INITIAL STUDY/ NEGATIVE DECLARATION NO. 817

Vulcan Materials New Dredging Project

June 2025

Lead Agency:

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

Applicant:

Vulcan Materials Company
210 Landing Way
Petaluma, CA 94952-5547

MISSION STATEMENT

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

CEQA DOCUMENT WEBSITE

www.slc.ca.gov/ceqa/

Geographic Location (Point at Mean High-Water Line)

Latitude: 38°13'26.8248" N
Longitude: -122°36'24.7032" W
NAD83 Datum

Cover Photo: View of Petaluma River and existing bulkhead wall for berthing of vessels/barges and an onshore crane (southeast).
(Photo courtesy of Christine Boudreau, Boudreau and Associates)

Prepared by

PANORAMA
ENVIRONMENTAL, INC.

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LIST OF ABBREVIATIONS AND ACRONYMS

A

AB	Assembly Bill
APN	Assessor's Parcel Number

B

BAAQMD	Bay Area Air Quality Management District
BCDC	San Francisco Bay Conservation and Development Commission
BMP	Best Management Practice

C

Cal/EPA	California Environmental Protection Agency
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAAQS	California ambient air quality standards
CCC	Central California Coast
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CalGEM	California Geologic Energy Management Division
CalOES	California Office of Emergency Services
CGS	California Geological Survey
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society's
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CRHR	California Register of Historic Resources
CRRP	Cullinan Ranch Restoration Project
CSLC	California State Lands Commission
CWA	Clean Water Act
CY	cubic yards

D

dBA	A-weighted decibels
DDT	dichlorodiphenyltrichloroethane
DMMO	Dredge Material Management Office
DPM	Diesel particulate matter
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control (Cal/EPA)

E

EFH	Essential Fish Habitat
EIR	Environmental Impact Report
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit

F

G

GHG	Greenhouse Gas
GI	General Industrial

H

I

I-	Interstate
IS	Initial Study

J

K

L

L_{dn}	day-night average sound level
LTMS	Long Term Management Strategy
LRA	Local Responsibility Areas

M

MHW	mean high water
MLLW	mean lower low water
MRDS	Mineral Resources Data System
MRZ	Mineral Resources Zones
MTC	Metropolitan Transportation Commission

MWRP	Montezuma Wetlands Restoration Project

N

NAAQS	National Ambient Air Quality Standards
ND	Negative Declaration
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NRHP	National Register of Historic Places
NWIC	Northwest Information Center

O

O_3	ozone

P

PM	particulate matter
PM_{10}	particulate matter less than 10 micrometers in minimum dimension
$PM_{2.5}$	particulate matter less than 2.5 micrometers in minimum dimension
POD	pelagic organism decline
PPM	parts per million
PPV	peak particle velocity

Q

R

RNAs	Regulated Navigation Areas
ROG	reactive organic gases
RWQCB	San Francisco Bay Regional Water Quality Control Board

S

SFBAAB	San Francisco Bay Area Air Basin
SFBARTEMP	San Francisco Bay Area Regional Transportation Emergency Management Plan
SFBCDC	San Francisco Bay Conservation and Development Commission
SFRWQCB	San Francisco Regional Water Quality Control Board
SMART	Sonoma-Marin Area Rail Transit
SO2	sulfur dioxide
SR	State Route

SRA	State Responsibility Areas
SPCCP	Spill Prevention Control and Countermeasure Plan
SWRCB	State Water Resources Control Board

T

TAC	toxic air contaminant
TMDL	total maximum daily loads

U

USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

V

VTS	Vessel Traffic Service

W

WETA	San Francisco Bay Area Water Emergency Transportation Authority
WDR	Waste Discharge Requirements
WQC	Water Quality Certification

X

Y

Z

EXECUTIVE SUMMARY

This Initial Study/Negative Declaration (IS/ND) has been prepared by the California State Lands Commission (CSLC), as lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), to analyze and disclose the environmental effects associated with the proposed Vulcan Materials New Dredging Project (Project). Vulcan Materials Company (Applicant) proposes to dredge approximately 2,519 cubic yards (CY) within approximately 0.50 acre in one new dredging event, with an additional similar volume in one maintenance dredging event in the next 10 years. The dredging would occur adjacent to the Applicant's industrial site at 210 Landing Way in the City of Petaluma (see Figures ES-1 and ES-2). The dredged materials would be transported via barge to a sediment disposal site authorized by the San Francisco Bay Dredge Materials Management Office (DMMO) in San Pablo Bay or the Montezuma Wetlands (Figure ES-3).

CSLC has prepared an ND because the IS determines that, with Project design features and Project conformance with the Long-Term Management Strategy (LTMS) for the San Francisco Bay and DMMO process, no significant impacts would occur.

Project Background and Proposed Project

The Applicant operates a construction materials company at its property adjacent to the Petaluma River that receives materials from the Petaluma River via barges that utilize a berth area adjacent to an existing bulkhead wall along the property's river frontage. Due to historical accumulation of sediments and no prior dredging history at the berth area, new dredging of the berth area is required for safer navigation and more reliable use of the berth area during low tides. The key components of the Project are as follows:

- Proposed dredging area of approximately 0.5 acre. Initial dredging would remove 2,519 cubic yards of sediment to a depth of -8 feet mean lower low water plus an over-depth allowance (buffer) of 1 foot. Project activities would occur for approximately 6 days in September.
- Transport of dredged sediment via barge to one of three sediment disposal sites authorized by the DMMO: the SF-10 In-Bay disposal site, the Cullinan Ranch Restoration Project site, or the Montezuma Wetlands Restoration Project site. Only one of these sites would be selected for sediment disposal. Any debris (i.e., garbage/waste) encountered during

dredging would be transported by barge to Pillar Point Harbor and then transported by vehicle to Ox Mountain Landfill in Half Moon Bay. All the disposal sites have existing State and federal authorization to receive the sediment for disposal and are not subject to further CEQA review for the Project, as further explained in Section 2.

