood (*Populus fremontii* ssp. *Fremontii*), valley oak (*Quercus lobata*), California bay (*Umbellularia californica*), and a variety of willow species including narrow-leaved willow (*Salix exigua*), Gooding's black willow (*Salix goodingii*), and red willow (*Salix laevigata*). The understory of this community may have an open or intermittent shrub layer and a sparse or grassy herbaceous layer. This community is well adapted to intermittent flooding and western sycamore often relies on flooding events to scour seeds for higher success in germination rates. California sycamore and coast live oak riparian woodland is a sensitive natural community (S3) on the California Department of Fish and Wildlife's (CDFW) *California Natural Communities List* (CDFW, 2023).

Within the study area, a California sycamore and coast live oak riparian woodland was present in a narrow band along the south bank of Threemile Slough. The dominant species observed in the tree canopy was coast live oak. Narrow-leaved willow and California button willow (*Cephalanthus occidentalis*) were present in the shrub layer. Herbaceous species observed in this community were varied but included California rose (*Rosa californica*), Himalayan blackberry, delta tule pea (*Lathyrus jepsonii var. jepsonii),* Bermuda grass (*Cynodon dactylis*), lamp rush (*Juncus effusus*), ragweed (*Ambrosia sp*.), and curly doc (*Rumex crispus*). This community was mapped both above and below the HTL due to portions of the canopy overhanging the slough and is classified as palustrine forested wetland.

5.2.1.2 Developed

This land cover type is not described in the MCV because it is not a natural community and is typically associated with human disturbance. Developed areas are characterized by a high degree of human disturbance and can include a variety of site conditions from buildings to roadways and parking lots. Typically, there is limited vegetation cover and limited habitat for wildlife present in developed areas.

Within the study area, developed lands were mapped along roads and on both Sherman Island and Brannan Island and within the paved parking lot and the PG&E valve station on Brannan Island. The ground surface in these areas was highly disturbed and was either covered in asphalt or gravel. Almost no vegetation was growing within this land cover type. All developed portions of the study area were mapped as upland.

5.2.1.3 Disturbed Land

This land cover type is not described in the MCV because it is not a natural community and is typically associated with human disturbance. Disturbed land may exhibit a variety of site conditions, but they are typically dominated by non-native and early successional herbaceous species that readily colonize areas that have been recently disturbed or are frequently disturbed.

Within the study area, disturbed land was present within the low-lying field to the south of Sherman Island East Levee Road. There were multiple types of human disturbance identified throughout this field including old storage facilities and equipment, remnants of burned vegetation and trash piles, and soil or debris dump piles. In addition, piles of dredge spoils and vegetation were present from recent dredging that occurred in an agricultural ditch approximately 15 feet west of the study area. Due to the variety of disturbance activities in this area, there was a variety of herbaceous vegetation observed in this community. The dominant vegetation observed in the disturbed area included Bermuda grass and beardless wild rye (*Elymus triticoides*). Where dredged material from the agricultural ditch was piled, there was a higher concentration of hydrophytic plants including common reed (*Phragmites australis*), narrow-leaved cattail (*Typha angustifolia*), willow weed (*Persicaria lapathifolia*), tall cyperus (*Cyperus eragrostis*), and cocklebur (*Xanthium strumarium*) presumably from the seedbank within the dredge spoils. Throughout the disturbed lands there were many disturbance-adapted weedy species like bristly ox-tongue (*Helminthotheca echioides*), bindweed (*Convolvulus arvensis*), bur clover (*Medicago polymorpha*), and Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*).

These hydrophytic plants made this location the most likely to support a potentially jurisdictional wetland, so sample plot SP1A was established at this location to determine the possible extent of wetlands. SP1A did not, however, meet any of the three wetland parameters. Further analysis of the area suggests that the presence of hydrophytic plants in this portion of the disturbed community was due to the transportation of hydrophytic vegetation and seed bank from the ditch onto the upland terrace from dredging activities. As a result, the entire disturbed community was mapped as upland. No additional sample plots were needed in this community as there were no other physical indicators of potential wetlands.

5.2.1.4 Riverine

This community is not described in the MCV because it is an open water aquatic community with limited vegetation. Within the study area, Threemile Slough traverses the Project

site and is a perennial and navigable waterway. Throughout most of this mapped feature, there is no emergent vegetation present; however, on the north and south banks of Threemile Slough there are dense to sparse stands of tule (*Schoenoplectus acutus* var. *occidentalis*) along with submerged aquatic vegetation like Brazilian waterweed (*Egeria densa*), pondweed (*Potamogeton sp*.), and parrot's feather (*Myriophyllum aquaticum*). Water hyacinth (*Eichhornia crassipes*) was also observed floating on the water's surface along with small patches of frogbit (*Limnobium* sp.). The open water cover type was mapped as a tidal riverine water and is classified as other waters of the U.S. below the HTL.

5.2.1.5 Sandbar Willow Thickets

Sandbar willow thickets are typically found on depositions along rivers and streams as well as in temporarily flooded floodplains and springs. This community can be found throughout California at elevations ranging from sea level to approximately 8,900 feet. This riparian shrubland community is characterized by the dominance of narrow-leaved willow. Associate species can include California rose, Himalayan blackberry, California blackberry (*Rubus ursinus*), arroyo willow (*Salix lasiolepis*), and dusky willow (*Salix melanopsis*). This community is typically the first to colonize sand bars and cut banks and if the flooding disturbance regime is not too intense, later successional communities like Fremont cottonwood forests can take their place.

Within the study area, sandbar willow thicket was present along the north bank of Threemile Slough. The dominant species was narrow-leaved willow, which was found in large dense patches along the steep north bank. Associate species observed included northern California black walnut, coast live oak, blue elderberry (*Sambucus mexicana*), Himalayan blackberry, and Gooding's black willow. This community was mapped both above and below the HTL due to portions of the canopy overhanging the slough and is classified as palustrine scrub-shrub wetland.

5.2.1.6 Wild Oats and Annual Brome Grassland

Wild oats grasslands are dominated by non-native grasses from Europe and Asia. This community is very common in valley and foothill grasslands as well in the open spaces among oak woodlands. Typically, it can be found at elevations ranging from approximately 30 to 3,900 feet in elevation. Within this cover type there is often very limited species diversity. Typical species include wild oat (*Avena fatua*), slender wild oats (*Avena barbata*), ripgut grass (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). There is a wide variety of native and non-native forbes that can occur in this cover type as well.

Within the study area, wild oats and annual brome grasslands were present on both the south and north sides of Threemile Slough. In the southern portion of the study area, this community was present on the landward levee slope adjacent to Sherman Island East Levee Road. In the northern portion of the study area, this community was present in the large area surrounding the PG&E valve box. The species composition varied across the study area with some grasslands being dominated by ripgut grass and others being dominated by wild oat. Associate species in these communities also varied but commonly included other non-native upland grasses and forbes including soft chess, rattail sixweek grass (*Festuca myuros*), Bermuda grass, yellow star-thistle (*Centaurea solstitialis*), storksbill (*Erodium sp*.), and Spanish clover (*Acmispon americanus* var. *americanus*). This community was mapped as upland where it occurred within the study area.

Table 2. Plant Species Observed at the PG&E Threemile Slough Pipeline Crossings Remediation and Decommissioning Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
EQUISETACEAE (Horsetail Family)					
Common horsetail	*Equisetum arvense*	H	FAC	N	
ADOXACEAE (Muskroot Family)					
Blue elderberry	*Sambucus mexicana*	S	FACU	N	
AMARANTHACEA (Amaranth Family)					
Alligator weed	*Alternanthera philoxeroides*	H	OBL	I	
APIACEAE (Carrot Family)					
Bur-chervil	*Anthriscus caucalis*	H	NL	I	
Fennel	*Foeniculum vulgare*	H	NL	I	
APOCYNACEAE (Dogbane Family)					
Indian hemp	*Apocynum cannabinum*	H	FAC	N	
ASTERACEAE (Sunflower Family)					
Ragweed	*Ambrosia sp.*	H	FACU		
Mugwort	*Artemisia douglasiana*	H	FAC	N	
Coyote brush	*Baccharis pilularis*	S	NL	N	
Italian thistle	*Carduus pycnocephalus* ssp. *pycnocephalus*	H	NL	I	
Yellow star-thistle	*Centaurea solstitialis*	H	NL	I	
Bull thistle	*Cirsium vulgare*	H	FACU	I	
Fleabane daisy	*Erigeron* sp.	H	NL		
Bristly ox-tongue	*Helminthotheca echioides*	H	FAC	I	
Telegraph weed	*Heterotheca grandiflora*	H	NL	N	
Prickly lettuce	*Lactuca serriola*	H	FACU	I	
Cocklebur	*Xanthium strumarium*	H	FAC	N	
BORAGINACEAE (Borage Family)					
Fiddleneck	*Amsinckia* sp.	H		N	
Alkali heliotrope	*Heliotropium curassavicum* var. *oculatum*	H	FACU	N	
BRASSICACEAE (Mustard Family)					
Black mustard	*Brassica nigra*	H	NL	I	
Perennial pepperweed	*Lepidium latifolium*	H	FAC	I	
CONVOLVULACEAE (Morning-Glory Family)					
Bindweed	*Convolvulus arvensis*	H	NL	I	
FABACEAE (Legume Family)					
Spanish clover	*Acmispon americanus* var. *americanus*	H	UPL	N	
Delta tule pea	*Lathyrus jepsonii* var. jepsonii	H	OBL	N	1B.2
California burclover	*Medicago polymorpha*	H	FACU	I	
Sourclover	*Melilotus indicus*	H	FACU	I	
Clover	*Trifolium* sp.	H			
Vetch	*Vicia* sp.	H			
Winter vetch	*Vicia villosa*	H	NL	I	
FAGACEAE (Oak Family)					
Coast live oak	*Quercus agrifolia*	T	NL	N	
Valley oak	*Quercus lobata*	T	FACU	N	

Table 2. Plant Species Observed at the PG&E Threemile Slough Pipeline Crossings Remediation and Decommissioning Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
GERANIACEAE (Geranium Family)					
Storksbill	*Erodium* sp.	H			
HALORAGACEA (Water-Milfoil Family)					
Parrot's feather	*Myriophyllum aquaticum*	H	OBL	N	
JUGLANDACEAE (Walnut Family)					
Northern California black walnut	*Juglans hindsii*	T	FAC	N	1B.1
MALVACEAE (Mallow Family)					
Bull mallow	*Malva nicaeensis*	H	NL	I	
ONAGRACEAE (Evening Primrose Family)					
Hairy willow herb	*Epilobium ciliatum*	H	FACW	N	
Water primrose	*Ludwigia sp.*	H	OBL	I	
Smartweed	*Persicaria sp.*	H			
PLATANACEAE (Sycamore Family)					
Western sycamore	*Platanus racemosa*	T	FAC	N	
POLYGONACEAE (Buckwheat Family)					
False waterpepper	*Persicaria hydropiperoides*	H	OBL	N	
Willow weed	*Persicaria lapathifolia*	H	FACW	N	
Curly dock	*Rumex crispus*	H	FAC	I	
ROSACEAE (Rose Family)					
California rose	*Rosa californica*	S	FAC	N	
Himalayan blackberry	*Rubus armeniacus*	V	FAC	I	
RUBIACEAE (Madder Family)					
California button willow	*Cephalanthus occidentalis*	S	OBL	N	
SALICACEAE (Willow Family)					
Narrow-leaved willow	*Salix exigua*	S	FACW	N	
Gooding's black willow	*Salix goodingii*	T	FACW	N	
VERBENACEAE (Vervain Family)					
Shore vervain	*Verbena littoralis*	H	FACU	I	
ZYGOPHYLLACEAE (Caltrop Family)					
Puncture vine	*Tribulus terrestris*	H	NL	I	
ARECACEAE (Palm Family)					
Fan palm		T	FAC/FACW		
CYPERACEAE (Sedge Family)					
Sedge	*Carex* sp.	H			
Santa Barbara sedge	*Carex barbarae*	H	FAC	N	
Tall cyperus	*Cyperus eragrostis*	H	FACW	N	
Tule	*Schoenoplectus acutus* var. *occidentalis*	H	OBL	N	
HYDROCHARITACEAE (Waterweed Family)					
Brazilian waterweed	*Egeria densa*	H	OBL	I	
Frogbit	*Limnobium sp.*	H	OBL		
JUNCACEAE (Rush Family)					
Lamp rush	*Juncus effusus*	H	FACW	N	
POACEAE (Grass Family)					

Table 2. Plant Species Observed at the PG&E Threemile Slough Pipeline Crossings Remediation and Decommissioning Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
Giant reed	*Arundo donax*	G	FACW	I	
Wild oat	*Avena* sp.	G		I	
Slender wild oat	*Avena barbata*	G	NL	I	
Wild oat	*Avena fatua*	G	NL	I	
Ripgut grass	*Bromus diandrus*	G	NL	I	
Soft chess	*Bromus hordeaceus*	G	FACU	I	
Bermuda grass	*Cynodon dactylon*	G	FACU	I	
Beardless wild rye	*Elymus triticoides*	G	NL	N	
Rattail sixweeks grass	*Festuca myuros*	G	FACU	I	
Hare barley	*Hordeum murinum* ssp. *leporinum*	G	FACU	I	
Dallis grass	*Paspalum dilatatum*	G	FAC	I	
Harding grass	*Phalaris aquatica*	G	FACU	I	
Common reed	*Phragmites australis*	G	FACW	N	
Rabbitfoot grass	*Polypogon monspeliensis*	G	FACW	I	
PONTEDERIACEAE (Pickerel-Weed Family)					
Water hyacinth	*Eichhornia crassipes*	H	OBL	I	
POTAMOGETONACEAE (Pondweed Family)					
Berchtold's pondweed	*Potamogeton berchtoldii*	H	OBL	N	
Crisp-leaved pondweed	*Potamogeton crispus*	H	OBL	I	
TYPHACEAE (Cattail Family)					
Narrow-leaved cattail	*Typha angustifolia*	H	OBL	I	

Wetland Indicator Status

OBL = Obligate wetland species, occurs almost always in wetlands (>99% probability)
FACW = Facultative wetland species, usually found in wetlands (67-99% probability)
FAC = Facultative species, equally likely to occur in wetland and non-wetlands (34-66% probability)
FACU = Facultative upland species, not usually found in wetlands (1-33% probability)
UPL = Upland species, almost never found in wetlands (<1% probability)
NI = No indicator has been assigned due to a lack of information to determine indicator status
NL = Not listed, assumed upland species

Sensitivity / Listing Status

FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate SE = California State Endangered ST = California State Threatened	1B.1 = Threatened in California and elsewhere, seriously threatened in California 1B.2 = Threatened in California and elsewhere, moderately threatened in California 2B = Plants rare, threatened, or endangered in California but more common elsewhere 3 = Plants about which more information is needed 4 = Plants of limited distribution
Growth Habit	**Native Status**
F = Fern G = Grass H = Herb S = Shrub T = Tree	N = Native I = Introduced

5.3 HYDRIC SOILS

The soils in the Delta subsection are mostly poorly to very poorly drained. Soil temperature regimes are thermic (defined as mean annual temperature between 60°F and 70°F, with a difference of greater than 9°F between mean summer and winter soil temperatures). Soil moisture regimes are mostly aquic (soil saturated long enough to cause anaerobic conditions) but they are xeric (dry for 45 or more consecutive days) on levees.

5.3.1 Soils Mapped

Based on a review and analysis of the U.S. Department of Agriculture's Web Soil Survey for Sacramento County (NRCS, 2024) (Appendix D), the Project site is underlain by Egbert clay, 0 to 2 percent slopes, Xeropsamments, 1 to 15 percent slopes, and water. The Egbert clay and xeropsamments mapping units are described below.

5.3.1.1 Egbert clay, 0 to 2 percent slopes (map unit 139)

This soil mapping unit is a poorly drained soil formed in alluvium. Typically, the soil profile is described from 0 to 20 inches as clay and from 20 to 60 inches as silt clay loam. Depth to a restrictive feature is typically more than 80 inches. Depth to the water table is typically 0 inches. This mapping unit is classified as hydric soil. This soil mapping unit underlies the entire study area south of Threemile Slough on Sherman Island.

5.3.1.2 Xerospamments, 1 to 15 percent slopes (map unit 244)

This soil mapping unit is a somewhat excessively drained soil formed in mine spoil or earthy fill. Typically, the soil profile is described as variable from 0 to 60 inches. Depth to a restrictive feature is typically more than 80 inches. Depth to the water table is typically more than 80 inches. This mapping unit is classified as non-hydric soil. This mapping unit underlies the entire study area north of Threemile Slough on Brannan Island.

5.3.2 Soils Observed

One sample plot was selected within the study area to identify the presence or absence of hydric soils. This sample plot, SP1A, was located in soil map unit 139 and the location was selected based on the presence of hydrophytic vegetation and location immediately adjacent to a dredged agricultural ditch located outside the study area. The soil texture observed at sample plot SP1A was silty clay. Soil colors observed in the matrix at the sample plot ranged from very dark brown (10YR 2/2) to black (10YR 2/1 and 2.5Y 2.5/1). Some redox concentrations were observed in the upper and lower layers of soil including a strong brown (7.5YR 5/8). Despite the dark matrix color and the presence of some redoximorphic features, this sample plot did not meet any of the hydric soil indicators. As discussed in section 5.2.1.3 above, the adjacent agricultural ditch (located outside the study area) had recently been dredged and the dredge spoils were deposited at this location. Dredge spoils appear to be routinely deposited in and around this area; therefore, this sample plot may exhibit some wetland characteristics due to the import of dredged material from the bottom of an agricultural ditch and not due to in-situ conditions.

5.4 WETLAND HYDROLOGY

Surveys were conducted on August 15, 2024, during the middle of the dry season with average rainfall conditions (see Table 1). The one sample plot that was selected to determine the presence/absence of adjacent wetlands lacked hydrologic indicators (SP1A). There were no wetland signatures or other indicators of wetlands observed within the study area outside of the limits of Threemile Slough. As a result, only one sample plot was selected within the study area.

6.0 FEDERAL JURISDICTIONAL DETERMINATION

One sample plot was sited in an area that supported hydrophytic vegetation to determine if adjacent wetlands were present within the study area; however, the sample plot did not meet any of the three parameters (a dominance of hydrophytic vegetation or presence of hydric soil and wetland hydrology) for consideration as a federally jurisdictional wetland. The field delineation data form is included under Appendix B. A total of 3.51 acres of jurisdictional waters of the U.S. were mapped within the study area boundary.

From a Cowardin classification standpoint, the study area supported two wetland types and one deepwater habitat type, both of which were defined as other waters of the U.S. due to their location below the HTL. Wetland types are defined both by their abiotic features such as water regime and topography as well as biotic factors like vegetation communities. Cowardin classification wetlands are not necessarily considered three parameter jurisdictional wetlands. The wetland types found within the study area were a palustrine scrub-shrub wetland and a palustrine forested wetland. Both wetland types were located below the HTL and are therefore considered other waters of the U.S. Wetland types were determined by their abiotic and biotic features and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979). In addition to the two vegetated areas on the banks of Threemile Slough, other waters of the U.S. present within the unvegetated portion of Threemile Slough are classified as tidal riverine wetlands (Threemile Slough). Below is a brief description of each wetland type and deepwater habitat present in the study area.

6.1 FEDERAL WATERS

6.1.1 Tidal Riverine Waters

Riverine waters are defined as aquatic resource features that are confined within a channel and lack dominance of trees, shrubs, persistent emergent herbs, mosses, or lichens. Wetlands that occur on a river's floodplain are classified separately from the riverine system due to the presence of vegetation cover (Cowardin, 1979). Within the riverine system classification there are four subsystems. These are tidal, lower perennial, upper perennial, and intermittent. Within the study area, Threemile Slough is a tidal channel. This subsystem is characterized by its fluctuating water velocity caused by the ebb and flow of the tide. Tidal riverine waters typically have a muddy streambed with patches of sand. The existence of floodplains is common in tidal riverine systems.

In tidal systems, the limits of Corps jurisdiction on waters of the U.S. are defined by the high tide line (limits of Clean Water Act Section 404 jurisdiction) and mean high water line (limits of Rivers and Harbors Act Section 10 jurisdiction). See the Preliminary Federal Aquatic Resources Delineation Map (Figure 3) for the location of the HTL on Threemile Slough within the study area, and the limits of federal jurisdiction. A total of 3.51 acres of tidal riverine waters occurs within the study area and are considered jurisdictional.

6.1.2 Palustrine Forested Wetland

The palustrine classification of wetlands includes a wide variety of different wetland types. Wetlands commonly called ponds, prairies, fens, bogs, marshes, and swamps are all types of palustrine wetlands. In most circumstances, palustrine wetlands are dominated by persistent

emergent herbs, shrubs, or trees and are found in non-tidal areas. Palustrine wetlands could occur in tidal wetlands if the salinity derived from the ocean is below 0.5 ppt (Cowardin, 1979).

Palustrine forested wetlands have a dominance of woody plants that are greater than 20 feet tall (trees). In the western United States, this wetland type is common on the fringes of river systems where higher soil moisture is present but frequent and violent flooding does not occur. The south bank of Threemile Slough is jurisdictional as a water of the U.S. below the HTL and it is classified as a palustrine forested wetland due to its physical properties. Within the study area, this wetland type was part of the California sycamore and coast live oak riparian forest vegetation community and was located on the southern side of Threemile Slough. A total of 0.11 acres of palustrine forested wetlands occurs within the study area.

6.1.3 Palustrine Scrub-Shrub Wetland

Palustrine scrub-shrub wetlands share the same characteristics of other palustrine systems as described above but have a dominance of woody plants that are less than 20 feet tall. Scrub-shrub wetlands often develop from adverse environmental conditions like flooding and erosion which prevent larger or older woody plants from developing. For this reason, a palustrine scrub-shrub wetland may be an early succession of a palustrine forested wetland and could develop into a forest given enough time to develop without adverse environmental conditions.

Within the study area, palustrine scrub-shrub wetlands were present on the north bank of Threemile Slough below the HTL. The north bank of Threemile Slough is jurisdictional as a water of the U.S. below the HTL and it is classified as a palustrine scrub-shrub wetland due to its physical properties. Palustrine scrub-shrub wetlands were mapped within the sandbar willow thickets vegetation community and occurred only below the HTL within the study area. A total of 0.13 acres of palustrine scrub-shrub wetlands occurs within the study area.

Table 3. Federal Jurisdictional Aquatic Resource Features Within the Study Area at the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project

Feature	ID	Cowardin Classification	Waters of the U.S.		Acreage
			Other Waters	Wetlands	
Threemile Slough	R1	Palustrine Scrub-Shrub Wetland	Yes	No	0.13
		Palustrine Forested Wetland	Yes	No	0.11
		Tidal Riverine Water	Yes	No	3.27
Total Federal Jurisdiction (Acres):					**3.51**

7.0 CONCLUSIONS

On the basis of the field delineation and data analysis, we have concluded that the Project study area contains approximately 3.51 acres of Federally jurisdictional waters of the U.S., and no federal wetlands.

The preliminary aquatic resources delineation map is included as Figure 3. Wetland features are also summarized in Table 3 with a summary of federal jurisdiction. These findings are preliminary and require review and verification by the Sacramento District of the Corps.

8.0 REFERENCES

Baldwin, Bruce G., Goldman, Douglas H., Keil, David J., Rosatti, Thomas J. 2012. *The Jepson Manual: Vascular Plants of California, Second Edition*. University of California Press. Berkeley, CA.

California Department of Fish and Wildlife. (2023). Sensitive Natural Communities. California Department of Fish and Wildlife. https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities. Accessed August 2024.

California Water Boards, State Water Resources Control Board and Regional Water Quality Control Boards. 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Adopted April 2019.

California Water Boards, State Water Resources Control Board. 2018. Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. December 12, 2018.

California Water Boards, State Water Resources Control Board. 2020. Implementation Guidance for the Sate Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. April 2020.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, FWS-OBS-79/31. Washington, D.C.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Wetlands Research Program, Technical Report Y-87-1. U.S. Army Engineers Waterways Experiment Station. Vicksburg, Mississippi.

Miles, S. and C. Goudey. 1997. *Ecological Subregions of California: Section and Subsection Descriptions*. USDA Forest Service, Pacific Southwest Region Publication R5-EM-TP-005. San Francisco, CA.

Munsell Color. 1990. *Munsell Soil Color Charts*. MacBeth Division, Kollmorgen Instruments Corp. Baltimore, Maryland.

Natural Resources Conservation Service (NRCS), 1998. *Keys to Soil Taxonomy, Eighth Edition*. United States Department of Agriculture

------ 2024. Web Soil Survey. U.S. Department of Agriculture. http://websoilsurvey.nrcs.usda.gov/app/

Sawyer, John O., Keeler-Wolf, Todd, Evens, Julie, 2009. *A Manual of California Vegetation Second Edition.* California Native Plant Society. Berkeley, CA.

Sunset Western Garden Collection. (n.d.). Climate zones. Sunset Western Garden Collection. https://sunsetplantcollection.com/climate-zones/. Accessed August 2024.

U.S. Army Corps of Engineers. 2005. Ordinary High Water Mark Identification. Regulatory Guidance Letter 05-05. Washington, D.C.

------ 2007. Practices for Documenting Jurisdiction under Sections 9 & 10 of the Rivers and Harbors Act (RHA) of 1899 and Section 404 of the Clean Water Act (CWA). Regulatory Guidance Letter No. 07-01. Washington, D.C.

------ 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*: U.S. Army Engineer Research and Development Center.

------ 2016. Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. February 10, 2016.

------ 2020. National Wetland Plant List (NWPL). U.S. Army Corps of Engineers. https://cwbi-app.sec.usace.army.mil/nwpl_static/v34/home/home.html. Accessed August 2024.

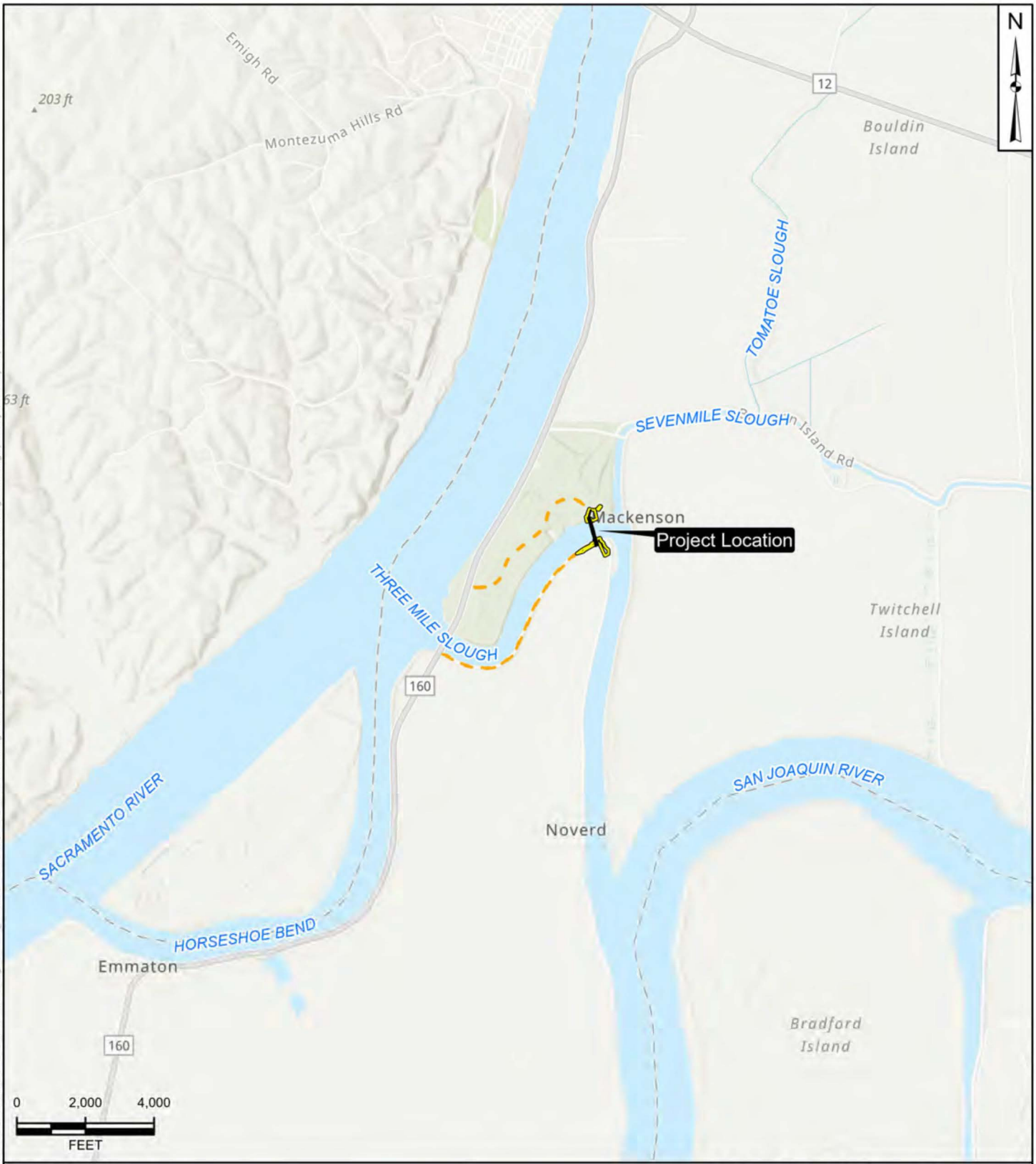
U.S. Department of Agriculture, Natural Resources Conservation Service. 2006 *Field Indicators of Hydric Soils in the United States, Version 6.0.* G.W Hurt and L.M. Vasilas (eds.). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

U.S. Fish and Wildlife Service. 2024. National Wetland Inventory-Wetland Mapper. Website: http://www.fws.gov/wetlands/Data/Mapper.html. Accessed August 2024.

U.S. Geological Survey. 2024. "USGS Current Conditions for 11337080 Threemile Slough Nr Rio Vista CA." *National Water Information System: Web Interface*, USGS, 2024, https://dashboard.waterdata.usgs.gov/api/gwis/2.1.1/service/site?agencyCode=USGS&siteNumber=11337080&open=176623

Western Regional Climate Center. 2024. Concord Buchanan Weather Station, California Period of Record Monthly Climate Summary, Period of Record: 1999 to 2024. http://agacis.rcc-acis.org/ Accessed August 2024.

FIGURES



LEGEND:

Pipeline | Workpace | Access Route

MAP EXTENT:



Source: Esri Online Topo Basemap
Coordinate System:NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-131Y & L-131Z
THREE MILE SLOUGH CROSSING REMEDIATION
SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: August 2024

PROJECT VICINITY MAP

FIGURE 1

J:\GIS Projects\GIS Maps\MXD Data\Projects Docs\Pc-PG&E L-131Y and L-131Z Three Mile Slough Crossing\PG&E L-131Y and L-131Z Three Mile Slough Crossing.aprx\Project Vicinity Map 8/22/2024



N

LEGEND:

- Control Point
- Delta Tule Pea *(Lathyrus jepsonii var. jepsonii)*
- Study Area (7.6ac)
- Dripline of Blue Elderberry Shrub *(Sambucus nigra ssp. caerulea)*

Vegetation Communities

- California Sycamore and Coast Live Oak Riparian Woodland
- Developed
- Disturbed Land
- Riverine
- Sandbar Willow Thickets
- Wild Oats and Annual Brome Grassland

MAP EXTENT:



0 90 180
FEET

Source: Esri Online Imagery Basemap, County of Sacramento
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: THREEMILE SLOUGH PIPELINE CROSSING REMEDIATION AND DECOMMISSIONING SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: November 2024

VEGETATION COMMUNITY MAP

FIGURE 2

«ITA»Z:\GIS Projects\GIS Maps\GIS Data\Project Specific\PG&E I-131Y and I-131Z Three Mile Slough Crossing\PG&E I-131Y and I-131Z Three Mile Slough Crossing.aprx\Vegetation Community Map 11/18/2024 «ITA»



N

LEGEND:

- Control Point
- Sample Plot Location
- High Tide Line
- Study Area (7.6ac)

Cowardin Classification

- Palustrine Forested Wetland (0.11ac)
- Palustrine Scrub Shrub Wetland (0.13ac)
- Tidal Riverine Water (3.27ac)

Preliminary Jurisdiction Delineation Acreage Calculations

Feature	ID	Cowardin Classification	Waters of the U.S.		Acreage
			Other Waters	Wetlands	
Three Mile Slough	R1	Palustrine Scrub Shrub Wetland	Yes	No	0.13
		Palustrine Forested Wetland	Yes	No	0.11
		Tidal Riverine Water	Yes	No	3.27
				Total:	3.51

MAP EXTENT:



0 90 180
FEET

Source: Esri Online Imagery Basemap, County of Sacramento
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: THREEMILE SLOUGH PIPELINE CROSSING REMEDIATION AND DECOMMISSIONING SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: November 2024

PRELIMINARY AQUATIC RESOURCES DELINEATION MAP

FIGURE 3

G:\Projects\GIS Maps\GIS Data\Proved Sowrfic\PG&E L-131Y and L-131Z Three Mile Slough Crossing\PG&E L-131Y and L-131Z Three Mile Slough Crossing\PG&E L-131Y and L-131Z Three Mile Slough Crossing Preliminary Aquatic Resources Delineation Map_11182024.mxd

Photograph A. View of the disturbed land in the southern portion of the study area with visible remnants of burn piles and trash piles. View north (photograph taken 8/15/24).	
Photograph B. View of sample plot SP1A located in an area of deposited dredge spoils adjacent to a recently dredged drainage ditch. View northeast (photograph taken 8/15/24).	

Photograph C. View of the disturbed land cover type. The agricultural ditch adjacent to the study area and the location of SP-1A is visible in the right of the photo. View south (photograph taken 8/15/24).	
Photograph D. View of Threemile Slough from the south bank on Sherman Island. View northwest (photograph taken 8/15/24).	

Photograph E. View of the south bank of Threemile Slough along the waterside slope of the Sherman Island levee showing drift deposit where the high tide line was mapped. View northeast (photograph taken 8/15/24).	
Photograph F. View of Sherman Island East Levee Road along the levee crown and the California sycamore and coast live oak riparian woodland community along the southern bank of Threemile Slough. View northeast (photograph taken 8/15/24).	

Photograph G. View of the sandbar willow thickets vegetation community located along the northern bank of Threemile Slough. View northeast (photograph taken 8/15/24).	
Photograph H. View of the wild oats and annual brome vegetation community north of Threemile Slough on Brannan Island. View southwest (photograph taken 08/15/2024).	

APPENDIX A

WETS TABLES

WETS Table

WETS Station: CONCORD BUCHANAN FIELD, CA								
Requested years: 1999 - 2024								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	58.3	40.5	49.4	2.63	1.12	3.04	5	-
Feb	62.3	42.2	52.3	2.72	1.08	3.20	6	-
Mar	66.5	45.4	55.9	2.16	0.96	2.63	6	-
Apr	71.0	48.1	59.6	1.14	0.33	1.34	3	-
May	77.7	52.6	65.1	0.39	0.11	0.37	1	-
Jun	84.8	56.5	70.6	0.11	0.00	0.04	0	-
Jul	88.4	58.2	73.3	0.00	0.00	0.00	0	-
Aug	87.7	58.7	73.2	0.01	0.00	0.00	0	-
Sep	85.3	57.0	71.2	0.07	0.00	0.06	0	-
Oct	77.6	51.7	64.6	0.86	0.11	0.59	1	-
Nov	65.9	44.3	55.1	1.42	0.87	1.72	3	-
Dec	57.9	40.3	49.1	3.39	1.29	4.10	7	-
Annual:					11.72	17.42		
Average	73.6	49.6	61.6	-	-	-	-	-
Total	-	-	-	14.91			33	-

GROWING SEASON DATES			
Years with missing data:	24 deg = 0	28 deg = 0	32 deg = 2
Years with no occurrence:	24 deg = 26	28 deg = 23	32 deg = 3
Data years used:	24 deg = 26	28 deg = 26	32 deg = 24
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	No occurrence	1/23 to 12/19: 330 days
70 percent *	No occurrence	No occurrence	1/12 to 12/31: 353 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)													
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1999						MT	T	T	0.02	0.36	1.37	0.29	2.04
2000	6.02	6.86	2.08	0.85	0.83	0.10	0.00	0.00	0.18	1.64	0.67	0.69	19.92
2001	2.15	5.53	1.13	0.98	0.00	0.14	0.00	0.00	0.15	0.24	3.28	6.45	20.05
2002	0.78	1.30	1.50	0.16	1.20	0.00	0.00	0.00	0.00	0.00	2.08	8.79	15.81
2003	1.10	1.08	1.59	3.15	0.64	0.00	T	0.19	T	0.00	1.31	4.97	14.03
2004	2.23	4.68	0.56	0.07	0.05	0.00	0.00	0.00	0.08	2.43	1.53	4.48	16.11
2005	3.28	2.07	1.38	0.78	0.67	0.09	0.00	0.00	0.00	0.06	0.46	6.92	15.71
2006	0.75	1.01	4.55	3.28	0.57	0.06	0.00	0.00	0.00	0.12	1.15	2.00	13.49

2007	0.37	3.35	0.15	0.81	0.30	0.00	0.01	0.00	0.04	1.57	0.61	2.16	9.37
2008	6.56	1.67	0.13	0.05	T	0.00	0.00	0.00	0.00	0.12	2.09	1.28	11.90
2009	1.04	5.74	2.12	1.16	0.51	0.01	0.00	0.00	0.07	3.79	0.41	2.37	17.22
2010	5.35	1.87	1.72	3.64	0.89	0.00	0.00	0.00	0.00	0.65	1.70	4.98	20.80
2011	1.01	3.64	5.17	0.19	0.54	1.99	0.00	0.00	0.02	0.71	0.77	0.07	14.11
2012	2.38	1.07	3.76	2.41	T	0.04	0.00	0.00	T	1.04	3.50	5.07	19.27
2013	0.40	0.32	0.68	0.51	0.02	0.12	0.00	0.00	0.65	T	1.34	0.46	4.50
2014	0.10	4.47	1.87	1.51	T	0.00	T	0.09	0.28	0.44	1.01	7.86	17.63
2015	T	2.87	0.17	0.87	0.04	0.37	T	T	0.05	0.01	1.53	2.04	7.95
2016	4.77	0.86	4.96	1.05	0.22	T	T	T	0.00	2.61	0.95	2.19	17.61
2017	8.50	6.05	2.12	2.53	0.02	0.01	0.00	T	0.03	T	2.59	0.10	21.95
2018	3.20	0.57	4.48	2.27	T	0.00	0.00	0.00	T	0.01	3.42	1.49	15.44
2019	3.97	6.34	3.40	0.12	1.38	0.00	0.00	0.00	0.11	0.00	0.83	4.00	20.15
2020	0.97	0.00	1.70	0.47	0.46	0.00	0.00	0.02	0.00	0.00	0.30	0.95	4.87
2021	M1.37	0.63	0.84	0.01	0.01	0.00	0.00	0.00	T	5.69	0.69	M4.77	14.01
2022	T	0.01	0.55	0.77	MT	T	T	0.01	0.17	0.00	1.31	7.97	10.79
2023	M6.72	2.83	5.59	0.04	0.46	T	0.00	T	0.01	0.04	0.69	2.40	18.78
2024	2.85	3.16	1.68	0.78	0.86	0.00	0.00	MT					9.33
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.													
Data missing for all days in a month or year is blank.													
Creation date: 2024-08-08													

APPENDIX B

ROUTINE WETLAND DELINEATION DATA FORM

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: L-131 V/Z Remediation / Access City/County: Sac County Sampling Date: 8/15/24
Applicant/Owner: PGE State: CA Sampling Point: 1A
Investigator(s): SPowell, NTallman, RBedard Section/Township/Range: 7/3N/3E
Landform (hillslope, terrace, etc.): Island Local Relief (concave, convex, none): none Slope (%): 0-5%
Subregion (LRR): C Lat: 38°6'49.62 N Long: 121°41'6.59"W Datum: W6584
Soil Map Unit Name: Egbert clay, 0 to 2% slopes NWI Classification: PF01Bh
Are climatic/hydrologic conditions on the site typical for this time of years? Yes X No ____ (if no, explain in Remarks)
Are Vegetation X, Soil X, or Hydrology X significantly disturbed? YES Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Wet area in topographic low area adjacent to the ditch. Ditch was recently dredged and dredge spoils placed in this area. Due to placement of dredge spoils, this area exhibits some wetland characteristics.