- Consideration of a 10-year lease from the CSLC with one maintenance dredging event anticipated over the 10-year lease term for a similar volume of sediment, approximately 2,500 cubic yards
- DMMO review of proposed dredging for conformance with the LTMS for San Francisco Bay and associated environmental protection measures

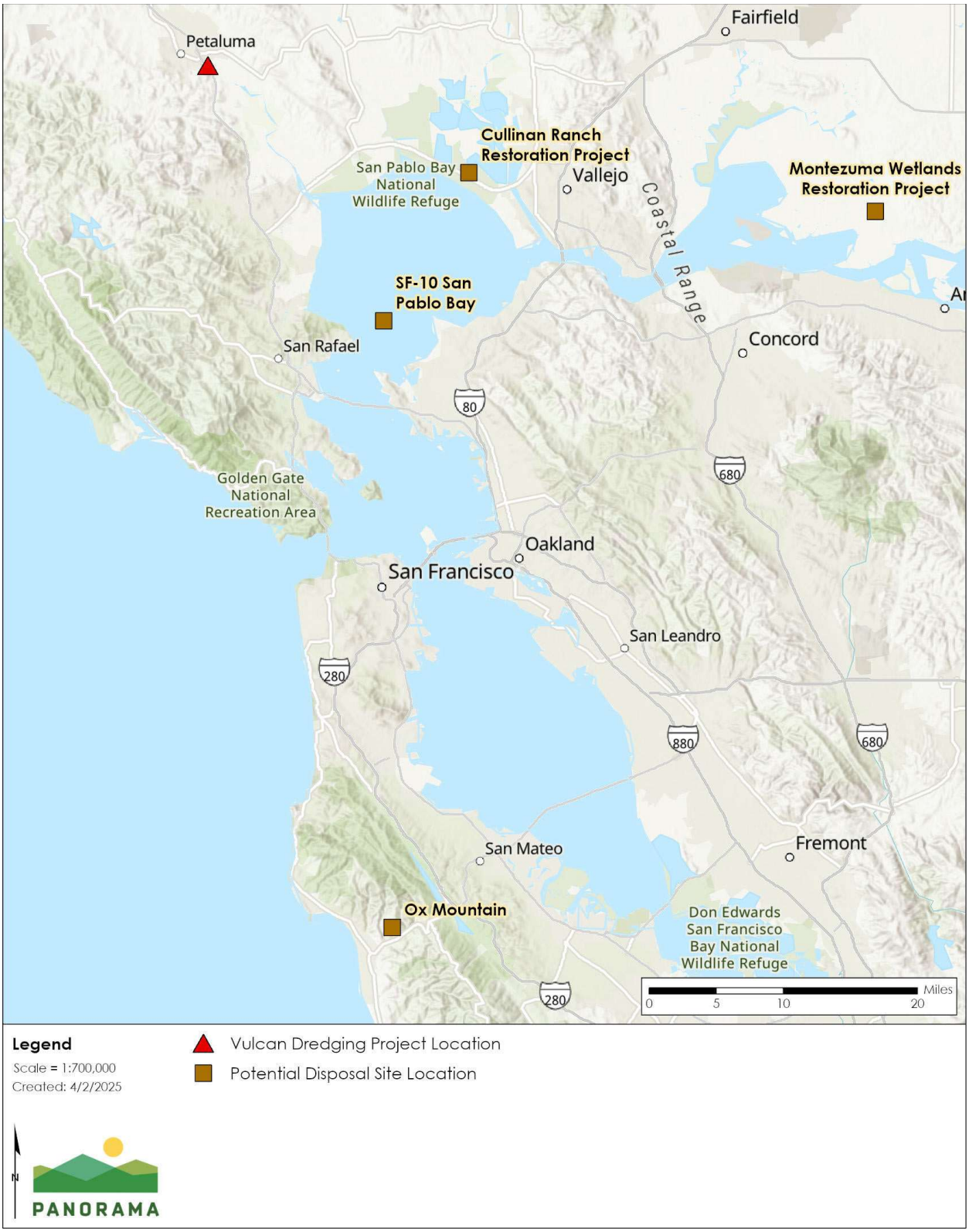
Impact Analysis Summary

Although Project activities are substantially similar to CEQA-exempt maintenance dredging activities (see California Code of Regulations, title 14, section 15304(g)), the CSLC determined that "new dredging" is not categorically exempt pursuant to Article 19 of the CEQA Guidelines and guidance from the DMMO. Sections 3 and 4 of this IS/ND conclude that all Project-related impacts from the Project would be less than significant or that there would be no impact.

Figure ES-1 Project Region Map

Figure ES-2 Dredging Vicinity

Figure ES-3 Sediment Placement Sites



1.0 PROJECT AND AGENCY INFORMATION

1.1 PROJECT TITLE

Vulcan Materials New Dredging Project (Project)

1.2 LEAD AGENCY AND PROJECT SPONSOR

Lead Agency
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
Contact: Jason Ramos, Senior Environmental Scientist
Division of Environmental Science, Planning, and Management
Jason.Ramos@slc.ca.gov

Applicant
Vulcan Materials Company
210 Landing Way
Petaluma, CA 94952-5547
Contact: Terry Marshall
Area Manager - Permitting III
Email: marshallt@vmcmail.com
Mobile: (559) 770-7793

1.3 PROJECT LOCATION

The dredging area is located in the Petaluma River, adjacent to 210 Landing Way in the City of Petaluma, California, Assessor's Parcel Numbers (APNs) 019-220-048 and 049. Vulcan Materials Company operates a construction materials facility at this location. The proposed dredging area in the Petaluma River is approximately 0.50 acre and is adjacent to an existing bulkhead wall (vessel berth area) used for the loading and offloading of construction materials from barges and other work vessels. The Petaluma River is proposed to be the work and staging location for dredging activities. Regional access to the site is provided by Highway 101, located 500 feet to the west. Direct access to the site is provided by Petaluma Boulevard and Landing Way (see Figures 1-1, 1-2, 1-3, and 1-4).