VEGETATION

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Cynodon dactylon	80	X	FACU
2. Phragmites australis	15		FACW
3. Typha angustifolia	20		OBL
4. Persicaria lapathifolia	10		FACW
5. Cyperus eragrostis	1		FACW
6. Ethinis intricoides	20		FAC
7. Xanthium strumarium	1		FAC
8. Phalaris aquatica	1		FACU
	148 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum: ____	% Cover of Biotic Crust ____		

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Dominance Test Worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

OBL species	20	X1	20	
FACW species	26	X2	52	
FAC species	21	X3	63	
FACU species	81	X4	324	
UPL species	0	X5	0	
Column Totals:	148	(A)	459	(B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
No Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Hydrophytes occur in this area due to routine dredging of the adjacent channel and placement of dredge spoils w/ hydrophytes in seed bank in this area. Very small stands of FACW & OBL species, but the dominant species is FAC.

SOIL Sampling Point 1A

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	Percent	Color (moist)	Percent	Type[1]	Loc[2]	Texture	Remarks
0-2.5"	10YR 2/2	96	7.5YR 5/8	3	C	M		
			10YR 2/1	1	C	M		
2.5-10"	10YR 2/1	100						
10-18"	2.5Y 2.5/1	90	7.5YR 3/4	10	C	M		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR C)**
- ____ 1 cm Muck (A9) **(LRR D)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ 2 cm Muck (A10) **(LRR B)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks: Soils moist, not saturated

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1) **(Nonriverine)**
- __ Sediment Deposits (B2) **(Nonriverine)**
- __ Drift Deposits (B3) **(Nonriverine)**
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Water-Stained Leaves (B9)
- __ Salt Crust (B11)
- __ Biotic Crust (B12)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Plowed Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water Marks (B1) **(Riverine)**
- __ Sediment Deposits (B2) **(Riverine)**
- __ Drift Deposits (B3) **(Riverine)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial (C9)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil is moist in soil pit, but not saturated.

APPENDIX C

NATIONAL WETLAND INVENTORY MAP

U.S. Fish and Wildlife Service
National Wetlands Inventory

PG&E Threemile Slough



August 27, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

APPENDIX D

NRCS WEB SOIL SURVEY MAP

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Sacramento County, California



April 24, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

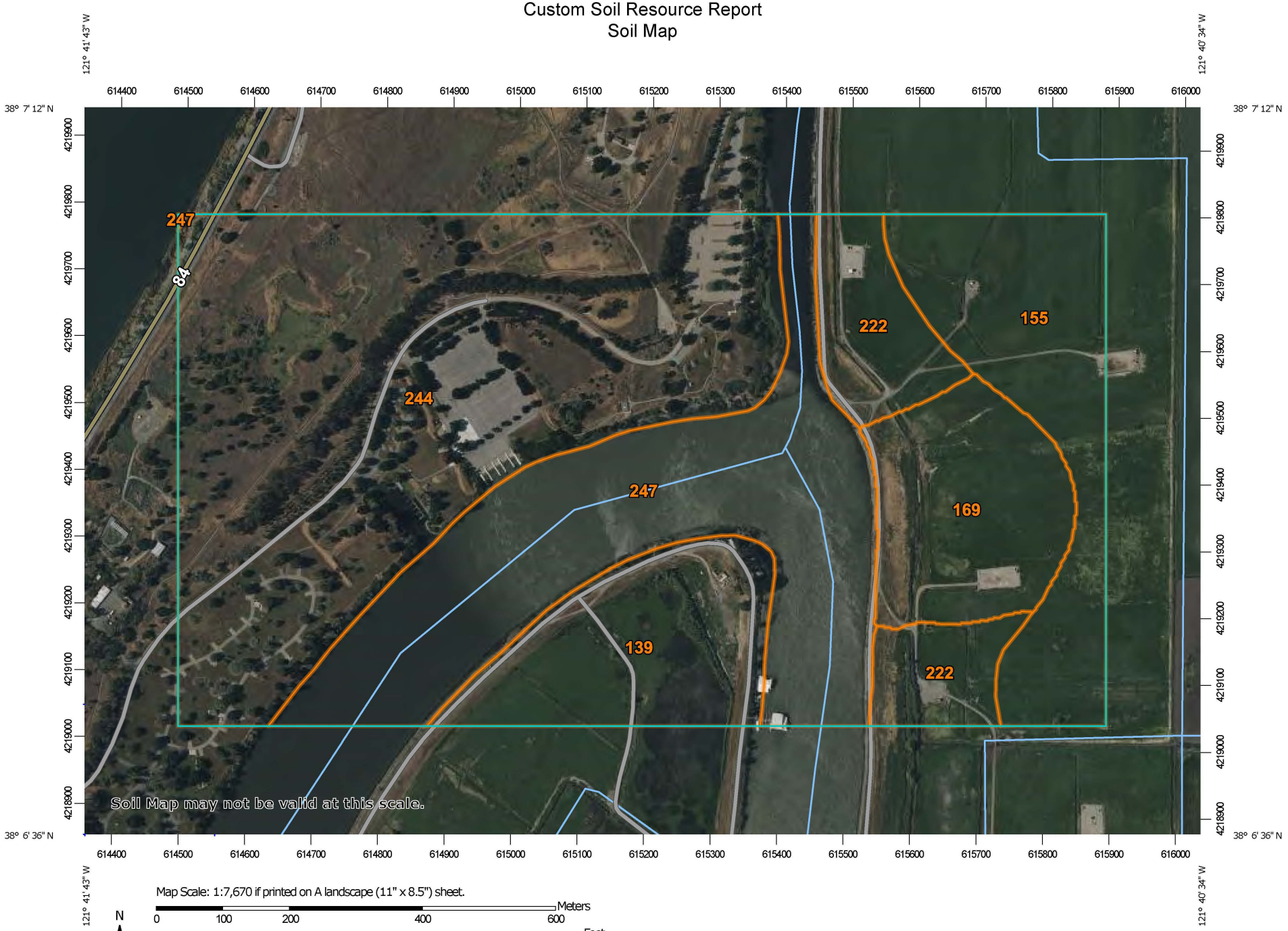
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:7,670 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 100 200 400 600

Feet
0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 23, Aug 31, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 23, 2022—Apr 24, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
139	Egbert clay, 0 to 2 percent slopes	24.8	9.3%
155	Gazwell mucky clay, partially drained, 0 to 2 percent slopes	30.9	11.7%
169	Laugenour loam, partially drained, 0 to 2 percent slopes, MLRA 16	22.8	8.6%
222	Scribner clay loam, partially drained, 0 to 2 percent slopes, MLRA 16	18.9	7.1%
244	Xeropsamments, 1 to 15 percent slopes	109.5	41.3%
247	Water	58.5	22.0%
Totals for Area of Interest		**265.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not

mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Sacramento County, California

139—Egbert clay, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hhmg
Elevation: 20 to 30 feet
Mean annual precipitation: 24 to 30 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 220 to 260 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Egbert and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Egbert

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 20 inches: clay
H2 - 20 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Minor Components

Gazwell

Percent of map unit: 5 percent
Landform: Backswamps

Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Sailboat

Percent of map unit: 5 percent
Landform: Levees
Ecological site: R016XA002CA - Freshwater, Stratified, Fluventic
Hydric soil rating: Yes

Scribner

Percent of map unit: 5 percent
Landform: Backswamps
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

155—Gazwell mucky clay, partially drained, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hhmz
Elevation: 20 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 59 degrees F
Frost-free period: 275 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Gazwell and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gazwell

Setting

Landform: Backswamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

Ap - 0 to 30 inches: mucky clay
2Ab - 30 to 36 inches: mucky silty clay
3Oa - 36 to 60 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 13.7 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Minor Components

Egbert

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Rindge

Percent of map unit: 4 percent
Landform: Marshes
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Sailboat

Percent of map unit: 3 percent
Landform: Levees
Ecological site: R016XA002CA - Freshwater, Stratified, Fluventic
Hydric soil rating: Yes

Scribner

Percent of map unit: 3 percent
Landform: Backswamps
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Unnamed, clayey below 20in.

Percent of map unit: 1 percent
Hydric soil rating: No

169—Laugenour loam, partially drained, 0 to 2 percent slopes, MLRA 16

Map Unit Setting

National map unit symbol: 2yc9x
Elevation: 0 to 10 feet
Mean annual precipitation: 19 to 20 inches

Mean annual air temperature: 61 to 62 degrees F
Frost-free period: 320 to 324 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Laugenour and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Laugenour

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 7 inches: loam
A - 7 to 16 inches: loam
C1 - 16 to 39 inches: sandy loam
C2 - 39 to 60 inches: stratified sandy loam to loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very high (about 12.4 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: R016XA002CA - Freshwater, Stratified, Fluventic
Hydric soil rating: Yes

Minor Components

Sailboat

Percent of map unit: 6 percent
Landform: Flood plains on natural levees
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R016XA002CA - Freshwater, Stratified, Fluventic
Hydric soil rating: Yes

Lang

Percent of map unit: 6 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R016XA002CA - Freshwater, Stratified, Fluventic
Hydric soil rating: Yes

Unnamed, hydric, occasionally flooded

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

222—Scribner clay loam, partially drained, 0 to 2 percent slopes, MLRA 16

Map Unit Setting

National map unit symbol: 2x4l6
Elevation: 0 to 10 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 61 to 62 degrees F
Frost-free period: 319 to 327 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Scribner, partially drained, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scribner, Partially Drained

Setting

Landform: Backswamps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap1 - 0 to 4 inches: clay loam
Ap2 - 4 to 12 inches: clay loam
A - 12 to 21 inches: clay loam
Ab - 21 to 39 inches: clay loam

Bg - 39 to 51 inches: clay loam
Bkg - 51 to 60 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 0.28 in/hr)
Depth to water table: About 20 to 35 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 0.4 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Minor Components

Egbert

Percent of map unit: 5 percent
Landform: Backswamps
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Sailboat

Percent of map unit: 5 percent
Landform: Levees
Landform position (three-dimensional): Riser
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R016XA002CA - Freshwater, Stratified, Fluventic
Hydric soil rating: No

Gazwell

Percent of map unit: 2 percent
Landform: Backswamps
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: Yes

Dierssen

Percent of map unit: 1 percent
Landform: Basin floors

Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Guard

Percent of map unit: 1 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Tinnin

Percent of map unit: 1 percent
Landform: Bars
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

244—Xeropsamments, 1 to 15 percent slopes

Map Unit Setting

National map unit symbol: hhqv
Elevation: 10 to 2,500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 280 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Xeropsamments and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xeropsamments

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mine spoil or earthy fill

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 1 to 15 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 6e
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater
Hydric soil rating: No

Minor Components

Fluvaquents

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Hydric soil rating: Yes

Gazwell

Percent of map unit: 5 percent
Landform: Backswamps
Hydric soil rating: Yes

Sailboat

Percent of map unit: 4 percent
Landform: Levees
Hydric soil rating: Yes

Unnamed, water table below 18 inches

Percent of map unit: 1 percent
Hydric soil rating: No

247—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX G

Phase 1 Archeological Study

PHASE I ARCHAEOLOGICAL STUDY

PACIFIC GAS & ELECTRIC COMPANY
L-131Y AND L-131Z THREE MILE SLOUGH CROSSINGS PIPELINE REMEDIATION PROJECT
SACRAMENTO COUNTY, CALIFORNIA

Project No. 2402-1171

Prepared for:

Pacific Gas & Electric Company
Gas Transmission, Environmental Management
4040 West Lane, Building #9 (113C)
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Prepared by:
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OCTOBER 2024

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Non-Confidential Version

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

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Report Date: October 2024

Report Title: Phase I Archaeological Study, PG&E L-131Y and L-131Z Three Mile Slough Crossings Pipeline Remediation Project, Sacramento County, California

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Project No: 2402-1171

U.S.G.S. Quads: Jersey Island, California

Key words: Sacramento County, Three Mile Slough, Eastern Miwok, plains Miwok, Sacramento River Delta, Brannan Island

MANAGEMENT SUMMARY

On behalf of Pacific Gas and Electric (PG&E), at the request of Longitude 123, Padre Associates, Inc. (Padre) prepared the following Phase I Archaeological Study in support of PG&E's L-131Y and L-131Z Three Mile Slough Crossings Pipeline Remediation Project (Project) in Sacramento County, California (Project site). The proposed Project involves the remediation of two existing natural gas transmission pipelines and the removal of two previously abandoned pipelines that cross Three Mile Slough between the Brannan Island State Recreation Area and Sherman Island.

In anticipation of permitting through the United States Army Corps of Engineers (USACE) and the California State Lands Commission (CSLC), the archaeological study was conducted in compliance with requirements of the California Environmental Quality Act, as amended (CEQA Public Resources Code Section 21000 et seq.) and Section 106 of the National Historic Preservation Act and its implementing regulations, as amended (36 CFR Part 800). The purpose of the study was to identify all historic properties / historical resources that may be affected / impacted by Project activities and conduct an effects / impacts analysis for any historic properties / historical resources within the Project Area of Potential Effects (APE) / Project Area Limits. This report summarizes the results of a Phase I pedestrian survey, archaeological records search, and Sacred Lands File search, and will determine Project impacts on cultural resources. Additionally, the Section 106 regulatory term Project APE will be synonymous with the CEQA term Project Area Limits, and for the sake of clarity only the term Project APE is used throughout this report.

For the purposes of this report, the Project APE refers to all areas that are considered for construction, access, and staging. The Area of Direct Impact (ADI) is smaller and limited to only the specific areas subject to planned ground disturbance.

[redacted] Research also revealed that 37 cultural resource studies have been completed within a 0.5-mile radius, 12 of which included portions of the Project APE.

Padre's request for a Sacred Lands File search at the Native American Heritage Commission (NAHC) did not identify any sacred sites within the Project APE. All remaining tribal consultation will be conducted by the USACE, Sacramento District.

A Padre Staff Archaeologist conducted an intensive pedestrian survey of the Project APE on August 14 and 15, 2024. Ground visibility varied from fair to excellent. No new cultural resources were observed during the survey.

Padre also reviewed a buried site sensitivity study previously prepared by Far Western in 2013 to assess the likelihood for subsurface archaeological materials within the Project APE. Based on the analysis completed in 2013, the northern Project APE was historically a swampy portion of the Sacramento-San Joaquin Delta and did not represent a formerly stable land surface that would have been available for prehistoric human occupation. In the late-1920s, the swamp was covered by 20 to 40 feet of sediments dredged from the Sacramento River. Thus, the potential to encounter buried archaeological resources is low.

[redacted]

The Project ADI within the [redacted] and the [redacted] has been previously impacted by the installation of the existing pipeline, road construction, and levee maintenance. As designed, the proposed Project will not cause any new impacts to these resources, and once ground disturbance is complete, the Project ADI will be backfilled and restored to pre-Project contours and condition. This will result in no change to the current conditions of either the [redacted] or the [redacted]. Additionally, the Project will not cause destruction or damage to either property, nor change the function or design. No change in setting will occur, as the properties will be returned to their pre-Project status. Finally, the Project will not result in the sale or neglect of a historic property.

Thus, the Project will avoid adverse effects to the [redacted] because the Project ADI will be returned to its prior condition. Therefore, Padre recommends a finding of **No Adverse Effect** for the Project and recommends no further archaeological work. If the Project footprint changes or if changes in the Project description have the potential to impact identified cultural resources, then additional work may be necessary.

The buried site sensitivity analysis indicates a low potential for buried sites within the Project APE. In the event of inadvertent discoveries of cultural resources during the course of Project-related ground disturbance activities within the Project APE, a protocol should be implemented that provides for consideration and treatment of the find pursuant to regulation 36 CFR 800.13 (Post-Review Discoveries). Such measures include stopping ground-disturbing activity near the find, notification of PG&E's Cultural Resources Specialist, assessment of the nature and extent of the resource including its possible eligibility for listing in the NRHP or California Register of Historical Resources (CRHR), and subsequent recordation and notification based upon the results of the assessment. In the event that human remains are encountered during the proposed project, the provisions outlined in Section 7050.5 of the California Health and Safety Code must be followed.

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[redacted]

APPENDICES

Appendix A. Project Maps
Appendix B. Sacred Lands File Search Results

1.0 INTRODUCTION

On behalf of Pacific Gas and Electric (PG&E), at the request of Longitude 123, Padre Associates, Inc. (Padre) has completed a Phase I Archaeological Study in support of PG&E's L-131Y and L-131Z Three Mile Slough Crossings Pipeline Remediation Project (Project) in Sacramento County, California (Project site).

Padre Staff Archaeologist Christopher J. Letter conducted the Phase I pedestrian survey of the Project Area of Potential Effect (APE) on August 14 and 15, 2024 and was overseen by Padre Senior Archaeologist Rachael J. Letter, M.S., RPA. Ms. Letter meets the U.S. Secretary of the Interior's Historic Preservation Professional Qualification Standards as outlined in 36 Code of Federal Regulations (CFR) 61.

The remainder of this section provides the Project description and location; Section 2.0 discusses the regulatory framework; Section 3.0 provides the environmental, ethnographic and archaeological overviews for the region; Section 4.0 describes the background research; Section 5.0 presents the field methodology and results; Section 6.0 provides conclusions and recommendations; and references are listed in Section 7.0. Appendix A contains the Project maps and Appendix B presents the Sacred Lands File search results.

1.1 PROJECT LOCATION

The Project APE is located within the *Jersey Island, California* United States Geological Survey (USGS) 7.5-Minute Series topographic quadrangle maps. Specifically, the Project is located within Sections 12 and 13 of Township 2 North, Range 2 East and Sections 7 and 18 of Township 2 North, Range 3 East in Sacramento County, California (Appendix A: Plate 1). The approximate elevation range is 2 to 27 feet above mean sea level. The Project APE crosses Three Mile Slough between the Brannan Island State Recreation Area and Sherman Island near the confluence with the Sacramento River.

1.2 PROJECT DESCRIPTION

The proposed Project involves the remediation of two existing natural gas transmission pipelines and the removal of two previously abandoned pipelines that cross Three Mile Slough between the Brannan Island State Recreation Area and Sherman Island.

1.2.1 Pipeline Remediation

The proposed remediation of the shallowly buried pipeline sections consists of placing rock over the pipelines to achieve the prescribed minimum five feet of cover. Prior to placing rock above the pipeline, PG&E will reduce the operating pressure of the L-131Y and L-131Z pipelines to mitigate potential consequences in the unlikely event that the rock placement operation should damage the pipeline. The pipeline will be returned to normal operating pressure after the rock placement has been completed.

The proposed rock placement will begin with placement of approximately 100 cubic yards of gravel or three-quarters-of-an-inch crushed rock around the exposed pipeline to a point approximately 1 to 2 feet above the top of the pipeline to minimize the potential for larger rocks damaging the pipeline coating. Approximately 950 cubic yards of larger rock approximately matching the size of that found on the surrounding slough bed (9-inch) will then be placed above

the pipelines to achieve the prescribed minimum five feet of cover. The estimated total volume of rock to be placed is approximately 1050 cubic yards, and the estimated area over which rock will be placed is approximately 5, 706 square feet. The cross-section of the proposed rock placement would have an approximately 5-foot-wide flat top, and then be sloped at approximately 1.8 to 1 (horizontal to vertical) to a point where it meets the existing grade.

1.2.2 Pipeline Decommissioning and Removal

The proposed decommissioning scope of work for the two 10-inch-diameter L-131 pipelines that were previously filled with cement and abandoned in place is complete removal of the pipelines beneath the slough, and removal of the pipelines from the waterside slope of the Sherman Island Levee and the north bank of the slough. As-built documentation provided by PG&E indicates that the pipelines were previously removed from the levee crown. The segments that were previously abandoned in the landside slope and south of the landside levee toe are not within the scope of this project. These segments will remain filled with cement and abandoned in place. Final site restoration will be performed once decommissioning has been concluded.

Removal of the terrestrial pipeline sections, which are located on the north bank of the slough and the waterside slope of the Sherman Island levee located on the south side of the slough, will be performed using excavators. Vegetation will be removed from above the pipelines and adjacent to the planned excavation areas as needed to allow access for excavators and other equipment.

Excavators will be used to excavate the soil above and adjacent to the pipelines to be removed to fully expose the pipelines. Topsoil and riprap will be stockpiled separately from other excavation spoils to be replaced last. The terrestrial segments of the pipelines will be cut into sections using an excavator-mounted shear attachment, a hand-operated plasma cutter, or a saw designed to cut through both steel and concrete. Pipeline segments will then be picked up using an excavator with a hydraulic thumb or grapple attachment and loaded onto trucks for transportation to an off-site disposal facility.

Once the terrestrial pipeline removal is complete, excavations will be backfilled and compacted using the native spoils that were removed during excavation. Additional fill material may be imported as needed to restore the excavations to the pre-project contours. The excavation on the north bank will be compacted to match the relative compaction of adjacent undisturbed soils. The excavations on the Sherman Island levee waterside slope will be keyed or benched prior to backfill and will be backfilled in 4 to 6-inch lifts. Each layer will be compacted to at least 90%. Separately stockpiled topsoil or riprap will be placed last to match the pre-project conditions.

The previously abandoned L-131 pipelines are buried approximately 7 to 12 feet deep across much of the slough. Since the L-131 pipelines were previously filled with cement, removal will require excavation for most of their length. Underwater excavation will be performed using a submersible excavation pump narrowly following the buried pipeline alignment. Underwater excavations or disturbances to the riverbed that result from the submarine pipeline removal are expected to return to pre-Project conditions through the side-casting and natural hydrogeomorphic processes.

The terrestrial project worksites will be restored to pre-project conditions, including reseeding of vegetation and restoration of fences or other improvements that may have been

impacted by decommissioning activities. Disturbed portions of the levee slopes that are not covered with riprap will be reseeded with native vegetation.

1.3 PROJECT AREA OF POTENTIAL EFFECT

For the purposes of this report, the Project APE refers to all areas that are considered for construction, access, and staging, and includes the boundaries of identified cultural resources that overlap access roads and/or the Area of Direct Impact (ADI). The Project ADI is smaller and limited to only the specific areas subject to planned ground disturbance and all staging areas (Appendix A: Plate 2).

2.0 REGULATORY FRAMEWORK

This report complies with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, (54 United States Code [U.S.C.] § 300101 to 307108 [2014]) and its implementing regulations (36 Code of Federal Regulations [C.F.R.] §800 [2012]). The Project falls under the jurisdiction of the USACE and requires a permit under Section 404 of the Clean Water Act (33 USC 1344) and 408 Permission under Section 14 of the Rivers and Harbors Act (33 USC 408), which is a federal undertaking. Additionally, it is anticipated that the Project will require permits from the California State Lands Commission and other state agencies including the Central Valley Flood Protection Board, California Department of Fish and Wildlife, and the Regional Water Quality Control Board, which require compliance with the California Environmental Quality Act, as amended (CEQA Public Resources Code Section 21000 et seq.). The following regulatory framework describes the applicable federal and state statutes pertaining to the protection of archaeological resources.

2.1 NATIONAL HISTORIC PRESERVATION ACT OF 1966

Section 106 of the NHPA requires federal agencies with either direct or indirect jurisdiction over a proposed action to take into account the effect of their actions on historic properties. The United States Secretary of the Interior has also published a set of Standards and Guidelines for Archaeology and Historic Preservation, which describe suitable professional methods and techniques used to recover and preserve archaeological and historic properties.

Regulations revised in 1997 (36 CFR Part 800 et. seq.) set forth procedures to be followed for determining eligibility of properties for the National Register of Historic Places (NRHP). The eligibility criteria and process are used by federal, state, and local agencies in the evaluation of the significance of cultural resources. Revisions to Section 106 in 1999 emphasized the importance of Native American consultation.

36 CFR §800.16(l)(1) states:

> *Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the NRHP criteria.*

Section 106 of NHPA also requires federal agencies that provide funding or approval authority to take into account effects of undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following these regulations (36 CFR Part 800). To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (including archaeological, historical, and architectural properties) must be inventoried and evaluated for listing in the NRHP.

2.1.1 National Register of Historic Places

In order for a property to be considered for inclusion in the NRHP, it must meet the criteria for evaluation set forth in 36 CFR 60.4, as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- that are associated with events that have made a significant contribution to the broad patterns of our history (Criterion A); or
- that are associated with the lives of persons significant in our past (Criterion B); or
- that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); or
- that have yielded, or may be likely to yield, information important in prehistory or history (Criterion D).

Cultural resources integrity is determined using the NRHP's seven aspects of integrity at 36 CFR 60.4, which state that a historic property must not only be shown to be significant under the National Register criteria, but it also must retain historic integrity. The seven aspects of integrity include location, design, setting, materials, workmanship, feeling, and association. A property must meet one or more of the Criteria for Evaluation before a determination can be made about its integrity (National Register Bulletin 15).

2.2 STATE REGULATIONS

2.2.1 California Environment Quality Act (CEQA)

CEQA statute and guidelines include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in or formally determined eligible for the California Register of Historical Resources (CRHR) or local registers. CEQA further defines a "historical resource" as a resource that meets any of the following criteria:

- A resource listed in, or determined to be eligible for listing in, the CRHR;
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code, unless the preponderance of evidence demonstrates that it is not historically or culturally significant;
- A resource identified as significant (i.e., rated 1-5) in a historical resource survey meeting the requirements of Public Resource Code Section 5024.1(g) (Department of Parks and Recreation Form [DPR] 523), unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or
- Any object, building, structure, site, area, place, record or manuscript, which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the CRHR (CEQA Guidelines Section 15064.5).

2.2.2 California Register of Historical Resources

CRHR Criteria of Evaluation.

The CRHR is a listing of California resources that are significant within the context of California's history. The CRHR is a state-wide program of similar scope to the National Register Historic Places (NRHP). In addition, properties designated under municipal or county ordinances are eligible for listing in the CRHR. A historic resource must be significant at the local, state, or national level under one or more of the following criteria that are defined in the California Code of Regulations Title 14, Chapter 11.5, Section 4850:

- It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
- It is associated with the lives of persons important to local, California, or national history; or
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or
- It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

The CRHR criteria are similar to NRHP criteria, and are tied to CEQA, as any resource that meets the above criteria is considered an historical resource under CEQA.

2.3 REGULATIONS CONCERNING DISCOVERY OF HUMAN REMAINS

California Public Resources Code §5097.98 (Notification of Native American human remains, descendants; disposition of human remains and associated grave goods) mandates that the lead agency adhere to the following regulations when a project results in the identification or disturbance of Native American human remains:

(a) Whenever the commission receives notification of a discovery of Native American human remains from a county coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. The descendants may, with the permission of the owner of the land, or his or her authorized representative, inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The descendants shall complete their inspection and make their recommendation within 48 hours of their notification by the Native American Heritage Commission. The recommendation may include the scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

(b) Whenever the commission is unable to identify a descendant, or the descendant identified fails to make a recommendation, or the landowner or his or her authorized representative

rejects the recommendation of the descendant, and the mediation provided for in subdivision (k) of Section 5097.94 fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.

(c) Notwithstanding the provisions of Section 5097.9, the provisions of this section (including those actions taken by the landowner or his or her authorized representative to implement this section), and any action taken to implement an agreement developed pursuant to subdivision (l) of Section 5097.94, shall be exempt from the requirements of the California Environmental Quality Act (Division 13, commencing with Section 21000).

(d) Notwithstanding the provisions of Section 30244, the provisions of this section (including those actions taken by the landowner or his or her authorized representative to implement this section), and any action taken to implement an agreement developed pursuant to subdivision (1) of Section 5097.94 shall be exempt from the requirements of the California Coastal Act of 1976 (Division 20, commencing with Section 30000).

3.0 NATURAL AND CULTURAL OVERVIEW

3.1 ENVIRONMENTAL SETTING

The Project APE is located within the Great Valley geomorphic province, which is characterized by a river outwash plain spanning an area that is approximately 50 miles wide and 400 miles long. The Great Valley is bordered to the west by the Coast Range, and to the east by the Sierra Nevada range. Both the Sacramento and San Joaquin valleys, as well as their respective rivers, are enclosed within the larger Great Valley. During the Jurassic and Cretaceous periods, the Great Valley was a marine environment, constituting a deep-water inland arm of the Pacific Ocean. Over time the valley was filled with finely textured marine sediments, and later by river and flood (alluvial) deposits.

Specifically, the Project APE is located within the Sacramento-San Joaquin River Delta, a large inland river delta consisting of a network of shallow channels and marshy islands at the confluence of the Sacramento and San Joaquin Rivers (Pierce, 1988). The Sacramento-San Joaquin River Delta formed toward the end of the Pleistocene, as rising sea levels and associated slowing of river currents caused wetlands to expand and river sediments to accumulate. Over the next several thousand years, the accumulation of sediment continued, eventually forming natural levees composed of thick deposits of peat, sand, and silt. Until the mid-nineteenth century, settlement in the area was limited because of the shortage of solid ground and constantly shifting banks of sand and organic material; however, there is evidence that Native American groups have occupied this area for thousands of years (Garlignhouse et al., 2017).

The Delta region is characterized by a mild Mediterranean climate where summers are virtually rainless. The region receives on average 14 to 20 inches of annual precipitation, mostly from December to March. Summertime temperatures are moderated, particularly in the evenings, by the prevailing winds from the west. Average July temperatures are slightly higher in the east compared to the western Delta. Temperatures rarely reach freezing in the winter and tend to be no lower than the mid to low 40 degrees Fahrenheit (CDWR, 2009).

Historically, the Delta consisted of hundreds of miles of tidally influenced sloughs and channels and hundreds of thousands of acres of marsh and overflow land. At one time, the Delta supported hundreds of species, including the grizzly bear, tule elk, and gray wolf. As land reclamation took place and levees were built, the ecosystem changed. More than 90 percent of the marshland was converted to farms. The grizzly bear and gray wolf no longer reside in the Delta, but a population of tule elk has been established in the Suisun Marsh. The numbers of birds using the Delta have declined as well due to land reclamation, although changes in cropping patterns have allowed populations of some species to increase (CDWR, 2009).

The Project APE is located south of the City of Rio Vista, between Brannan Island and Sherman Island. The surrounding area consists primarily of agricultural and developed land. A recreational area is located on the north and western sides of Three Mile Slough and the eastern and southern sides of the slough are comprised of fields used for agriculture. Wild oats and annual brome grasslands were observed on Sherman Island along the southern levee slope of Sherman Island East Levee Road and throughout the majority of the upland area on Brannan Island. Along the south bank of Three Mile Slough, California sycamore and coast live oak riparian woodland

was observed along the shoreline. On the north bank of Three Mile Slough, sandbar willow thicket was observed along the steep banks.

Sediments within the Project APE generally consist of multiple constituents related to floodplains, backswamps and freshwater marshes. Soils on the north side of Three Mile Slough are Xeropsamment, one to 15 percent slopes, which consist of artificial fill deposited over the past 87 years (SoilWeb, 2024; Thomas, 2013). Soils on the south side of Three Mile Slough are Egbert clay, zero to two percent slopes, a very deep, poorly drained soil formed in alluvium from mixed sources that typically form in basins of river deltas (SoilWeb, 2024).

3.2 ARCHAEOLOGICAL CONTEXT

Archaeologists working in the Delta region of California's Central Valley have generally recognized four major precontact periods of cultural adaptation within the last 10,000 years: Paleo-Indian, Windmiller Pattern, Berkeley Pattern, the Meganos Tradition (an amalgamation of the Windmiller and Berkeley patterns), and the Augustine Pattern.

3.2.1 Paleo-Indian Period (c. 10,000 – c. 4,500 Before Present [B.P.])

Due to the rapid accumulation of alluvial (stream-deposited) sediments that occurred during the late Holocene epoch, there exists very little archaeological data regarding early human occupation of the Delta region of the Central Valley during the "Paleo-Indian" period (Ragir, 1972). While humans likely inhabited the region as early as 10,000 years ago, and possibly earlier, physical evidence of these early occupations would likely be deeply buried. However, traces of human activity during this period have been identified in and around the Central Valley. Archaeological remains from the Paleo-Indian period have been grouped into what is called the Farmington Complex, which is characterized by core tools and large, reworked percussion flakes (large chunks removed from a stone using blunt force). Populations during this time were likely small and mobile, and the subsistence strategy employed by these early peoples is generally thought to be centered around the exploitation of large game.

3.2.2 Windmiller Pattern (Early Period c. 4,500 – c. 2,500 B.P.)

The human settlement strategy of the Windmiller Pattern in the Central Valley was predominantly riverine, with most sites found on the valley floor along rivers or marshes. Other Windmiller Pattern sites have been identified atop small knolls above prehistoric floodplains (Martin and Self, 2002). The archaeological record contains examples of numerous projectile point forms and ground stone artifacts, which are associated with processing wild seeds and acorns (Ascent Environmental, 2018). Mortuary practices of the Windmiller Pattern typically involved burial mounds. Specific items found in association with Windmiller Pattern burials include large, stemmed-type projectile points, fishing weights and bone hooks, stone pipes, charmstones, quartz crystal, red ocher pigment, and shell beads.

3.2.3 Berkeley Pattern (Middle Period c. 2,500 – c. 1,500 B.P.)

Berkeley Pattern sites display a trend towards a more specialized economy that procured seeds for dietary purposes. The distribution of Berkeley Pattern sites displays a more diverse environmental range, although riverine settings are still common. Deeply stratified midden deposits with milling and ground stone artifacts are common to Berkeley Pattern sites, indicating prolonged occupations spanning multiple generations. Berkeley Pattern sites contain projectile

points predominantly made from obsidian and are non-stemmed in form, becoming progressively smaller and lighter over time and culminating in the introduction of the bow-and-arrow during the late precontact period. There is a general reduction of mortuary goods with burials; however, red ocher pigment is still found spread over burials (Fredrickson, 1973; Moratto, 1984). If mortuary goods are present, they are often utilitarian in nature and include few ornamental or ritual objects.

3.2.1 Meganos Tradition (ca. 1,500 B.P. – ca. 1,000 B.P.)

A cultural tradition resembling an amalgamation of Windmiller Pattern and Berkeley Pattern traits was established between the tidal marsh people of the south San Francisco Bay and those to the north. Bennyhoff (Hughes, 1994) calls this tradition *Meganos*, the Spanish word for "sand mound," due to the abundance of sand mound burials found in area sites. Other cultural traits associated with the Meganos Tradition include marine snail saucer and saddle beads, and increased occurrences of otter bone in habitation and resource processing sites (Milliken et al., 2007). The Meganos Tradition is indicative of a semi-sedentary settlement arrangement, marked by increased seasonal movement of villages (Garlignhouse et al., 2017). During the upper Middle Period, the Meganos Tradition extended into the Fremont Plain of the southeast Bay and mixed with the populations in the Santa Clara Valley.

3.2.4 Augustine Pattern (Late Period c. 1,500 – c. 150 B.P.)

The Augustine Pattern is characterized by a shift in the general subsistence pattern, specifically the introduction of the bow-and-arrow for hunting and acorns becoming the dominant food resource. This Pattern is typified by increased population size, expanded trade and exchange networks, and great elaboration of ceremonial and social organization, which includes the development of social stratification. Other traits associated with the Augustine Pattern are increased sedentary villages and a monetary economy that exchanged beads as currency (City of Davis, 2000). Mortuary practices continued to use flexed positioning with variable orientation, but burials included less red ocher. The number of cremations also significantly increased and were widespread at this time (Moratto, 1984).

3.3 ETHNOGRAPHIC CONTEXT

The Project APE is located within territory traditionally associated with the Eastern Miwok (Kroeber, 1925). The area from present Walnut Creek in Contra Costa County and the Delta, along the lower Mokelumne and Cosumnes Rivers and along the Sacramento River from present Rio Vista to Freeport, the foothill and mountain areas of the upper Mokelumne River and Calaveras River watersheds, the upper Stanislaus River and Tuolumne River watersheds, and the upper Merced River and Chowchilla River watersheds, respectively has been home to the many cultures and bands of the Eastern Miwok people for thousands of years (Levy, 1978; Shipley, 1978). These bands and communities, including the Bay, Plains, Northern Sierra, Central Sierra, and Southern Sierra Miwok were diverse and thriving throughout time until the Spanish invasion and establishment of the mission system.

No one Miwok tribal organization encompassed all the peoples speaking Miwokan languages, nor was there a single tribal organization that encompassed an entire division. Both sides of the Sacramento River, from approximately 5 miles south of its confluence with the American River, downstream to Rio Vista, were occupied by the Plains Miwok (Bennyhoff, 1977). Today, Native people of Miwok descent continue to inhabit their ancestral homeland and revitalize

their culture, protecting and caring for the land and fighting for access to practice their culture in a highly altered and developed landscape.

Prior to western colonization, the Miwok territory encompassed a wide range of environments, some rich enough to support permanent villages, others less abundant and necessitating a more mobile way of life. Tribelets were the predominant political unit among the Miwok. Each tribelet occupied and maintained distinct boundaries that were generally recognized and respected by neighboring tribelets (Bennyhoff, 1977). Within each tribelet there were lineages and settlements between 20 and 300 persons with the larger villages along the rivers and San Francisco Bay (Garlignhouse et al., 2017). Within the Rio Vista area, two such tribelets have been documented. *Anizumne*, a tribelet of approximately 250 individuals, was likely located approximately 1 mile north of the present-day city of Rio Vista. The second tribelet, *Ompin*, was located south of Rio Vista, and contained a smaller population than *Anizumne*.