Figure 1-1 Project Region

Figure 1-2 Dredging Vicinity

Figure 1-3 View from Vulcan Materials Property Looking Southeast

Figure 1-4 View from Vulcan Materials Property Looking Northwest

The Petaluma River feeds into San Pablo Bay approximately 10 miles southeast of the dredging site. The U.S. Army Corps of Engineers (USACE) is responsible for periodic maintenance dredging of the federally maintained navigation channel within the Petaluma River, which is divided into two sections with different dimensions. The upper reach of the river channel, referred to as the Upper Channel, is 14 miles long and extends from Petaluma to the mouth of the river at San Pablo Bay. The lower reach, referred to as the Across-the-Flats Channel, extends approximately 5 miles from the mouth of the river into San Pablo Bay. The Upper Channel is designed to be 100 feet wide with a depth of -8 feet below *mean lower low water* (MLLW) and includes a 300-foot by 400-foot turning basin also designed to be -8 feet below MLLW. The proposed dredging area adjacent to the bulkhead wall of the Vulcan Materials property is located adjacent to the Upper Channel maintained by the USACE. Dredging of the federally maintained channel is limited to the center of the river (main channel). It is the responsibility of riverfront property owners to provide navigable access to their property (to the riverbank) from the federally maintained channel, as further explained in Section 1.4.

Refer to Section 2 Project Description for further details on the proposed Project area. The Project also includes transport (via barges) of the dredged material to disposal sites located throughout San Francisco Bay (see section 2.1.1.2 and Figure 2-3). For purposes of this document, the terms *placement* and *disposal* in reference to dredged material are used synonymously.

1.4 PROJECT BACKGROUND AND OBJECTIVES

The USACE is scheduled to complete maintenance dredging activities in the Petaluma River in fall of 2025. However, the USACE only dredges areas within federal channels that have been authorized by Congress. The federal channel does not include individual pier faces and slips. Thus, Vulcan Materials would be responsible for dredging the berth area adjacent to the existing bulkhead wall (work vessel berth area).

Due to accretion of sediments adjacent to the bulkhead wall area and vicinity, navigation to the Vulcan Materials site is now substantially constrained to high tide conditions or not possible. This navigation constraint decreases efficiency, and decreases safe vessel operations for approaching, accessing, loading/unloading, and docking at the berth.

Vulcan averages six barge visits per month and requires at least 8 hours per visit to offload materials, which is limited to higher tide conditions due to navigation constraints from accumulated sediment during low tide. Vulcan does not propose to increase vessel traffic or throughput. The proposed dredging is to ensure safe operations and docking/offloading of the barges. The proposed Project is designed to keep the facilities functioning and would not change the existing use of the facilities.

1.5 ORGANIZATION OF THE INITIAL STUDY/ NEGATIVE DECLARATION

This Initial Study/Negative Declaration (IS/ND) is intended to provide the California State Lands Commission (CSLC), as lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), and other responsible agencies with the information required to exercise their discretionary responsibilities for the proposed Project. The IS/ND is organized as follows:

Section 1 presents the proposed Project background and Project location, agency and Applicant information, Project objectives, anticipated agency approvals, and a summary of the public review and comment process.

Section 2 describes the proposed Project and its layout, equipment, and facilities and provides an overview of the Project's operations and schedule.

Section 3 presents the IS, which includes the environmental setting and identification and analysis of potential impacts, considering Project features as well as existing and anticipated permit requirements, to determine that no significant effect on the environment would occur. The CSLC prepared this IS pursuant to State CEQA Guidelines section 15063.[1]

[1]The State CEQA Guidelines are found in California Code of Regulations, title 14, section 15000 et seq.

Section 4 discusses other Commission considerations relevant to the Project, such as climate change and sea level rise and environmental justice, that are in addition to the environmental review required pursuant to CEQA.

Section 5 presents information on report preparation and references.

Appendices include specifications, technical data, and other information supporting the analysis presented in this IS/ND:

- Appendix A: Air Quality and Greenhouse Gas Emission Modeling
- Appendix B**:** Cultural Resources Assessment Memo
- Appendix C: San Francisco Bay Dredged Material Management Office (DMMO) Sampling Analysis Results Approval Letter

1.6 PUBLIC REVIEW AND COMMENT

Pursuant to State CEQA Guidelines sections 15073, a lead state agency must issue a proposed ND for a minimum 30-day public review period. Agencies and the public will have the opportunity to review and comment on the document. Responses to written comments received by CSLC during the 30-day public review period will be incorporated into the IS/ND, if necessary, and summarized in the staff report to the Commission. In accordance with State CEQA Guidelines section 15074, subdivision (b), the Commission will review and consider the IS/ND, together with any comments received during the public review process, at a noticed public hearing prior to taking action on the IS/ND and proposed Project.

1.7 APPROVALS AND REGULATORY REQUIREMENTS

1.7.1 California State Lands Commission

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. The State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but

are not limited to, waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space.

On tidal waterways, the State's sovereign fee ownership extends landward to the ordinary high-water mark, which is generally reflected by the mean high-tide line, except for areas of fill or artificial accretion. For this Project, the lease area is the dredge footprint (approximately 0.50 acre) within the Petaluma River immediately adjacent to the existing bulkhead wall on APNs 019-220-048 and 049. The CSLC's authority is set forth in Division 6 of the Public Resources Code and California Code of Regulations title 2 sections 1900–2970. The CSLC has authority to issue leases or permits for the use of sovereign land held in the Public Trust, including 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, §§ 6009, subd. (c); 6009.1; 6301; 6306). The CSLC must comply with CEQA when it undertakes an activity defined by CEQA as a "project" that must receive discretionary approval (i.e., the CSLC has the authority to approve or deny the requested lease, permit, or other approval) and that may cause either a direct physical change or a reasonably foreseeable indirect change in the environment. CEQA requires CSLC to identify the potentially significant environmental impacts of its actions and to avoid or mitigate those impacts, if feasible.