Aside from tobacco, the Eastern Miwok did not cultivate plants or, aside from the dog, domesticate animals (Levy, 1978). Subsistence was primarily focused on gathering wild plant foods such as acorn (*Quercus* spp.), buckeye (*Aesculus californica*), hazelnut (*Corylus cornuta* var. *californica*), nuts from the digger pine (*Pinus sabiniana*), and bulbs from various types of *Brodiaea*, all of which would be supplemented by meat from large mammals such as mule deer (*Odocoileus hemionus*), tule elk (*Cervus nannodes*), and pronghorn antelope (*Antilocarpa americana*). Other important food sources, particularly for the Plains Miwok, included freshwater fish such as lampreys and sturgeon and game birds such as quail and various species of waterfowl. Salmon was preeminent among the Eastern Miwok, with trout holding a similar preeminence for those living in the mountains. Fishing was accomplished through a variety of techniques that included cast netting, drag nets towed behind tule rafts, stationary nets placed across narrow waterways and, for larger species such as salmon, harpooning and spearing. The Bay Miwok, in particular, used milkweed (*Asclepias* spp.), California fremontia (*Fremontodendron californicum*), and Indian hemp (*Apocynum cannabinum*) in net-making for fishing activities (Levy, 1978). Freshwater clams, mussel, and land snail were also gathered from riverine environments (Levy, 1978).

The Miwok primarily used the bow and arrow for both large game hunting and warfare. Bows were generally sinew-backed, and large-game hunting arrows would often feature a detachable foreshaft that would remain in the prey even if the main shaft were broken or removed (Aginsky, 1943). Miwok inhabiting lower elevations would select wood from ash (*Fraxinus latifolia*), oak (*Quercus* spp.*),* willow (*Salix* spp.), pepperwood, maple, and hazel to construct their arrow shafts (Aginsky, 1943; Levy, 1978).

Miwok basketry could be either twined or coiled, with the twined variety consisting of seed beaters, burden baskets, cradles, and netted rackets used in a lacrosse-like, women-only ball game called *a'mta*, *ama'tup,* or *sakumship* (Barrett and Gifford, 1933). The coiled technique was often employed for crafting winnowing trays (a flat, woven tray used for separating grain from chaff), parching baskets, and various types of truncated conical baskets (Levy, 1978). Other Miwok textiles included tule mats, which were used extensively by the Plains Miwok.

The Eastern Miwok made several distinct types of dwellings. The Bay Miwok utilized a thatched structure, which used poles to form an inner, conical frame, over which was arranged thatching of brush, grass, or tule (Levy, 1978). Other Miwok structures included assembly houses

which were 40 to 50 feet in diameter, semisubterranean, and used for social and ritual community gatherings; a smaller circular structure composed of brush that would be used for mourning ceremonies held during the summer months; and conical sweathouses, which ranged from 6 to 15 feet in diameter and were built over a pit that was 2 to 3 feet deep (Levy, 1978).

3.4 HISTORIC PERIOD CONTEXT

The modern history of Northern California, which includes Sacramento County, is grouped into three distinct periods: Spanish, Mexican, and American. Due to its distance from San Francisco Bay, the Project APE was largely isolated from the Spanish and Mexican periods of California history. The following section briefly references major events from these periods.

3.4.1 Spanish Period (A.D. 1775 - 1822)

The earliest overland exploration of the region was the Fages-Crespi Expedition in 1772. In 1775, Captain Manuel Ayala's expedition explored the San Francisco Bay and later ventured up the Sacramento and San Joaquin rivers in search of suitable sites to establish missions. In 1776, Mission San Francisco de Asís (Mission Dolores) in San Francisco was established as the region's first mission. It was followed 3 months later by Mission Santa Clara de Asís and in 1797 with the Mission San Jose de Guadalupe (Martin and Self, 2002). The missions functioned as procurement and dispersal hubs for local economic resources, and as military outposts and proxies of secular governance. The establishment of the mission system decimated local villages, and dramatically transformed the lives of Native peoples from throughout California. Untold numbers of Native people were killed outright or enslaved – brought into the missions as "neophytes" for both labor and forced conversion into the Catholic faith. Disease epidemics also ravaged the people housed in the missions, further fracturing communities and culture.

3.4.2 Mexican Period (A.D. 1822 – 1850)

In 1821, Mexico declared independence from Spain; a year later, California became a Mexican Territory. After the missions were secularized in 1834, lands were gradually transferred to private ownership via a system of land grants (Hoover et al., 2002). The Project APE is east of the Rancho Los Ulpinos Land Grant, which included 17,726 acres patented to John Bidwell by Governor Manuel Micheltorena in 1844 (Hoffman, 1862). John Bidwell was born in Chautauqua County, New York, and led the Bartleson-Bidwell Party to California in 1841. John Sutter employed Bidwell as his business manager shortly after Bidwell's arrival in California. Bidwell built an adobe house in the vicinity of present-day Rio Vista and attempted to cultivate the land. Bidwell's efforts at agriculture, as well as those of subsequent settlers on the ranch, were unsuccessful (Hunt and Gunn, 1926).

Following the Bear Flag Revolt in 1846, California gained its independence from Mexico and the United States gained control of the territory. While the Treaty of Hidalgo promised all property belonging to the Californios would be respected, the Land Act of 1851 required all land grant owners to prove their title and ownerships rights. Bidwell filed a claim and patented the Rancho Los Ulpinos Land Grant in 1866. Meanwhile, Rancho Los Ulpinos was subdivided into twenty parcels and sold in 1855. In 1857, Colonel N. H. Davis purchased a parcel and founded the town of Rio Vista, originally called "Brozos del Rio". The town included a wharf that could accommodate daily steamers traveling up to Sacramento.

3.4.3 American Period (A.D. 1850 to present)

The discovery of gold in the Sierra Nevada mountains in 1849 prompted a population surge throughout northern California. The increased demand for supplies and provisions also increased the volume and market value of livestock, timber, and agricultural products. Additional changes in land use involved widespread logging, which greatly accelerated with the increased demand for railroad ties, mine timbers, and building materials. Agricultural development across all arable land rapidly intensified during the American period, both to meet local and regional demand and also as a commercial venture.

Sherman Island located at the extreme western end of the Delta was the first of the "peat islands" to install levees. The reclamation of Sherman Island began in July 1865 and the entire levee was completed in 1869. Originally it was a three to five feet wall built from local peat soils. After a series of damaging floods in the 1870s through the early 1900s, privately owned and funded Reclamation Districts attempted to rebuild the levees utilizing Chinese labor. With flood damage occurring more or less every year the local Reclamation districts experimented with alternative materials and construction methods for levee building eventually utilizing dredges. In 1913, the United States Army Corps of Engineers began work on widening and deepening the Sacramento River. In conjunction with the State of California and landowners in the San Joaquin-Sacramento Drainage District, millions of cubic yards of spoils were used to construct new levees. Numerous systematic modifications and rehabilitation projects have occurred throughout the 20th century including levee slope repairs, adding rip rap splash caps, raising levee crowns, and road replacements and repairs (JRP, 2006).

Prior to 1921, the southern tip of Brannan Island was a swampy portion of the Sacramento – San Joaquin Delta. The area was later acquired by the Sacramento San Joaquin Drainage District for the State Reclamation Board for use by the United States Army Corps of Engineers. Between 1926 and 1929, the swamp was filled with sand and silt that was dredged and pumped from Sacramento River to widen the channel for shipping. Spoils from the dredging were used to raise the elevation of the area some twenty to forty feet above the water level, making it the highest spot east of the Sacramento River for miles. Eventually, Brannan Island State Recreation Area was established on the spoils pile (Thomas, 2013).

4.0 BACKGROUND RESEARCH

4.1 CCRD SEARCH METHODS

Padre completed a review of PG&E's Confidential Cultural Resources Database (CCRD) on August 9, 2024. The search included a review of all recorded historic-era and precontact archaeological sites within a 0.5-mile radius of the Project APE, as well as a review of known cultural resource surveys and technical reports.

4.2 CCRD SEARCH RESULTS

The records search revealed that 37 cultural resource studies have been completed within a 0.5-mile radius, 12 of which included portions of the Project APE. Table 4-1 lists and describes the studies completed within the Project APE.

Table 4-1. Cultural Resources Studies Completed within portions of the Project APE

Study No.	Author, Year	Title
S-404	Waugh, 1986	*Cultural Resource Survey Brannan Island and Fanks Tract State Recreation Areas.*
S-2389	Orlins, 1997	*A Cultural Resources Survey for the Sherman Island Levee Improvement Project, Sacramento County, California.*
S-5055	Seldomridge and Smith-Madsen, 1976	*Cultural Resource Reconnaissance: Sacramento River Deep Water Ship Channel (Collinsville to Sacramento)*
S-6147	Littlefield, 1981	*Archaeological Report for Brannan Island State Park Entrance*
S-9182	Hale, 1993	*Cultural Resources Survey Sacramento River Systems Evaluation phase IV, Sacramento and Solano Counties, California (Contract No. DACWO5-92-P-1771)*
S-9326	Leach-Palm et al., 2008	*Cultural Resources Inventory of Caltrans District 3, Rural Conventional Highways in Butte, Colusa, El Dorado, Glenn, Nevada, Placer, Sacramento, Sierra, Sutter, Yolo, and Yuba Counties*
S-11493	Polson, 2014	*A Cultural Resources Inventory for the Delta Feasibility Study, Contra Costa and Sacramento County, California*
S-17236	Cultural Resources Unlimited, 1994	*A Cultural Resources Survey Report for Mega Sand – Sacramento River Dredging/ Decker Island Sand Mining Facility ADEIR: Solano and Sacramento Counties, California*
S-29837	Jones et al., 2005	*Archaeological Record Search and Literature Review for the Calpine Bradford Island 3D Geophysical Survey, Contra Costa and Sacramento Counties, California*
18214	Wisely, 2014	*2014 Hydrotest Segment T-235-13, Cultural Resources Constraints Report*
10522	Thomas, 2013	*Cultural Resources Study for the Line 131Y MP 0.53-0.54 PSEP Replacement Project, Sacramento County, California*
376589	Turner, 2020	*TD19-04, D-1018A, L-131Y, L-131Z Drip 17058 Removal, Sacramento County 74023961*

Source: PG&E, 2024

[redacted]

[redacted]

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[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

5.0 PHASE I PEDESTRIAN SURVEY

5.1 SURVEY METHODS AND FIELD CONDITIONS

Padre Staff Archaeologist Christopher Letter conducted a Phase I pedestrian survey of the Project APE on August 14 and 15, 2024. Mr. Letter examined the Project APE with parallel transects spaced at no more than five-meter intervals, where feasible. Field conditions were documented with color digital photographs and Project APE maps are located in Appendix A. The total size of the survey area was approximately five acres.

5.1.1 North Side of Three Mile Slough

The Project APE on the north bank of Three Mile Slough is located within the Brannan Island State Recreation Area approximately 2.5 mile south of the town of Rio Vista and 0.41 miles southeast of State Route 160. The Project APE consists of two sections. The smallest section is a 0.12-acre portion of an asphalt parking lot associated with day use Ramada rentals (Figure 5-1). The largest portion of the Project APE consists of a 2.5-acre mostly level field bounded by an asphalt access road to the north and the slough bank to the south (Figure 5-2 and Figure 5-3). Within this portion of the Project APE is a 1,580 square foot PG&E Valve Vault in a chain link fenced enclosure adjacent to an asphalt walking path (Figure 5-4 and Figure 5-5) and just north of the slough bank which drops down approximately seven feet to the water's edge (Figure 5-6). Ground visibility on the north side of Three Mile Slough was good ranging from zero to 100 percent with asphalt, gravel, and dense vegetation accounting for areas of lesser visibility. Vegetation consisted of seasonal grasses, weeds, and mature oaks and blackberry bramble mainly along the slough bank. The soils observed consisted of a fine sand and the slough bank is reinforced with rip rap. This portion of the Project APE will be accessed by an asphalt access road from State Route 160 (Figure 5-7).



Figure 5-1. Overview of parking lot, facing northeast



Figure 5-2. Overview of Project APE adjacent to access road, facing west



Figure 5-3. Overview of Project APE, facing south



Figure 5-4. Overview of valve vault, facing west



Figure 5-5. Overview of Project APE along slough bank, facing west



Figure 5-6. Overview of slough from top of bank, facing south



Figure 5-7. Overview of access road, facing west

5.1.2 South Side of Three Mile Slough

The Project APE on the south bank of Three Mile Slough is located on the northeast corner of Sherman Island. The Project APE encompasses [redacted] (Figure 5-8, Figure 5-9, Figure 5-10, and Figure 5-11). The inland level area currently consists of several debris piles of vegetation, dirt, modern trash, and charred material from a recent fire event (Figure 5-12 and Figure 5-13). Vegetation consisted of seasonal grasses, weeds, with mature oaks and blackberry bramble mainly along the slough bank. The soils observed consisted of multi-colored silty clay and the slough bank is reinforced with rip rap. Ground visibility on the south side of Three Mile Slough was excellent ranging from zero to 100 percent with recent mowing and fire charred grasses accounting for large areas of clear ground. Dense vegetation accounted for areas of less visibility. [redacted]



Figure 5-8. Overview of Project APE on south side of [redacted], facing east



Figure 5-9. Overview of slough from top of bank, facing north



Figure 5-10. Overview of Project APE on north side of [redacted], facing west



Figure 5-11. Overview of Project APE on top of [redacted], facing east



Figure 5-12. Overview of Project APE, facing southeast



Figure 5-13. Overview of Project APE, facing northwest





5.2 [redacted]

[redacted]

6.0 CONCLUSIONS AND RECOMMENDATIONS

Padre completed a Phase I Archaeological Study in support of PG&E's L-131Y and L-131Z Three Mile Slough Crossings Pipeline Remediation Project in Sacramento County, California. The study included background research, a buried site sensitivity assessment, and an intensive pedestrian survey. The background research identified two previously recorded cultural resources that overlap with the Project APE. The survey did not identify any new cultural resources.

Based on a buried site sensitivity study previously prepared by Far Western in 2013, the northern Project APE was historically a swampy portion of the Sacramento-San Joaquin Delta and did not represent a formerly stable land surface that would have been available for prehistoric human occupation. In the late-1920s, the swamp was covered by 20 to 40 feet of sediments dredged from the Sacramento River. Thus, the potential to encounter buried archaeological resources is low.

The proposed Project will directly impact approximately 20,550 square feet (with 16,145 square feet located underwater) of the [redacted]. This resource has been recommended eligible for listing on the NRHP. The Project will also directly impact approximately 1,959 square feet of the [redacted]

The Project ADI within the [redacted] has been previously impacted by the installation of the existing pipeline, road construction, and levee maintenance. As designed, the proposed Project will not cause any new impacts to these resources, and once ground disturbance is complete, the Project ADI will be backfilled and restored to pre-Project contours and condition. This will result in no change to the current conditions of either the [redacted]. Additionally, the Project will not cause destruction or damage to either property, nor change the function or design. No change in setting will occur, as the properties will be returned to their pre-Project status. Finally, the Project will not result in the sale or neglect of a historic property.

This study identified no resources that will be impacted/affected by the proposed Project. Therefore, Padre has identified no impacts to cultural resources per CEQA and recommends a finding of No Adverse Effect for the Project per 36 CFR 800.5(b) for compliance with Section 106. If the Project changes such that it may have the potential to impact identified cultural resources or impinge on locations not surveyed, then additional work may be necessary. Otherwise, no further cultural resources studies are necessary.

If any newly discovered cultural resources are encountered during Project activities, PG&E Cultural Resource Specialist, Alicia Gonzales, should be notified. Ms. Gonzales will coordinate any necessary investigation of the find with appropriate specialists and consult with appropriate agency staff, as needed. PG&E may be required to implement protective measures to ensure the protection of the discovery.

In the event that human remains are encountered during the proposed Project, the provisions outlined in Section 7050.5 of the California Health and Safety Code must be followed.

7.0 REFERENCES CITED

Aginsky, B. W. 1943. Anthropological Records 8:4. Culture Element Distributions: XXIV, Central Sierra. *Anthropological Records, Volume 8, Number 4*. Editors: A.L. Kroeber, E.W. Gifford, R.H. Lowrie, and R.L. Olson. University of California Press. Berkeley, California.

Ascent Environmental. 2018. UC Davis Draft 2018 Long Range Development Plan, Draft Environmental Impact Report. Volume 1, Programmatic Evaluation of 2018 LRDP. University of California, Davis.

Barrett, S. A., and Gifford, E. W. 1933. Miwok Material Culture, in *Bulletin of the Public Museum of the City of Milwaukee*. Milwaukee: Board of Trustees of the Public Museum of the City of Milwaukee.

Bennyhoff, J. A. 1977. The Ethnography of the Plains Miwok. *Center for Archaeological Research at Davis Publications 5*. University of California Davis.

California Department of Water Resources (CDWR). 2009. California Water Plan, Update 2009: Sacramento-San Joaquin River Delta, Integrated Water Management. Bulletin 160-09. California Department of Water Resources, Sacramento.

California Soil Resource Lab (SoilWeb) 2020. SoilWeb. Electronic Document, https://casoilresource.lawr.ucdavis.edu/gmap/. University of California, Davis. (Accessed September 2024).

City of Davis. 2000. Draft Program Environmental Impact Report for the City of Davis General Plan Update and Project EIR for Establishment of a New Junior High School.

Fredrickson, D. A. 1973. Early Cultures of the North Coast Ranges, California. Ph.D. Dissertation, University of California Davis.

Garlignhouse, T., Ross, D., and Knight, D. 2017. Environmental Impacts: Cultural Resources Section, in *Final Report: Initial Study/Mitigated Negative Declaration Bacon Island Levee Rehabilitation Project State Clearinghouse No. 20170120062.* Prepared by Stillwater Sciences for Reclamation District No. 2028 (Bacon Island), Stockton, California.

Hoover, M. B., Rensch, H. E., Rensch, E. G., Abeloe, W. N., and Kyle, D. E. 2002. *Historic Spots in California.* 5th edition, revised by D. E. Kyle. Stanford University Press, Stanford, California.

Hoffman, O. 1862. Reports of Land Cases Determined in the United States District Court for the Northern District of California, Numa Hubert, San Francisco.

Hughes, R. E. 1994. Toward a New Taxonomic Framework for Central California Archaeology. Essays by James A. Bennyhoff and David A. Fredrickson. Berkeley: *Contributions of the University of California Archaeological Research Facility, 15*.

Hunt, M. and Gunn, H.L. 1926. *History of Solano County and Napa County, from Their Earliest Settlement to the Present Time*, S. J. Clarke, Chicago.

JRP Historical Consulting Services, 2006. *Historical Resources Inventory and Evaluation Report, Reclamation District 341 Setback Levee Habitat Enhancement Project, California.* Prepared by JRP Historical Consulting Services, Davis, California.

Kroeber, A. L., 1925. Handbook of the Indians of California. Bulletin 78 of the Bureau of American Ethnology of the Smithsonian Institution, Government Printing Office, Washington. Republished in 1976 by Dover Publications, Inc., New York.

Levy, R. 1978. Eastern Miwok. In *Handbook of North American Indians, Volume 8, California*, Robert F. Heizer, Ed. Smithsonian Institution, Washington.

Martin, L. and Self, W. 2002. Cultural Resources Assessment Report SFPP, L.P. Proposed Concord to Sacramento Pipeline Project. Prepared for SFP, L.P., Operating Partnership for Kinder Morgan Energy Partners, L.P. Prepared by William Self Associates, Inc., Orinda, California. Report on file at CHRIS Northwest Information Center, Rohnert Park, California.

Milliken, R., Fitzgerald, R. T., Hyklema, M. G., Groza, R., Origer, T., Bieling, D. G., Leventhal, A., Wiberg, R. S., Gottsfield, A., Gillette, D., Bellifemine, V., Strother, E., Cartier, R., and Fredrickson, D. A. 2007. Punctuated Culture Change in the San Francisco Bay Area, in *California Prehistory, Colonization, Culture, and Complexity.* Editors: Terry L. Jones and Kathryn A. Klar. Altamira Press, a Division of Rowman & Littlefield Publishers, Inc., New York.