The Applicant submitted an application to CSLC to use the area under CSLC's jurisdiction, which includes the dredging footprint waterward from the mean high tide line from the bulkhead wall. Therefore, the CSLC would be issuing a new General Lease – Dredging for the Project with an anticipated lease term of 10 years.

1.7.2 Other Agencies

In addition to the CSLC, the Project is subject to the review and approval of other federal, State, and local entities with statutory and/or regulatory jurisdiction over various aspects of the Project (see Table 1-1). The San Francisco Bay DMMO is a joint program of the USACE, San Francisco Bay Conservation and Development Commission, San Francisco Bay Regional Water Quality Control Board, U.S. Environmental Protection Agency, and CSLC. The DMMO provides coordinated review of dredging proposals and disposal of dredged materials. The California Department of Fish and Wildlife (CDFW), National

Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS) also actively participate in the DMMO as commenting resource agencies. The DMMO operates in accordance with the Long-Term Management Strategy (LTMS) for dredging activities in the San Francisco Bay region. The goals of the LTMS include managing dredging and sediment disposal in an economically and environmentally sound manner with low disposal volumes at in-Bay sites, medium disposal volumes in the Pacific Ocean, and medium volumes for beneficial reuse. The DMMO coordinates the review of dredging proposals with the participating agencies while ensuring environmental protection in accordance with the LTMS. Permitting agencies rely on the DMMO's determinations on sediment quality and suitability and authorization of disposal sites to streamline the permitting process for agency authorizations. Project conformance with the DMMO process ensures conformance with the LTMS for long-term management and protection of San Francisco Bay environmental resources, such as special status species and habitats (e.g., eelgrass, essential fish habitat, etc.), water quality, and management of sediment distribution and alteration of benthic habitats. An application was submitted to the DMMO in October 2023 for the Project to commence the DMMO's review of the Sampling Analysis Plan for the dredging site materials and to demonstrate conformance with the LTMS environmental protection measures. On May 10, 2024, the DMMO approved the Project's Sampling Analysis Report and authorized the dredging material for placement at various sites (Appendix C).

Table 1-1 Anticipated Agencies with Review/Approval over Project Activities

Permitting Agency	Anticipated Approvals/Regulatory Requirements
State	
California State Lands Commission (CSLC)	Lease Agreement and CEQA Lead Agency
San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)	Clean Water Act Section 401 Water Quality Certification (WQC)
San Francisco Bay Conservation and Development Commission (BCDC)	Major Permit
California Department of Fish and Wildlife (CDFW)	Lake and Streambed Alteration (LSA) Agreement and coordination on California Endangered Species Act (CESA)
Federal	
U.S. Army Corps of Engineers (USACE)	Clean Water Act (CWA) Section 404 Individual Permit for Maintenance Dredging
U.S. Fish and Wildlife Service (USFWS)	Section 7 Informal Consultation (Federal Endangered Species Act (FESA))
National Marine Fisheries Service (NMFS)	Section 7 Informal Consultation (Federal Endangered Species Act (FESA))
Local	
N/A	N/A

2.0 PROJECT DESCRIPTION

Vulcan Materials Company (Vulcan Materials or Applicant) is proposing to conduct dredging activities in the Petaluma River, adjacent to 210 Landing Way in the City of Petaluma. The Project objective is to ensure safe operations and docking/offloading of barges by dredging sediment adjacent to the existing bulkhead wall and then transporting the dredged material to an already approved in-bay or beneficial reuse placement site with disposal of any debris materials at Ox Mountain Landfill if necessary.

2.1 PROJECT WORK AREAS

The Project area includes the dredging site within the Petaluma River adjacent to the Vulcan Materials property. No improvements are proposed adjacent to or within the Vulcan Materials property. The Project area also includes the sediment disposal areas that are already authorized by the DMMO for Vulcan's proposed dredged material placement as well as work vessel transit routes from the dredging area to the disposal sites.

2.1.1 Dredging Site

The work area for proposed dredging is located immediately adjacent to the bulkhead wall that fronts the river and includes the area for berthing of vessels/barges at the Vulcan Materials property. The overall dredge area encompasses approximately 0.50 acre, and the Project would remove approximately 2,519 cubic yards (CY) of sediment in one new dredging event and an additional similar volume in one maintenance dredging event in the next 10 years. Figure 2-1 shows the existing bathymetric conditions, and Figure 2-2 shows the proposed design depths of the berth and surrounding sediment. The dredging design depth is -8 feet below MLLW plus an over-depth allowance (buffer) of 1-foot to provide adequate depth and safe navigation and approach for vessels to utilize the berth.

Figure 2-1 Dredging Area Existing Conditions

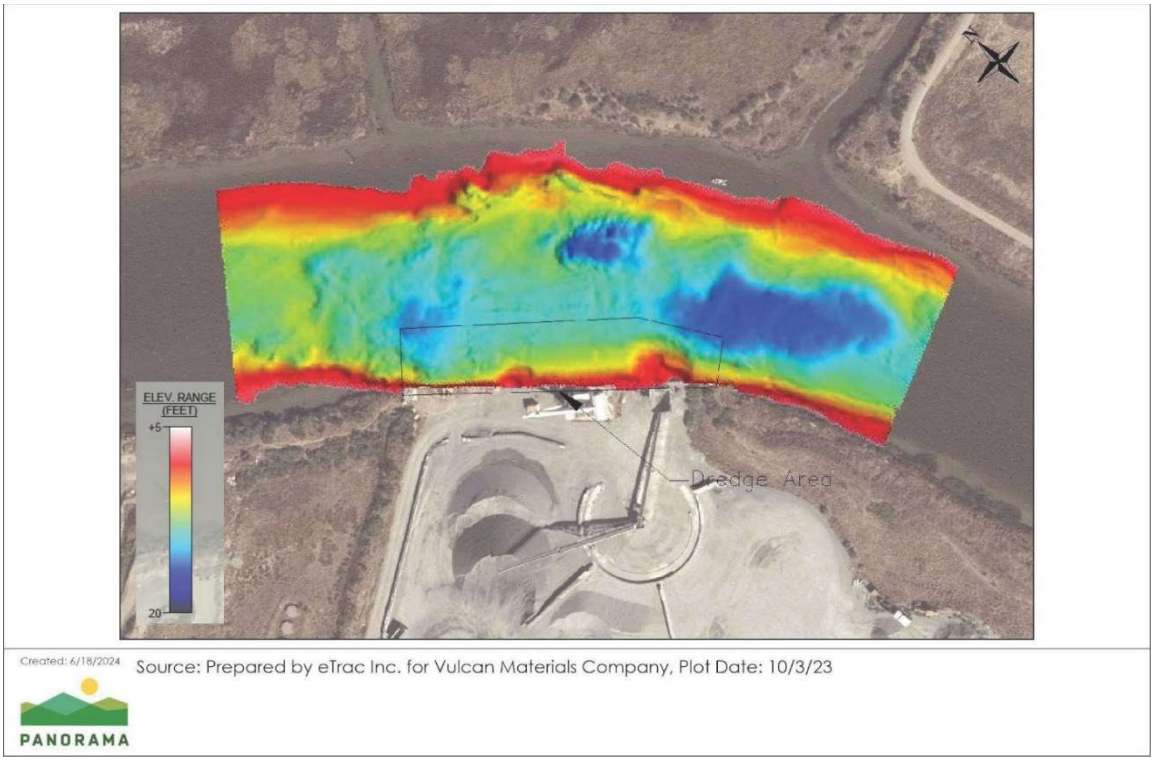
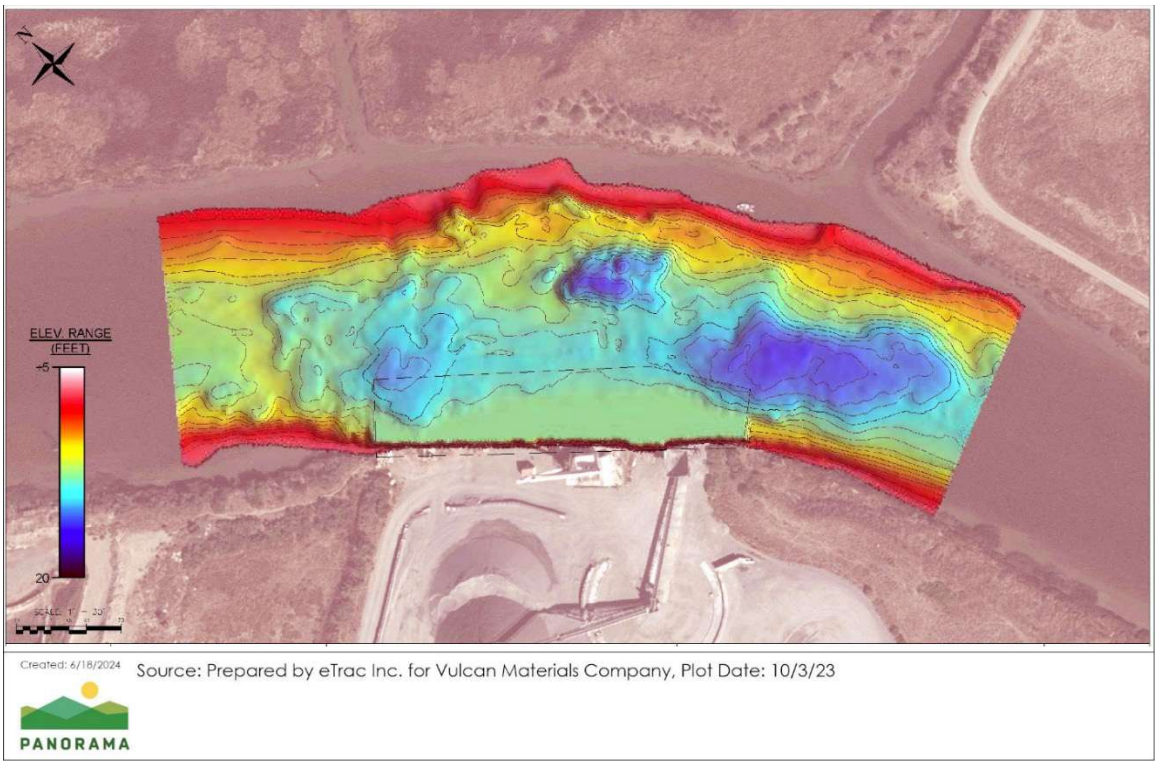