Moratto, M. J. 1984. *California Archaeology*. Academic Press, Orlando

[redacted]

Pierce, P. 1988. A Geoarchaeological Analysis of the Prehistoric Sacramento-San Joaquin Delta, California. Master's thesis, Department of Anthropology, University of California, Davis.

Ragir, S. R. 1972. The Early Horizon in Central California Prehistory. *Contributions of the University of California Archaeological Research Facility* 15. Berkeley, California.

Shipley, W. F. 1978. *Native Languages of California*. Handbook of North American Indians, Volume 8. Edited by R. F. Heizer, 80-90 pp. Washington, D.C.: Smithsonian Institution.

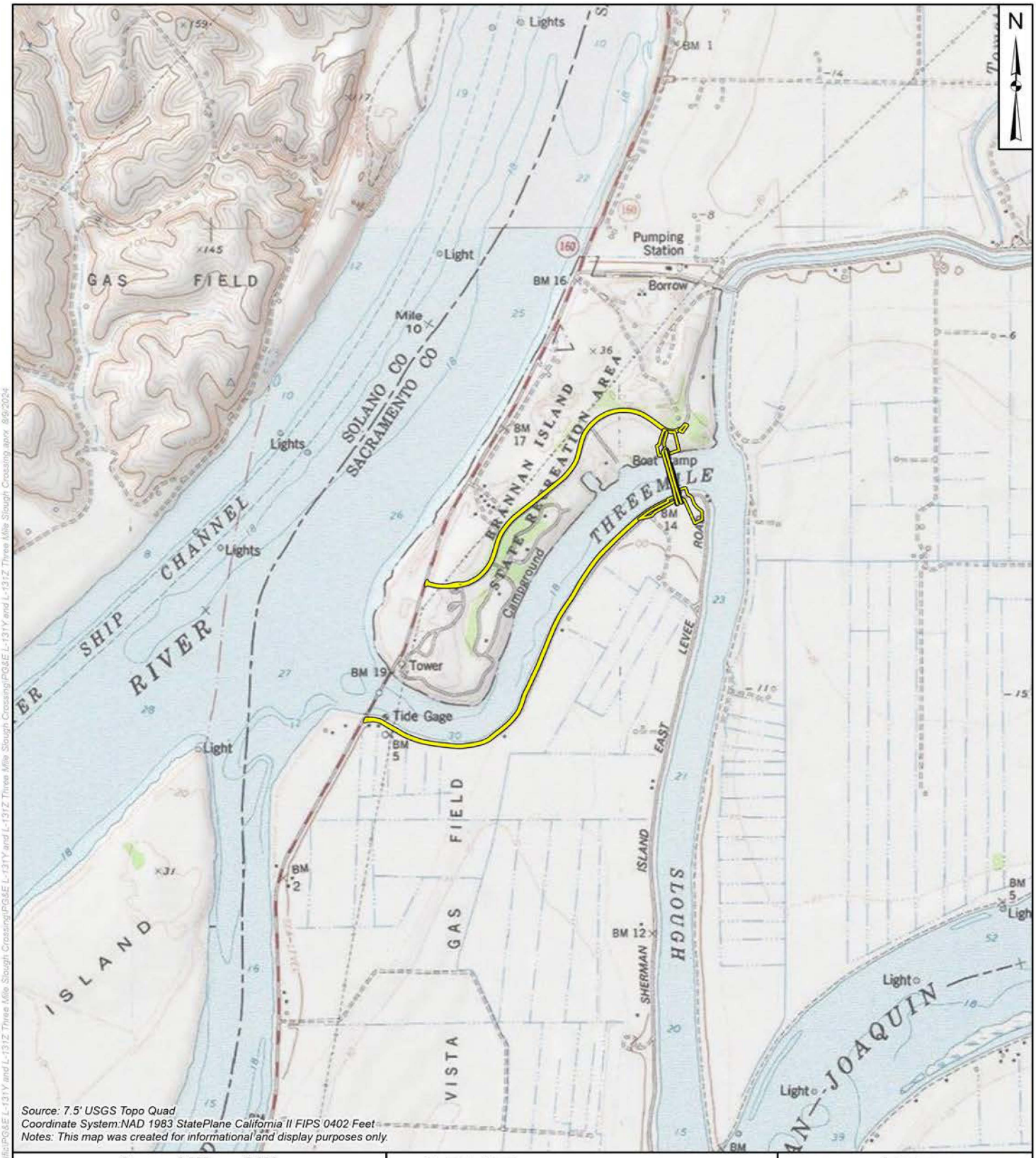
Thomas, J. 2013. *Cultural Resources Study for the Line 131Y MP 0.53-0.54 PSEP Replacement Project, Sacramento County, California*. Prepared by Far Western Anthropological Research Group, Inc. Prepared for PG&E.

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APPENDIX A

PROJECT MAPS



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FEET

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USGS 7.5' Quadrangle: Jersey Island

Legal Description: T3N, R2E, Sec.12 & 13, T3N, R3E, Sec.18 & 7

LEGEND:

Project Location



padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-131Y & L-131Z
THREE MILE SLOUGH CROSSING REMEDIATION
COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: August 2024

PROJECT LOCATION

FIGURE 1-1

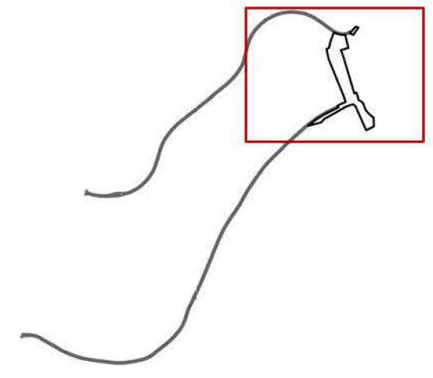
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LEGEND:

- Pipeline Alignment
- Access Route
- Area of Potential Effect (APE)
- Area of Direct Impact (ADI)

MAP EXTENT:



0 100 200
FEET

Source: Esri Online Imagery Basemap, County of Sacramento
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
PG&E THREEMILE SLOUGH PIPELINE CROSSINGS
REMEDIATION AND DECOMMISSIONING
SACRAMENTO COUNTY, CA

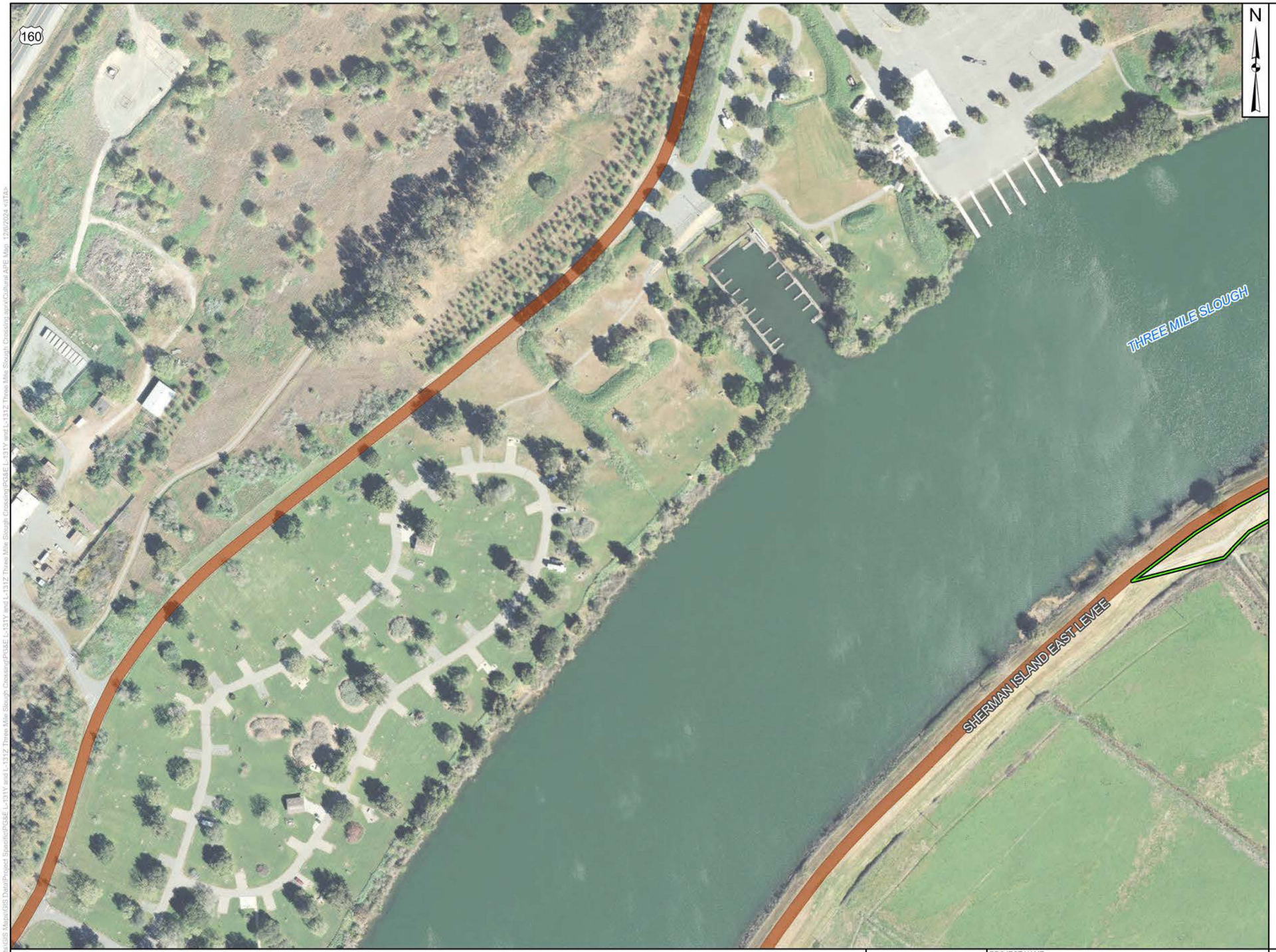
PROJECT NUMBER: 2402-1171

DATE: December 2024

AREA OF POTENTIAL EFFECT

PLATE 2

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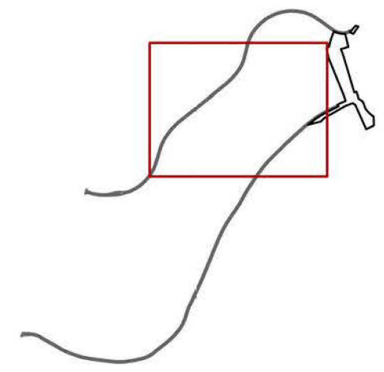


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LEGEND:

- Pipeline Alignment
- Access Route
- Area of Potential Effect (APE)
- Area of Direct Impact (ADI)

MAP EXTENT:



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Source: Esri Online Imagery Basemap, County of Sacramento
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E THREEMILE SLOUGH PIPELINE CROSSINGS REMEDIATION AND DECOMMISSIONING SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: December 2024

AREA OF POTENTIAL EFFECT

PLATE 2

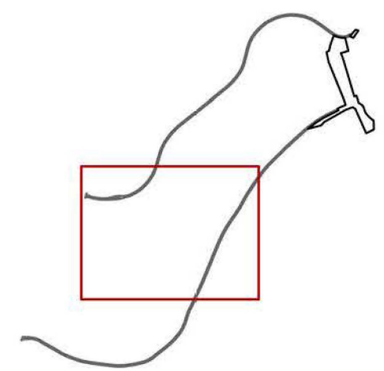
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LEGEND:

- Pipeline Alignment
- Access Route
- Area of Potential Effect (APE)
- Area of Direct Impact (ADI)

MAP EXTENT:



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Source: Esri Online Imagery Basemap, County of Sacramento
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

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ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
PG&E THREEMILE SLOUGH PIPELINE CROSSINGS
REMEDIATION AND DECOMMISSIONING
SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: December 2024

AREA OF POTENTIAL EFFECT

PLATE 2

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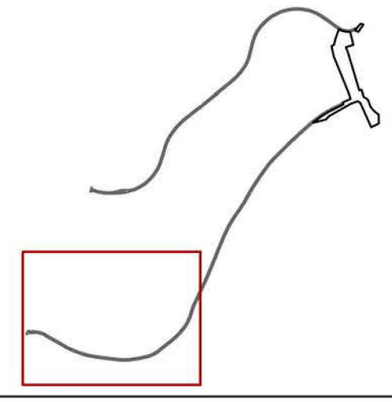


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LEGEND:

- Pipeline Alignment
- Access Route
- Area of Potential Effect (APE)
- Area of Direct Impact (ADI)

MAP EXTENT:



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Source: Esri Online Imagery Basemap, County of Sacramento
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
Notes: This map was created for informational and display purposes only.

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PROJECT NAME:
PG&E THREEMILE SLOUGH PIPELINE CROSSINGS
REMEDIATION AND DECOMMISSIONING
SACRAMENTO COUNTY, CA

PROJECT NUMBER: 2402-1171

DATE: December 2024

AREA OF POTENTIAL EFFECT

PLATE 2

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APPENDIX H

Noise Vibration Calculations

Basis of Environmental Acoustics and Vibration

"Sound" is mechanical 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 120–140 dB corresponding to the threshold of pain.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. Therefore, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies, instead focusing on the frequency mid-range. This method of frequency weighting is referred to as "A-weighting" and is expressed in units of A-weighted decibels (dBA). All sound pressure levels reported below are A-weighted.

Noise Exposure and Ambient 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, noise varies continuously with time with respect to the contributing sources in the noise environment. 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 do so gradually, corresponding with the addition and subtraction of distant noise sources and atmospheric conditions. The addition of short duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) makes noise constantly variable throughout the day.

These successive additions of sound to the noise environment vary the noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a noise environment and evaluate noise impacts. This time-varying characteristic of environmental noise is

described using statistical noise descriptors. Different noise descriptors used in this analysis to characterize environmental noise are summarized below:

L_{eq}: The equivalent sound level 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 period of interest.

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers at industrial plants often experience noise in the last category. There is no completely satisfactory 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 way to predict a human reaction to a new noise environment is the way the new noise compares to the existing noise levels that one has adapted to, which is referred to as the "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. Regarding increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- Outside of the laboratory, a 3 dBA 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 dBA is required before any noticeable change in human response would be expected.
- A 10 dBA 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. 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 produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. However, where ambient noise levels are high in comparison to a new noise source, there will be a small change in noise levels. For example, when 70.0 dBA ambient noise levels are combined with a 60.0 dBA noise source, the resulting noise level equals 70.4 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 6.0 dBA per doubling of distance from the source. In many cases, noise attenuation from a point source increases to 7.5 dBA 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 dBA 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) would typically attenuate at a lower rate of approximately 3.0 dBA 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 to 4.5 dBA 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.

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 and is typically expressed in units of inches per second (in/sec). The PPV is most frequently used to describe vibration impacts on buildings. The "root mean square amplitude" is most frequently used to describe the effect of vibration on the human body. The root mean square amplitude is defined as the average of the squared amplitude of the signal. Decibel notation, expressed as vibration decibels or VdB, is commonly used to measure root mean square. The decibel notation acts to compress the range of numbers required to describe vibration (FTA 2018). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration.

Some common sources of groundborne vibration are trains, heavy trucks traveling on rough roads, and construction activities such as blasting, pile driving, and operation of heavy earth-moving equipment. The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile driving during construction.

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or

contemplate, are also sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive.

Vibration can be assessed through potential building damage and potential human annoyance. Any type of building would typically be considered sensitive to vibration impact because building damage would be considered a permanent negative effect. Human annoyance effects from groundborne vibration are typically only considered inside occupied buildings, not at exterior areas such as residential yards, parks, or other open spaces. Typically, vibrations that would be considered sensitive to human annoyance caused by groundborne vibration are the same as those considered sensitive to noise impacts, including residences, schools, hospitals, churches, and public libraries. Following the Federal Transit Administration's *Transit Noise and Vibration Impact Assessment*, vibration-sensitive land uses are measured from the nearest location on the project site where vibratory equipment would operate (FTA 2018). The nearest groundborne vibration-sensitive location is the single-family residence 1,255 feet southwest of the Sherman Island work area.

Construction Vibration Analysis

Building Damage and Human Annoyance Assessment

Assess for building damage for each piece of equipment individually. Construction vibration is generally assessed in terms of peak particle velocity (PPV).

Construction Equipment	Ref PPV at 25 feet	Distance to Nearest Receptor	PPV at Nearest Receptor
Clam shovel drop (slurry wall)	0.202	150	0.01374
Loaded Trucks	0.076	150	0.00517
Clam shovel drop (slurry wall)	0.202	1255	0.00057
Loaded Trucks	0.076	1255	0.00021

$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

where: PPV_{equip} is the peak particle velocity in in/sec of the equipment adjusted for distance to nearest receptor

PPV_{ref} is the reference vibration level in in/sec at 25 feet from Table 7-4 (FTA, 2018; page 184)

D is the distance in feet from the equipment to the nearest receptor

Compare the estimated vibration levels to the construction vibration damage criteria from Table 7-5 (FTA, 2018; page 186).

Human Annoyance Assessment & Interference with Sensitive Uses

Assess for annoyance for each piece of equipment individually. Ground-borne vibration related to human annoyance is related to

Construction Equipment	Ref L_v at 25 feet	Distance to Nearest Receptor	VdB at Nearest Receptor
Clam shovel drop (slurry wall)	94	1255	43.0
Loaded Trucks	86	1255	35.0

$L_v(D) = L_v(25\ ft) - 30\log(D/25)$

For assessment of human annoyance or interference with vibration-sensitive activities within buildings, estimate the vibration level Lv at any distance D from the above equation (Use Table 7-4 (FTA, 2018; page 184) for L_v(25 ft) and apply the vibration impact criteria for General Assessment in Table 6-3 (page 126) or criteria in Table 6-4 (page 126) for vibration-sensitive uses.

Vibration Levels Generated by Construction Equipment

(from Table 7-4 on page 184 of FTA Transit Noise and Vibration Impact and Assessment Manual, Sep 2018)

Equipment	PPV at 25 ft (in/sec)	RMS Velocity (Vdb)
Pile Driver (impact) - upper range	1.518	112
Pile Driver (impact) - typical	0.644	104
Pile Driver (sonic) - upper range	0.734	105
Pile Driver (sonic) - typical	0.17	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall) - in soil	0.008	66
Hydromill (slurry wall) - in rock	0.017	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

APPENDIX I

Mitigation Monitoring Program

MITIGATION MONITORING PROGRAM

The California State Lands Commission (CSLC) is the lead agency under the California Environmental Quality Act (CEQA) for the Threemile Slough Pipeline Crossings Remediation and Decommissioning Project (Project). In conjunction with approval of this Project, the CSLC adopt this Mitigation Monitoring Program (MMP) for implementation of mitigation measures (MMs) for the Project to comply with Public Resources Code section 21081.6, subdivision (a), and State CEQA Guidelines sections 15074, subdivision (d), and 15097.

The Project authorizes PG&E (Applicant) to remove (L-131 East and L-131 West) and remediate (L-131Y and L-131Z) Project-related facilities located on State-owned land. All Project-related activities would take place in Sacramento County and Solano County, California. Project work areas would be located in unincorporated Sacramento County and would include areas within Threemile Slough, and along the southern shore of Brannan Island and the northern shore of Sherman Island. Project activities in Solano County would include equipment mobilization, materials hauling, and waste disposal at existing industrial facilities and would occur on waterways and roadways that are regularly travelled by watercraft and vehicles.

1.1 PURPOSE

It is important that significant impacts from the Project are mitigated to the maximum extent feasible. The purpose of an MMP is to ensure compliance and implementation of MMs; this MMP shall be used as a working guide for implementation, monitoring, and reporting for the Project's MMs.