Figure 2-2 Proposed Dredging Design Conditions



2.1.2 Sediment Placement (Disposal) Sites

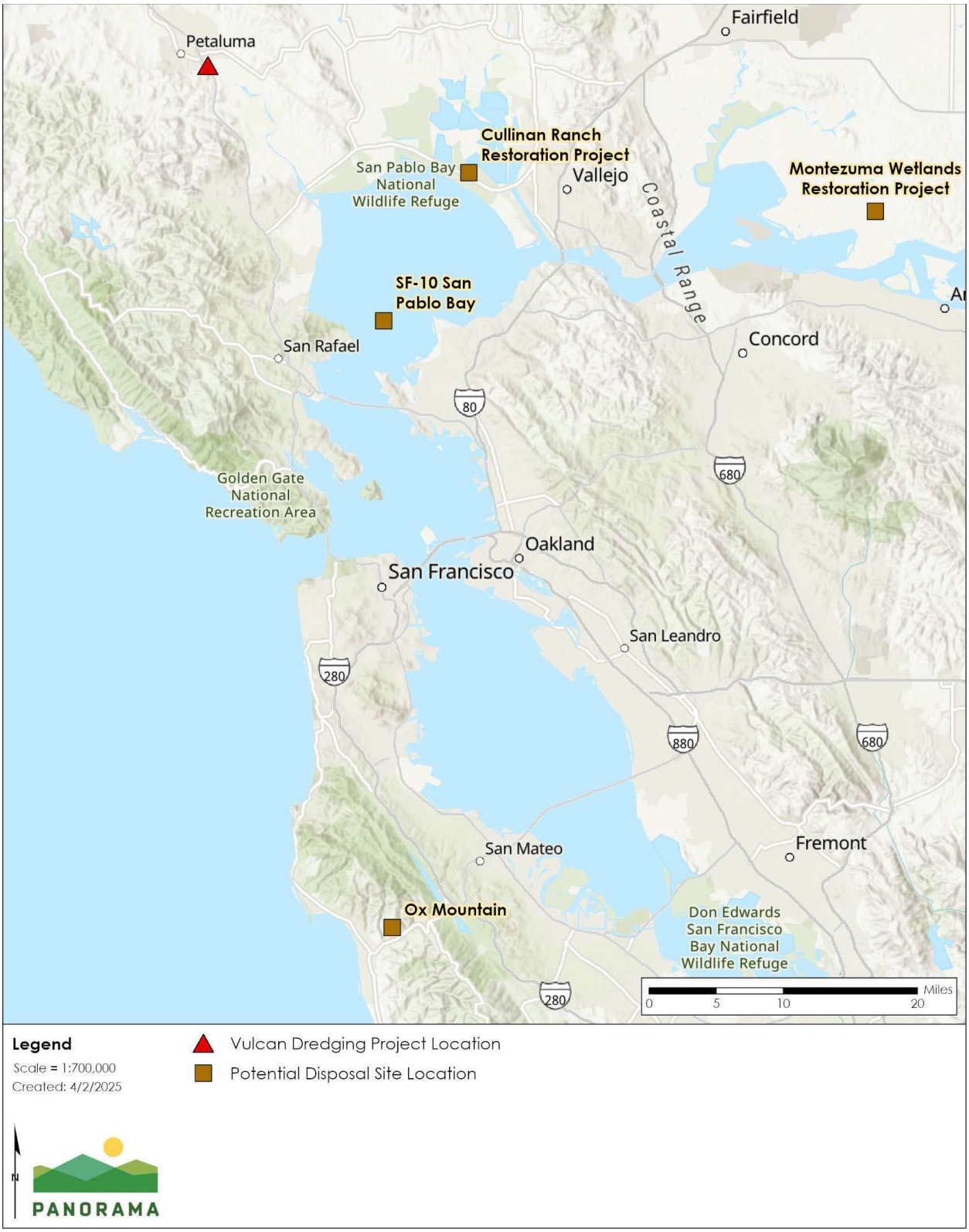
On May 10, 2024, the DMMO approved the Project's Sampling Analysis Report and authorized the dredging material as suitable for unconfined aquatic disposal (open disbursement over the disposal site) at the San Pablo Bay Disposal Site (SF-10) and for beneficial reuse of the dredged material at the Cullinan Ranch Restoration Project (CRRP) site and the Montezuma Wetlands Restoration Project (MWRP) site. The IS/ND assumes that one of these sites would be selected for sediment disposal. General descriptions of these placement sites are provided below. If debris is encountered during dredging operations, this material would be disposed of at the Ox Mountain landfill site. For purposes of this document, the terms *placement* and *disposal* are used synonymously. The placement sites in this section have existing state and federal authorizations to receive the dredge material and are identified sites within the LTMS and within the DMMO's purview to determine suitability for disposal at these sites. For the CRRP site, the California Department of Fish and Game (CDFG) (now known as the California Department of Fish and Wildlife) and the U.S. Fish and Wildlife Service prepared an Environmental Impact Report/Environmental Impact Statement (EIR/EIS), State Clearinghouse No. 2007092004, and CDFG certified the EIR on April 22, 2010. The County of Solano prepared an EIR/EIS for the MWRP site, State Clearinghouse No. 1991113031, and certified the EIR on February 2, 1999. The CRRP and MWRP sites have existing leases (Lease 8993 for CRRP; Lease 8275 for MWRP) with the CSLC for sediment disposal. The USACE asserts navigational servitude with the SF-10 disposal site as codified at 43 U.S.C. 1314(a). Consequently, sediment disposal activities have already been approved and are not addressed further in this IS/ND. See Figure 2-3 for the locations of the approved placement sites.

2.1.2.1 In-Bay Placement Site

<u>SF-10 San Pablo Bay Placement Site</u>

The SF-10 placement site is a 1,500-foot by 3,000-foot rectangle, approximately 30 to 45 feet deep, 3.0 miles northeast of Point San Pedro in southern San Pablo Bay in Marin County and approximately 25 miles from the dredging site. The monthly volume limits for each in-bay placement site are separate from the overall annual in-Bay placement volume target established by the LTMS Management Plan and amendments to the San Francisco Bay Plan and Water

Figure 2-3 Sediment Placement Sites



Quality Control Plan. See Section 1.7.2 Other Agencies for further description of sediment disposal management pertaining to the LTMS.

2.1.2.2 Beneficial Reuse Placement Sites

CRRP

Cullinan Ranch is a State-owned facility managed by the USFWS and CDFW. It is located approximately 17 nautical miles from the proposed dredging area, adjacent to San Pablo Bay, just west of the Highway 37 Bridge over the Napa River. Approximately 1,500 acres of former hayfield farmlands are in the process of being restored to tidal marsh. The Project partners designated a 290-acre area for dredge material with plans to import up to 2.8 million CY of material to the site. So far, over 1.1 million CY of material have been imported to the site.

MWRP

MWRP is a privately owned and operated, for-profit project located 42 nautical miles from the proposed dredging area at the eastern edge of the Suisun Marsh. The MWRP will restore nearly 2,000 acres of tidal and seasonal wetlands. The site can accept both cover- and foundation-quality material. It currently has a capacity to receive more than 10 million CY of dredge material. It currently has an off-loader on site and is permitted and available to accept dredge material.

2.1.2.3 Landfill Disposal

Use of dredged material as daily cover for landfills (e.g., Ox Mountain in Half Moon Bay) is a viable option for disposal if a portion of the material is not suitable (e.g., due to the presence of debris) for one of the DMMO disposal sites. If necessary, the Ox Mountain landfill would be used as a disposal site. The material would be transported by barge to Pillar Point Harbor, approximately 60 miles from the dredging site, and then transported by truck approximately 9 miles from the port to the landfill. This is anticipated to be a small volume of material, and this document assumes one barge and vehicle trip to reach that site.

2.2 MARINE/RIVERINE COMPONENTS

As shown in Table 2-1, the Project would result in approximately 2,519 CY of dredged materials being removed from the berth during the initial new dredging activities. It is anticipated that one other maintenance dredging

episode would occur within the following 10 years to maintain the dredging footprint. The volume of dredged material that would be removed during subsequent maintenance dredging activities would depend on the extent of accretion at the site at the time of a future dredging episode and is expected to be similar to the initial dredging volume of 2,519 CY. Accordingly, the CSLC is considering a 10-year lease with Vulcan Materials to allow for dredging of up to a maximum of 5,100 CY of material over the 10-year lease term.

The potential environmental impacts of the new-dredging portion of the Project are analyzed in Section 3 and the remainder of this IS/ND. This IS/ND does not further analyze the maintenance-dredging portion of the Project because that portion is categorically exempt pursuant to the CEQA Guidelines, section 15304(g), as a Class 4 Minor Alterations to Land (Public Resources Code section 21084 and California Code of Regulations, title 14, section 15061). (*Westside LA Neighbors Network v. City of LA* (2024) 104 Cal.App.5th 223, 241.)

Table 2-1 Proposed Dredging Specifications and Volumes for New Dredging

Surface area (acres)	Project depth (feet MLLW), excluding overdepth	Estimated volume to Project depth (cubic yards)	Overdepth (feet)	Estimated volume of overdepth (cubic yards)	Total volume (cubic yards)
0.5	-8	1,804	1	485	**2,519**

All construction activities (dredging) would occur in-water and would be conducted in compliance with regulatory permits, including scheduling of work during required aquatic work windows to minimize or avoid effects on sensitive biological resources. No off-site staging for equipment is required.

2.2.1 Dredging and Transport Activities

The barges and support vessels would moor/anchor at the existing bulkhead wall or adjacent to the wall. In-water dredging activities would be conducted by using a clamshell dredge. The clamshell dredge consists of a large work barge with a large crane mounted on the deck of the barge (see Figure 2-4). The crane has a boom that is long enough to extend out beyond the end of the work barge in any direction and is able to swivel 360 degrees on its mount. A large clamshell bucket is attached to a series of cables at the end of the boom,

which allows the bucket to be raised and lowered into the water. The cables also open and close the bucket as it is filled with sediment and then emptied into scows. A scow is an open barge that can carry a large volume of sediment, which is then towed by a tugboat to and from the beneficial reuse or disposal sites.

All dredged material would be transported by barges via the Petaluma River from the dredge area to a disposal location. See Table 2-3 for additional information on vessel trips.

Figure 2-4 Example Photo of a Clamshell Dredge on a Barge

Dredged material would be placed from the clamshell bucket into a scow. Material would not be released from the bucket prior to the bucket being inside the combing (containment area) of the scow to prevent overflow or runoff of material. This helps avoid and minimize resuspension of the material through the water column.

2.2.2 Knockdown Events

As a routine part of dredging operations, a "knockdown" event may be implemented to smooth out high spots and improve sediment surface

conditions after dredging has occurred. This method involves using a tugboat to pull an I-beam or weighted blade across the surface of the sediment; knockdown events do not involve sediment removal or disposal. The I-beam/blade redistributes the shoaled material within the authorized dredging footprint by moving the encountered material into adjoining areas with deeper depressions. Knockdowns are typically used when time constraints may not allow for normal dredging or when an isolated shoal threatens navigation that is otherwise at or below its permitted depth. Conducting separate knockdown operations is often more efficient than mobilizing dredging equipment and transporting the material to a disposal site. Knockdown events would comply with all LTMS and DMMO requirements in place for dredging activities, including compliance with required work windows to prevent impacts to special status species. In addition, the knockdown event activities have similar but reduced environmental effects as compared to the initial dredging activities and are therefore addressed through the dredging impact descriptions and analyses and are not separately discussed in this IS/ND. All knockdown events would require prior notice and review of proposed activities by the DMMO and permitting agencies prior to the start of work.

2.3 DEMOBILIZATION AND CONSTRUCTION CLOSE-OUT

After dredging activities have been completed in accordance with permit requirements, the selected contractor would remove all equipment, tools, and structures from the Project area via vessel and in a manner consistent with permits and agreements.

In addition, a closure report shall be submitted to the DMMO in compliance with the permit requirements. The closure report is required to include a pre- and post-dredging bathymetric survey including volumes dredged, depth achieved, and notice of any over-dredging beyond the over-depth allowance.