1.2 ENFORCEMENT AND COMPLIANCE

The CSLC is responsible for enforcing this MMP. The Project Applicant is responsible for the successful implementation of and compliance with the MMs identified in this MMP. This includes all field personnel and contractors working for the Applicant.

1.3 MONITORING

CSLC staff may delegate duties and responsibilities for monitoring to other environmental monitors or consultants as necessary. Some monitoring responsibilities may be assumed by other agencies, such as affected

jurisdictions. The CSLC or its designee shall ensure that qualified environmental monitors are assigned to the Project.

Environmental Monitors. To confirm implementation and success of the MMs, an environmental monitor must be on-site during all Project activities with the potential to create significant environmental impacts or impacts for which mitigation is required. Along with CSLC staff, the environmental monitor(s) are responsible for:

- Confirming that the Applicant has obtained all applicable agency reviews and approvals
- Coordinating with the Applicant to integrate the mitigation monitoring procedures during Project implementation
- Confirming that the MMP is followed

The environmental monitor shall immediately request any deviation from the procedures identified in this MMP to CSLC staff or its designee and shall not implement the request until CSLC staff or its designee approve any deviation and its correction.

Workforce Personnel. Implementation of the MMP requires the full cooperation of Project personnel and supervisors. Many of the MMs require action from site supervisors and their crews. To facilitate successful implementation, relevant mitigation procedures shall be written into contracts between the Applicant and any contractors.

General Reporting Procedures. A monitoring record form shall be submitted to the Applicant, and once the Project is complete, a compilation of all the logs shall be submitted to CSLC staff. CSLC staff or its designated environmental monitor shall develop a checklist to track all procedures required for each MM and shall confirm that the timing specified for the procedures is followed. The environmental monitor shall note any issues that may occur and take appropriate action to resolve them.

Public Access to Records. Records and reports are open to the public and are to be provided upon request.

1.4 MITIGATION MONITORING PLAN

This section presents the mitigation measures for all LTSM resource areas. All other environmental factors were found to have less than significant or no impacts; therefore, they are not included. The MMP includes the following information:

- **Potential Impact**
- **Mitigation Measure** (full text of the measure)
- **Monitoring/Reporting Action** (action to be taken by monitor or Lead Agency)
- **Effectiveness Criteria** (how the agency can know if the measure is effective)
- **Responsible Party** (entity responsible to ensure MM compliance)
- **Timing** (Before, during, or after construction; during operation; etc.)

1.4.1 Aesthetics

***Potential Impact:* Potential for Nighttime Lighting**

MM AES-1: Mitigation Measure AES-1: Night-Lighting Minimization. If work activities extend into evening hours and night-lighting is required, Project lighting shall be as low in intensity as allowed by safety requirements and, to the extent possible, located, designed, and equipped to provide shielded and downward projected illumination onto work areas to minimize intensity and visibility of lighting from nearby areas.

Monitoring/Reporting Action: Observe nighttime lighting for compliance

Effectiveness Criteria: Lighting glare minimized

Responsible Party: PG&E and contractors

Timing: During any nighttime work

Other applicable mitigation measures for potential impacts to aesthetics

MM BIO-14: Site Restoration and Riparian Mitigation Plan

1.4.2 Air Quality

Potential Impact: **Construction Emissions**

MM AQ-1: Implement SMAQMD Basic Construction Emissions Control Practices. The following Basic Construction Emissions Control Practices (BCECPs) shall be implemented during Project construction to allow the use of SMAQMD's non-zero particulate matter significance thresholds:

- Control fugitive dust as required by District Rule 403 and enforced by District staff.
- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible track out mud or dirt onto adjacent public roads at least once a day.
- Limit vehicle speeds on unpaved roads to 15 miles per hour.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes. Provide clear signage that posts this requirement for workers at the entrances to the project site.
- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation.

Monitoring/Reporting Action: Contract specifications and submittal of certificate(s) of compliance

Effectiveness Criteria: Reduced particulate matter emissions

Responsible Party: PG&E and contractors

Timing: During construction activities

1.4.3 Biological Resources

Potential Impact: **Special status plant and wildlife species**

MM BIO-1: Worker Environmental Awareness Training. Prior to the start of construction, a qualified biologist, approved by CSLC staff, shall provide worker

environmental awareness training to inform construction personnel about protected biological resources, including special status species that could occur in the Project work areas, their habitat, sensitivity to human activities, legal protections, penalties for violation of state and federal laws, information about wetlands and waters of the United States and/or State, and required Project mitigation measures and reporting requirements. The training shall include photos of special status species to aid in identification, information about how to properly clean Project personnel footwear to prevent the transfer of seeds and pathogens from non-Project work sites, the qualified biologist's contact information, and the CSLC's point of contact. All construction personnel must undergo this training before working on the Project, and a sign-in sheet shall be maintained to keep a record of those trained.

Monitoring/Reporting Action: Signatures of trained employees for compliance

Effectiveness Criteria: All construction workers complete the program, special status species avoidance

Responsible Party: PG&E and contractors

Timing: Prior to construction activities; during construction activities (if needed) for new hires

Potential Impact: **Special status plant species**

MM BIO-2: Special Status Plant Avoidance. 30 days before the start of construction, a qualified botanist, approved by CSLC staff, shall survey the Project impact area, following the CNPS Botanical Survey Guidelines and with consideration to prior plant surveys conducted in the work areas (see Appendix D), for the presence of special status plant species, including bristly sedge, woolly rose mallow, Delta tule pea, Mason's lilaeopsis, Delta mudwort, Antioch Dunes evening-primrose, Sanford's arrowhead, and Suisun Marsh aster species within all permanent and temporary impact areas .

If a special status plant species is discovered, it shall be flagged and the following measures shall be implemented:

- An appropriate no-disturbance buffer determined by the qualified botanist shall be established around the occurrence. Protective fencing will be installed under the guidance of the qualified botanist to delineate the no-disturbance buffer and protect the special status plant species from work impacts. Fencing will be installed before ground-disturbing work begins and remain in place until work is complete.

- If any special status plant species are discovered on-site that cannot be avoided, the Applicant shall consult ~~coordinate~~ with the appropriate agencies (e.g., USFWS, CDFW) prior to the start of construction ~~to determine and implement appropriate~~ regarding species-specific avoidance and minimization measures and applicable permitting requirements in accordance with the Federal Endangered Species Act and California Endangered Species Act ~~(e.g., transplantation or harvesting and planting seed, followed by success monitoring) to minimize impacts to the special status plant species~~.

Monitoring/Reporting Action: Pre-construction surveys and reports; implementation of additional species-specific measures (if needed)

Effectiveness Criteria: Special status species avoidance

Responsible Party: PG&E and contractors

Timing: 30 days prior to construction activities; during construction activities (if needed)

***Potential Impact:* Special status plant and wildlife species**

MM BIO-3: Biological Monitoring. A qualified biological monitor, approved by CSLC staff, shall survey the onshore work area for sensitive plant and wildlife species no more than 24 hours before the start 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 affect special status species on a daily basis once Project activity begins. If at any time during Project activities any special status species are observed within the Project area, work around the individuals' immediate area shall be stopped or work shall be redirected to an area within the Project area that would not affect these species ~~until the individual is relocated by a qualified biologist (i.e., transplanting or harvesting of seeds for plant species, relocation for wildlife species).~~ Work would not resume until appropriate avoidance measures have been implemented, the species has left the work area on its own accord (for wildlife species), or consultation with the USFWS, NFMS, and/or CDFW, as appropriate, has been completed and direction has been provided regarding further action. ~~Listed wildlife species would be allowed to leave of their own volition, unless coordination with USFWS and/or CDFW provide authorization for relocation by a qualified biologist with appropriate handling permits. Work would resume once the individual 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~~

~~would stop work and notify the CSLC and consult with the appropriate agencies to resolve the impact before restarting work in the area.~~

If a State-listed plant species, California Rare Plant Rank (CRPR) 1A or 1B species, or Native Plant Protection Act (NPPA) rare plant species is identified within or immediately adjacent to the work area, work shall be halted in the vicinity of the occurrence and a qualified botanist shall evaluate the potential for Project-related impacts. The occurrence shall be clearly marked and avoided to the maximum extent feasible through establishment of environmentally sensitive areas, buffer zones, or other protective measures. No removal, collection, transplantation, seed harvesting, or disturbance of listed plant species shall occur unless specifically authorized by CDFW and/or USFWS. If impacts to a listed plant species cannot be avoided, the Applicant shall consult with CDFW and/or USFWS regarding appropriate avoidance, minimization, mitigation, and permitting requirements prior to resuming work in the affected area.

Monitoring/Reporting Action: Submittal of observation reports to CSLC

Effectiveness Criteria: Special status species avoidance; no special status species mortality

Responsible Party: PG&E and contractors

Timing: 24 hours prior to the start of Project activities and during construction activities

Potential Impact: **Special status plant and wildlife species**

MM BIO-4: Turbidity Monitoring Plan. A Turbidity Monitoring Plan shall be implemented during all in-water work, including in-water site preparation and restoration, such as removal and replacement of large woody debris, to ensure that turbidity levels upstream and downstream of the Project area are compliant with regulatory requirements. The turbidity monitoring plan shall include requirements for assessing preconstruction (background) turbidity levels. 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. Silt curtains shall be installed around in-water work areas to contain turbidity. If the results of the turbidity monitoring plan detect a Project-related increase in turbidity outside the area contained by the silt curtains that exceeds the allowable thresholds for increased turbidity, as defined by regulatory permits, corrective measures shall be implemented. Corrective measures may include alteration to the timing and duration of in-

water work, or minor modifications in methodology of Project activities to reduce the in-water excavation turbidity.

Monitoring/Reporting Action: Develop and implement a turbidity monitoring plan prior to in-river work and submit monitoring results CSLC

Effectiveness Criteria: Minimized turbidity; avoid special-status fish and aquatic species injury or mortality

Responsible Party: PG&E and contractors

Timing: Prior to and during construction activities

***Potential Impact:* Special status wildlife species**

MM BIO-5: Swainson's Hawk Nesting Season Avoidance or Preconstruction Surveys. For Project activities within Swainson's hawk nesting season (March 1 to September 15), a qualified biologist, approved by CSLC staff, shall conduct preconstruction Swainson's hawk nesting surveys ~~no more than 72 hours before any construction disturbance~~ within a 0.5-mile radius of the Project area. To meet the minimum level of protection for the species, surveys should be completed during at least the two survey periods immediately prior to Project initiation. Swainson's hawk survey periods are: Period I. January 1 to March 20; Period II. March 20 to April 5; Period III. April 5 to April 20; Period IV. April 21 to June 10; and Period V. June 10 to July 30. No fewer than three surveys must be completed in each survey period and surveys should not be initiated during period IV (only observations of known or suspected nests) (Swainson's Hawk Technical Advisory Committee 2000).

If active Swainson's hawk nests are identified near the Project area, ~~then based on nest protection buffers outlined in PG&E's Nesting Bird Management Plan,~~ consultation with CDFW to develop a Swainson's hawk take avoidance and monitoring plan shall occur and the following measures shall be required:

- Postpone Project activities within ~~0.25~~ 0.5 mile of the nest until after the young have fledged and are no longer dependent on the nest tree.
- If it is not possible to postpone Project activities, construction may only proceed with both CDFW approval and nest monitoring by a qualified raptor biologist. If the monitoring biologist observes signs of distress, then they shall have the authority to stop construction work. If the nest is abandoned because of Project-related disturbance but the nestlings are

still alive, the Applicant is required to fund the nestlings' recovery, rearing in captivity, and subsequent controlled release.

Monitoring/Reporting Action: Conduct pre-construction surveys and submit survey report to CSLC and CDFW; implement buffers and monitoring (if needed)

Effectiveness Criteria: Compliance with buffers; avoidance of Swainson's hawk nesting sites

Responsible Party: PG&E and contractors

Timing: Within Swainson's hawk nesting season (March 1 to September 15); 72 hours prior to and during construction activities

***Potential Impact:* Special status wildlife species**

MM BIO-6: Nesting Bird Season Preconstruction Surveys. If Project-related vegetation removal and ground-clearing activities are scheduled between February 1 and August 31, then two preconstruction nesting surveys shall be conducted ~~no more than one week~~ within 14 days before the start of construction, with the final survey being conducted 48 hours prior to the start of construction, in potential nesting habitat within ~~350~~ 500 feet of the Project area ~~to identify nest sites~~. If an active raptor or passerine bird nest is identified, ~~an appropriate species-specific nest protection buffer shall be recommended based on PG&E's Nesting Bird Management Plan and site-specific conditions.~~ a minimum 250-foot buffer for passerines and a minimum 500-foot buffer for raptors shall be implemented, unless adjusted by a qualified biologist. A preconstruction nesting survey report shall be prepared and submitted to CDFW and CSLC staff within one week of completing preconstruction surveys that outlines the surveys conducted, nest locations identified, and ~~recommended~~ proposed nest protection buffers. Construction activities shall be prohibited within the established buffer zones until the young have fledged.

Monitoring/Reporting Action: Conduct pre-construction nesting bird surveys and submit survey report to CSLC and CDFW; implement buffers (if needed)

Effectiveness Criteria: Compliance with buffers (if needed); avoidance of bird nesting sites

Responsible Party: PG&E and contractors

Timing: Within nesting bird season (February 1 and August 31); no more than one week before the start of construction and during construction activities

***Potential Impact:* Special status wildlife species**

MM BIO-7: Roosting Bat Avoidance. No more than one week prior to the start of construction, a qualified biologist, approved by CSLC staff, shall identify potentially suitable bat roosting habitat features (e.g., trees with dense foliage, cavities and/or peeling bark, structural cavities, tall shrubs, bridges, buildings, abandoned bird nests) in the work area before the initiation of construction and maintenance activities. Suitable habitat features will be inspected during the preconstruction survey in advance of clearing, grubbing, construction, and maintenance activities, or other activities with potential to disturb roosting bats in applicable work areas, to verify that roosting bats are absent. If evidence of use by roosting bats is detected during the survey, the qualified biologist shall conduct a focused nighttime emergence survey as needed. The preconstruction survey will determine (1) locations of active bat roosts, species identification (if possible), and approximate count of individuals; (2) identification of potential direct and indirect Project-related disturbing activities; and (3) a description of protective measures to be implemented before and during construction or operation to avoid impacts on roosting bats. If a special status bat species or a maternity colony that may be disturbed by Project activities is identified, CDFW will be notified by CSLC and any recommendations on appropriate work area buffers will be followed. If an active maternity roost is found in an area that would be affected by Project or maintenance activities, then activities with potential to disturb the colony shall be initiated outside of the maternity season (April 15 to August 31), or until young are volant (e.g., capable of flight), or the colony is no longer active.

If the preconstruction survey indicates no evidence or observation of use by roosting bats, no further action is required, and construction may begin at the direction of the qualified biologist.

Monitoring/Reporting Action: Conduct pre-construction roosting bat surveys and submit survey report to CSLC; consult with CDFW and implement buffers (if needed)

Effectiveness Criteria: Compliance with buffers; avoidance of bat roosting sites

Responsible Party: PG&E and contractors

Timing: No more than one week prior to the start of construction activities and immediate follow-up focused nighttime emergence survey if roosting bats are detected

***Potential Impact:* Special status wildlife species**

MM BIO-8: Giant Garter Snake Work Window and Preconstruction Surveys. Project activities shall be conducted during the GGS active season (May 1 to October 1) to the extent practicable. A qualified biologist, approved by the CSLC, shall conduct a survey and identify where exclusion fencing is needed within the Project area. If needed, a solid exclusion fence shall be installed around the perimeter of work sites and shall be inspected weekly.

If work will be conducted during the inactive period (October 2 to April 30), then the Applicant shall conduct preparation work during the snake's active period to make construction areas ready for work during the inactive season. Preparation work shall comply with the MRHCP. If GGS are encountered during construction activities, snakes shall be allowed to move away from construction activities, or if relocation is required, a permitted biologist with USFWS and CDFW approval shall follow approved handling protocols and move snakes to the nearest appropriate habitat out of harm's way.

Monitoring/Reporting Action: Conduct pre-construction survey and submit survey report to CSLC; USFWS/CDFW notification of relocation (if needed)

Effectiveness Criteria: Exclusion fencing in place; GGS relocated as needed; avoid GGS mortality

Responsible Party: PG&E and contractors

Timing: Prior to and during construction activities

***Potential Impact:* Special status wildlife species**

MM BIO-9: Northwestern Pond Turtle (NPT) Preconstruction Surveys. A qualified biologist, approved by the CSLC, shall conduct preconstruction surveys for NPT and their nests 48 hours before 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 NPT 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 affect special status species. Should NPT be found within the work areas, a qualified biologist in consultation with CDFW shall relocate the species outside of work area barriers. If NPT nests are identified, an appropriate nest protection buffer shall be recommended for CDFW approval based on site specific conditions. Construction activities shall be prohibited within the established buffer zone until the hatchlings emerge.

Monitoring/Reporting Action: Conduct pre-construction survey and submit survey report to CSLC; CDFW notification of relocation (if needed)

Effectiveness Criteria: Exclusion fencing in place; implement buffers (if needed); NPT relocated as needed; avoid NPT mortality

Responsible Party: PG&E and contractors

Timing: 48 hours prior to ground disturbance and during construction activities

Potential Impact: **Special status wildlife species**

MM BIO-10: Elderberry Shrub Avoidance Buffers. When ground-disturbing activities will be implemented within 20 feet of blue elderberry, a qualified biologist, approved by CSLC staff, will identify a work exclusion zone (i.e., 5 to 20 feet of the dripline of all blue elderberry shrubs, depending on the size of the shrub), with pin flagging or other appropriate means, within which ground disturbance, tree felling, and equipment and vehicle operation will be avoided or minimized. Except for cut stump treatment of removed trees (non-elderberry), herbicides will not be used within this zone.

Monitoring/Reporting Action: Observe elderberry shrub buffers and submit observation reports

Effectiveness Criteria: Compliance with buffers; avoidance of elderberry shrubs

Responsible Party: PG&E and contractors

Timing: Prior to and during construction activities

Potential Impact: **Special status wildlife species**

MM BIO-11: Elderberry Shrub Trimming. If trimming blue elderberry shrub is determined to be necessary, all trimming will occur in compliance with PG&E's Multi-Region Habitat Conservation Plan (MRHCP). Trimming of branches and stems less than 1 inch will occur between June 1 and February 28/29. Stems greater than 1 inch will be avoided to the greatest extent practicable. If stems greater than 1 inch are required to be removed, these activities will be overseen and documented by a qualified biologist, approved by CSLC staff, in compliance with the MRHCP and the Valley Elderberry Longhorn Beetle Habitat Impact Report Field Form and included in the MRHCP annual report for the purposes of impact and mitigation tracking. Compensatory mitigation is provided for permanent impacts on the VELB in accordance with the MRHCP Conservation Strategies.

Monitoring/Reporting Action: Provide Impact Report Field Form

Effectiveness Criteria: Compliance with MRHCP and habitat conservation

Responsible Party: PG&E and contractors

Timing: During construction activities; during and after any elderberry shrub trimming activities

Potential Impact: **Special status fish species**

MM BIO-12: In-Water Work Window. In-water work will be conducted during the seasonal work window of August 1 through October 31 (July 1 through October 31 for salmonids; August 1 through November 30 for smelt; combined work window of August 1 through October 31 for salmonids and smelt) to avoid and/or minimize potential adverse effects to listed fish. This work window will avoid the spawning period for delta smelt and longfin smelt, and the juvenile emigration period for Chinook salmon and steelhead. If an extension to the work window is needed, the seasonal work window may be extended to November 30, with authorization from NMFS and CDFW, if the authorization does not require formal Section 7 ESA consultation, a take permit, or additional mitigation measures. Prior to rock placement, the contractor shall implement a NMFS-approved soft-start procedure for rock placement activities that gradually initiates rock placement and includes a designated waiting period to allow sturgeon to voluntarily leave the area before full rock placement activities commence.

Monitoring/Reporting Action: Documentation of compliance; consultation with National Marine Fisheries Service (if needed)

Effectiveness Criteria: No associated special status fish and aquatic species injury or mortality

Responsible Party: PG&E and contractors

Timing: During construction activities

Potential Impact: **Special status fish species**

MM BIO-13: HACCP and Decontamination Plan. A Hazard Analysis Critical Control Point (HACCP) and Decontamination Plan must be developed to prevent the spread of golden mussels and invasive aquatic plants during Project activities and shall be submitted to CSLC staff for review and approval at least 30 days prior to the start of Project activities. The HACCP and Decontamination Plan shall outline Project activities, describe all in-water equipment, identify

potential pathways for the spread of aquatic invasive species, and include methods to prevent the movement of species and for decontamination, as applicable. Possible decontamination methods could include:

- Spray the work skiff and crew transport vessel (see Section 2.2.3) and in-water equipment, including submersible excavation pump, wet suits, masks, and snorkels, with hot water (greater than 140 degrees Fahrenheit) for at least 10 seconds (Comeau et al. 2011; Morse 2009).
- Freeze in-water gear such as masks, snorkels, and wet suits at less than minus 5 degrees Fahrenheit for at least 5 hours (McMahon et al. 1993).
- Use a quaternary ammonium compound solution to soak in-water gear for at least 10 to 15 minutes (Britton and Dingman 2011).
- Move Project barges to full salinity water (at least 30 parts per thousand) for at least 36 hours post-Project activities to kill any attached golden mussels, if present.

All construction personnel must review and sign the HACCP and Decontamination Plan, as well as be given training on identification of potential invasive species in Project work areas and implementation of watercraft inspection and decontamination protocols before the start of work.

Monitoring/Reporting Action: Develop plan and submit to CSLC for review; signatures of employees for compliance; certificates of training from employees for compliance

Effectiveness Criteria: Prevention of the spread of golden mussels

Responsible Party: PG&E and contractors

Timing: 30 days prior to the start of Project activities; during construction activities (if needed) for new hires

Potential Impact: **Riparian habitat and sensitive natural communities**

MM BIO-14: Site Restoration and Riparian Mitigation Plan. A Site Restoration and Riparian Mitigation Plan (Plan) shall be developed to provide for the replacement of riparian vegetation damaged or removed from Project work areas ~~due to Project activities~~ and for the restoration of other vegetative components of the work areas to pre-Project conditions to the extent feasible. The Plan shall be submitted to the CSLC and the agencies with jurisdiction (California Department of Fish and Wildlife, California Department of Parks and Recreation and, if applicable, any flood control agencies with jurisdictional

authority over restoration of the Sherman Island levee) for review and approval at least 30 days before the start of construction.

~~The Plan shall provide for restoration of the vegetative components of the work areas to pre-Project conditions to the extent feasible and establish performance criteria and monitoring to ensure timely restoration to pre-Project conditions, subject to approval by levee authorities for consistency with adopted plans of flood control. If replacement of trees and large woody shrubs is restricted onsite for consistency with levee authority requirements or other constraints, off-site replacement of trees and large woody shrubs shall be required.~~

The Plan shall require that all ~~woody vegetation~~ coast live oak and native trees (with a diameter at breast height [DBH] greater than or equal to 2 inches and equal to or less than 6 inches), as well as native shrubs including ~~native~~ willows~~,~~ and blue elderberry shrubs, ~~and coast live oak trees~~ removed from both the Sherman Island and Brannan Island SRA work areas for construction of the Project be replanted at a 3:1 mitigation ratio within an established riparian restoration area within state-owned property at the Brannan Island SRA. For each coast live oak tree removed with a DBH greater than 6 inches, a 6:1 mitigation ratio shall be required. Tree plantings, such as locally collected willow cuttings, nursery stock seedlings, and/or container plants (minimum 1-gallon size for elderberry shrubs and ~~minimum 5-gallon size for~~ live oaks), would be installed in riparian restoration areas located above the restored rock slope protection and/or mean high tide line. The Plan shall detail an appropriate native herbaceous riparian seed mix to be hydro-seeded on the disturbed levee surface within the Sherman Island work area, where replanting woody vegetation is not feasible~~, as well as requirements for monitoring to ensure adequate growth is established~~. The riparian seed mix shall also be applied to riparian restoration areas on Brannan Island to ensure surface coverage of disturbed areas.

The Plan shall also outline monitoring requirements and performance criteria, developed in consultation with CDFW, to ensure adequate growth and successful revegetation in all replanted or seeded areas, ~~The Plan shall provide for restoration of the vegetative components of the work areas to pre-Project conditions to the extent feasible and establish performance criteria and monitoring to ensure timely restoration to pre-Project conditions,~~ subject to approval by levee authorities for consistency with adopted plans of flood control. If replacement of trees and large woody shrubs is restricted onsite for

consistency with levee authority requirements or other constraints, off-site replacement of trees and large woody shrubs shall be required.

The Plan shall also include measures for reuse of existing topsoil to preserve roots, rhizomes, and seedbank material, ~~performance monitoring to ensure successful revegetation,~~ and if applicable, any temporary irrigation methods that will facilitate site restoration.

Monitoring/Reporting Action: Develop plan and submit to CSLC and other applicable agencies for review and approval; submittal of performance monitoring results

Effectiveness Criteria: Restoration of disturbed habitats

Responsible Party: PG&E and contractors

Timing: 30 days prior to the start of construction activities and at the completion of construction activities

Potential Impact: **Riparian habitat and sensitive natural communities**

MM BIO-15: Riparian Habitat Protection Measures. On Sherman Island, the construction staging work space boundary shall have a minimum 50-foot setback from top of bank on the northeast side of the existing ditch to ensure avoidance of impacts to riparian vegetation. The 50-foot setback boundary shall be demarcated in the field to identify the boundary. No construction staging activities shall occur within the 50-foot setback.

Along the landside levee slope within the Sherman Island construction staging boundary, all parking, access, operation, and maintenance of vehicles, heavy equipment, and construction materials shall be limited to existing dirt roads and established vehicle parking areas, including pull out parking areas along Sherman Island East Levee Road. The work space boundary shall not extend landward of the levee toe, and work activities along the unimproved landside levee slope and levee toe boundary shall be limited to mowing of herbaceous vegetation (an existing levee maintenance activity), construction fencing, and stormwater and erosion control activities, such as installation of silt fencing, fiber rolls, etc., to contain and separate the work space boundary from the adjacent riparian vegetation.

Monitoring/Reporting Action: Submit proof of compliance to CSLC (i.e. photos and compliance report)

Effectiveness Criteria: Avoidance of riparian and sensitive natural habitats

Responsible Party: PG&E and contractors

Timing: Prior to and during construction activities

***Potential Impact:* Critical habitat and essential fish habitat**

MM BIO-16: Replacement of In-Water Woody Debris. If in-water large woody debris is removed during site preparation activities (e.g., downed logs and other woody debris identified during pre-construction debris surveys of the in-water remediation and pipeline removal work areas), the woody debris will be stockpiled within an onshore work space area, and at the completion of Project construction activities, shall be placed (reused) at an in-water location for replacement of habitat in accordance with the approved Lake and Streambed Alteration Agreement with California Department of Fish and Wildlife.

Monitoring/Reporting Action: Submit proof of compliance to CSLC (i.e. photos and compliance report)

Effectiveness Criteria: Replacement of in-water woody debris

Responsible Party: PG&E and contractors

Timing: During and following construction activities

Other applicable mitigation measures for potential impacts to biological resources

MM HAZ-1: Project Work and Safety Plan and **MM HYDRO-1: Stormwater Pollution Prevention Plan**

1.4.1 Cultural Resources/ Cultural Resources – Tribal

***Potential Impact:* Buried Archaeological Deposits**

MM CUL-1/TCR-1: Discovery of Previously Unknown Cultural or Tribal Cultural Resources. If any potential tribal cultural resources, archaeological resources, or other cultural resources are discovered by the designated on-site archaeologist, the Tribal Monitor(s) from the United Auburn Indian Community (UAIC), other monitor(s) if requested by an affected tribe, or other Project personnel during construction activities, all work shall cease within 100 feet of the find or an agreed-upon distance based on the Project area and the nature of the find. The work stoppage shall remain in place until (a) the PG&E cultural resource specialist, the designated on-site archaeologist, and the Tribal Monitor(s) have

jointly determined the nature of the discovery and (b) either the archaeologist/ cultural resources specialist (for cultural resources) or the Tribal Monitor(s) (for tribal cultural resources) has determined the significance of the discovery. If the discovery is located within the Brannan Island State Recreation Area, the California Department of Parks and Recreation shall be notified and consulted prior to any continuation of ground disturbance. Tribal cultural resources shall not be photographed or 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 will be established using fencing or other suitable material to protect the discovery during subsequent investigation. No ground-disturbing activities will be permitted within the Environmentally Sensitive Area until the area has been cleared for construction. The exact location of the resources within the Environmentally Sensitive Area must be kept confidential, and measures shall be taken to secure the area from site disturbance and potential vandalism. Impacts on previously unknown significant cultural and tribal cultural resources shall be avoided through preservation in place if feasible.

If the on-site archeologist or Tribal Monitor(s), 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 that 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.

Monitoring/Reporting Action: Monitor ground disturbance and establish exclusion zone (if found)

Effectiveness Criteria: Identification and protection of unknown cultural or tribal cultural resources (if present)

Responsible Party: PG&E and contractors

Timing: During construction activities

Potential Impact: **Disturbance of Human Remains**

MM CUL-2/TCR-2: 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 the 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), the Applicant, and the 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 (California Government Code §6250 et seq.).

Monitoring/Reporting Action: Notifications/Consultations with County Coroner and NAHC (if applicable) and submittal of related materials to CSLC

Effectiveness Criteria: Reduced impacts on human remains (if found)

Responsible Party: PG&E and contractors

Timing: During construction activities

1.4.2 Geology, Soils, and Paleontological Resources

Applicable mitigation measures for potential impacts to geology, soils, and paleontological resources

MM BIO-14: Site Restoration and Riparian Mitigation Plan, MM HAZ-1: Project Work and Safety Plan, and MM HYDRO-1: Stormwater Pollution Prevention Plan

1.4.3 Greenhouse Gas Emissions

Applicable mitigation measures for potential impacts to greenhouse gas emissions

MM AQ-1: Implement SMAQMD Basic Construction Emissions Control Practices

1.4.4 Hazards and Hazardous Materials

***Potential Impact:* Hazardous Materials**

MM HAZ-1: Project Work and Safety Plan. A Project Work and Safety Plan (PWSP) shall be developed and submitted to CSLC staff, as well as any other pertinent agencies, for review and approval at least 30 days prior to the start of Project activities. The PWSP shall include the following (at a minimum):

- Contact Information
- Summary of the Project Execution Plan
- Emergency response plans
- Site safety plan, including measures for proper transportation, storage, and handling of hazardous materials during all stages of Project construction (including mobilization and demobilization)
- Critical Operations and Curtailments Plan
- Marine safety and anchoring plan
- Diving safety plan
- Hazardous Spills Response and Contingency Plan, which shall include details about the following:
    - Secondary containment: All hazardous materials (fuels, lubricants) shall be stored in a dedicated staging area with secondary containment (e.g., berms or spill pallets) capable of holding 110% of the largest container's volume
    - Refueling protocols: No refueling shall occur within 100 feet of the Threemile Slough bank or any active drainage.
    - Spill Clean-Up and Kits: "Type II" spill kits (absorbent pads, booms, and neutralizers) shall be maintained at each work area and on every service truck.
    - Plan for waste disposal of any hazardous materials

Monitoring/Reporting Action: CSLC review and approval of PWSP and CSLC approved monitor to ensure compliance

Effectiveness Criteria: Reduced risks of water or soil contamination

Responsible Party: PG&E and contractors

Timing: 30 days prior to the start of construction and during construction activities

Potential Impact: **Upset and accident conditions with hazardous materials**

MM HAZ-2: Asbestos Exposure Minimization. Construction personnel shall be informed of the potential presence of asbestos-containing material (ACM) at the Project area prior to their assignment. After exposing the existing pipeline for removal, and prior to the start of cutting and removal 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 abated by a certified asbestos abatement contractor in accordance with the regulations and notification requirements of SMAQMD Rule 902 and in accordance with applicable worker safety regulations. All ACM removed from the pipeline segment shall be labeled, transported, and disposed of at a verified and approved ACM disposal facility. Sections of pipe or other waste will be transported to a recycling facility if the results of characterization indicate that recycling is feasible.

Monitoring/Reporting Action: Inspections and testing (if necessary) for asbestos and submittal of lab report results to CSLC, with abatement plan if required

Effectiveness Criteria: Proper containment of asbestos-containing material

Responsible Party: PG&E and contractors

Timing: During construction activities

Potential Impact: **Upset and accident conditions with hazardous materials**

MM HAZ-3: Soil Testing and Disposal. In the event that soils or groundwater are suspected of being contaminated (indicated by visual, olfactory, or other evidence) and are removed during site-grading activities or excavation activities, site activities will cease until the excavated soil is tested for contaminants. If the excavated soil is contaminated above permissible regulatory hazardous waste

levels, the soil will be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet State and federal regulations.

Monitoring/Reporting Action: Inspections and testing (if necessary) for contaminated soil and groundwater and submittal of lab report results to CSLC, with abatement plan if required

Effectiveness Criteria: Proper containment of contaminated soil and groundwater

Responsible Party: PG&E and contractors

Timing: During construction activities

Potential Impact: **Upset and accident conditions with hazardous materials**

MM HAZ-4: Bathymetric Surveys. Pre- and post-Project bathymetric and surficial features multi-beam debris surveys of the riverbed shall be conducted using a vessel equipped with a multibeam sonar system or equivalent method acceptable to the CSLC. 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. A copy of the survey shall be submitted to CSLC staff for review 30 days before Project implementation. A post-Project bathymetric and surficial features multi-beam debris survey shall also be performed after Project activities are complete, and the results shall be 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 would be positively identified using methods such as divers or ROV. All Project-related debris will be recovered. A Project close-out report with drawings shall be submitted to CSLC staff within 60 days of Project completion.

Monitoring/Reporting Action: Pre-Project and post-Project geophysical debris survey results submitted to CSLC

Effectiveness Criteria: Avoidance of pipelines, utilities, and debris as well as removal of all Project-related debris

Responsible Party: PG&E and contractors

Timing: 30 days prior to Project activities and within 60 days following Project completion

Other applicable mitigation measures for potential impacts to hazards and hazardous materials

MM HYDRO-1: Stormwater Pollution Prevention Plan and **MM TRA-1: Traffic Control Plan (Terrestrial)**

1.4.5 Hydrology and Water Quality

***Potential Impact:* Violation of water quality standards**

MM HYDRO-1: Stormwater Pollution Prevention Plan. PG&E or its designated contractor shall develop and implement a Stormwater Pollution Prevention Plan (SWPPP) consistent with the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2022-0057-DWQ). At a minimum, the SWPPP shall include measures to:

- Provide adequate soil moisture levels to prevent excessive fugitive dust emissions, while also not contributing to conditions of runoff.
- To the extent possible, preserve existing vegetation and effective soil cover (e.g., through use of geotextiles, straw mulch, hydroseeding) for inactive areas and finished slopes to prevent sediment from being dislodged by wind, rain, or flowing water. Specific areas identified for avoidance will be determined based on biological surveys (per Mitigation Measure BIO-2), feasibility, and other factors.
- Install and maintain erosion control materials, such as straw wattles, coir fiber rolls, or similar devices; provide sediment basins, as needed (depending on site conditions) to capture soil, silt, and sediment that could be mobilized through construction activity.
- Establish and enforce measures such as designating areas for construction vehicle storage, maintenance, and fueling an adequate distance from wetlands and surface waters, maintain proper handling procedures for hazardous materials, and waste management Best Management Practices (such as daily trash removal and covering debris bins) to provide procedural and structural measures to prevent the release of pollution, wastes, and materials used at the construction site.

The SWPPP shall also detail 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. The SWPPP shall be provided to Commission staff a minimum of 30 days before Project implementation.

Monitoring/Reporting Action: SWPPP submitted to CSLC for review and observation reports

Effectiveness Criteria: Minimized erosion, siltation, and turbidity

Responsible Party: PG&E and contractors

Timing: 30 days prior to Project activities and during construction activities

Other applicable mitigation measures for potential impacts to hydrology and water quality

MM BIO-4: Turbidity Monitoring Plan, **MM BIO-14: Site Restoration and Riparian Mitigation Plan**, **MM HAZ-1: Project Work and Safety Plan**, **MM HAZ-3: Soil Testing and Disposal**, and **MM HAZ-4: Bathymetric Surveys**

1.4.6 Recreation

Potential Impact: **Recreation facilities and activities**

MM REC-1: Construction Noticing and In-Water Safety Measures.
Prior to work activities at Brannan Island SRA, the Applicant or its designated contractor shall coordinate with SRA staff to develop and post information at Brannan Island SRA concerning Project work locations, times, and other details of activities that may preclude recreational use of those work areas. At all times, while Project activities are taking place at Brannan Island SRA, signage shall be available to recreational users at the SRA to provide notice to the public that Project activities are taking place and to exercise caution.

Prior to in-water activity, PG&E or its designated contractor shall post information at all local marinas and launch facilities concerning Project work locations, times, and other details of activities that may pose hazards to recreational boaters. At all times while Project activities are taking place in Threemile Slough, warning signs and buoys shall be installed 500 feet upstream and downstream of the work site to provide notice to the public that Project activities are taking place and to exercise caution. The warning buoys shall also designate a vessel speed limit of 5 miles per hour in Project work areas. Additionally, 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 Project implementation (in-water work). The Notice shall include:

- Type of operation (i.e., 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

Monitoring/Reporting Action: Documentation of compliance and publication of notice

Effectiveness Criteria: Reduction of potential impact to recreationists

Responsible Party: PG&E and contractors

Timing: Prior to and during construction activities

1.4.7 Transportation

Potential Impact: **Traffic and Emergency Access**

MM TRA-1: Traffic Control Plan (Terrestrial). Prior to commencement of Project activities, a traffic control plan shall be submitted to the Commission for review and approval. It shall include measures to reduce Project-related traffic congestion at SR 160 and Sherman Island East Levee Road and will address construction staging of equipment within Project roadways and any resulting lane closures. The plan shall include appropriate signage, traffic cones, and flaggers to reduce potential hazards to motorists and workers during the Project and reduce potential conflicts with emergency access.

Upon approval, the traffic control plan shall be submitted to the County of Sacramento, and an encroachment permit will be obtained for construction activities within County maintained roadways.

Monitoring/Reporting Action: Submission of a traffic control plan to CSLC for review, obtainment of an encroachment permit from the County of Sacramento

Effectiveness Criteria: Minimized risks with associated traffic congestion and vehicle conflicts

Responsible Party: PG&E and contractors

Timing: Prior to and during construction activities

Other applicable mitigation measures for potential impacts to transportation

MM REC-1: Construction Noticing and In-Water Safety Measures

1.4.8 Utilities and Service Systems

Applicable mitigation measures for potential impacts to utilities and service systems

MM HAZ-2: Asbestos Exposure Minimization

1.4.9 Wildfire

Applicable mitigation measures for potential impacts to wildfire

MM HAZ-1: Project Work and Safety Plan and **MM TRA-1: Traffic Control Plan (Terrestrial)**