2.4 WORK SCHEDULE

With USACE maintenance dredging of the main channel of the Petaluma River planned for fall of 2025, Vulcan Materials will coordinate their dredging schedule with the USACE to ensure that Project activities do not occur within 1 week or within 0.5 mile of the USACE's dredging activities in the Petaluma River main channel.

Dredging would be conducted during environmental work windows authorized by NMFS and CDFW (and consistent with the LTMS) for protection of sensitive species and habitats that could occur at the dredging area. Dredging activities would occur between 8:00 a.m. and 5:00 p.m., Monday through Friday, within the City of Petaluma and would last for approximately 6 days. No construction noise generating work within the City of Petaluma would occur on Saturdays, Sundays, or federal holidays. Work vessels that would be transporting sediment to disposal sites within San Francisco Bay are not limited to 8:00 a.m. to 5:00 p.m. and may operate outside of these hours.

All Project activities, including sediment transport to disposal sites, are expected to require the following equipment:

- Crane barge and associated clam shell bucket for removing sediment
- Support barges, including flat deck barges, utilizing anchors and/or spuds
- Support vessels for moving barges and potential knockdown events
- Small support vessels for crew transportation

Table 2-2 provides details for the proposed use of construction equipment for all Project activities. When accounting for overlapping activities, up to 13 workers may be on site at one time.

Table 2-2 Estimated Equipment Requirements

Equipment type	Quantity	Horsepower	Operating hours per day	Days
Crane barge	1	330	10	6
Tug boat 1	1	660	4.5	6
Tug boat 2	1	1220	12	6
Support barges	2	15	6	6
Support vessel	1	60	10	6
Small support vessel	1	50	2	6
Crane	1	20	2	6
Forklift (on barge)	1	250	2	2

Table 2-3 Estimate of Project Transport Trips

Item	Trips	One-way miles per trip
Heavy equipment mobilization	4	60
Sediment transport for disposal (vessel trips)	4	42
Debris disposal to Ox Mountain Landfill (1 vessel trip + 1 vehicle trip)	2	70

Note: For sediment transport/disposal, distance was conservatively estimated for travel to longest distance disposal site (Montezuma disposal site).

Table 2-4 Personnel Requirements

Task	Quantity	Hours per day	Days
Site support/Project Manager	3	10	6
Excavation staff	4	10	6
Disposal staff	6	10	6

2.5 AVOIDANCE AND MINIMIZATION MEASURES

In order to avoid and/or minimize potential impacts to jurisdictional waters, water quality, and biological resources, the contractor undertaking construction work would implement standard *best management practices* (BMPs), implement all required environmental protection measures for conformance with the LTMS, and conform with all required conditions of agency permits to protect special status species and habitats from construction by-products and pollutants such as construction debris or other deleterious materials, including the following:

- No debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete, or washings thereof, or other construction-related materials or wastes, oil, or petroleum products would be allowed to enter into any waterbodies or placed where it would be subject to erosion by rain, wind, or waves and could enter into any waterbodies.
- Floating booms would be used to contain debris discharged into waters, and any debris would be removed as soon as possible, and no later than the end of each workday.

- All dredging activities and knockdown events would be restricted to the NMFS and CDFW environmental work windows in accordance with LTMS guidance for sediments in San Francisco Bay to minimize or avoid potential adverse effects on fish and invertebrate species.
- Dredging would be conducted with a clamshell bucket to reduce potential suspension of sediment and entrainment.
- In accordance with regulatory agencies and permitting requirements, the following plans would be developed and implemented for the Project:
    - Dredge Operations Plan
    - Spill Prevention Control and Countermeasure Plan
    - Construction Management Plan
    - Materials Management and Disposal Plan
    - Construction Quality Assurance Project Plan

3.0 ENVIRONMENTAL CHECKLIST AND ANALYSIS

This section contains the Initial Study (IS) that was completed for the proposed Vulcan Landing New Dredging Project (Project) in accordance with the requirements of the California Environmental Quality Act (CEQA). The IS identifies site-specific conditions and impacts and evaluates their potential significance while considering Project features as well as existing and future permit requirements. The information, analysis and conclusions included in the IS provide the basis for determining the appropriate document needed to comply with CEQA. For the Project, based on the analysis and information contained herein, CSLC staff has found that clearly no significant effect on the environment would occur. As a result, the CSLC has concluded that a Negative Declaration (ND) is the appropriate CEQA document for the Project.

The evaluation of environmental impacts provided in this IS is based in part on the impact questions contained in Appendix G of the State CEQA Guidelines; these questions, which are included in an impact assessment matrix for each environmental category (Aesthetics, Agriculture/Forest Resources, Air Quality, Biological Resources, etc.), are "intended to encourage thoughtful assessment of impacts." Each question is followed by a check-marked box with column headings that are defined below.

Potentially Significant Impact. This column is checked if there is substantial evidence that a project-related environmental effect may be significant. If there are one or more potentially significant impacts, a Project Environmental Impact Report (EIR) would be prepared. The Project would not result in any potentially significant impacts.

Less than Significant with Mitigation. This column is checked when a project may result in a significant environmental impact but the incorporation of identified Project revisions or mitigation measures would reduce the identified effect(s) to a less-than-significant-level. The Project would not result in any impacts that would be significant without mitigation.

Less than Significant Impact. This column is checked when a project would not result in any significant effects. The Project's impact is less than significant even without the incorporation of Project-specific mitigation measures.

No Impact. This column is checked when a project would not result in any impact in the category or the category does not apply.

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

AGENCY STAFF DETERMINATION

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

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

Signature

June 9, 2025

Date

Jason Ramos, Senior Environmental Scientist
Division of Environmental Science, Planning, and Management
California State Lands Commission

3.1 AESTHETICS

AESTHETICS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

3.1.1 Environmental Setting

The Project area is defined as the proposed dredging area plus a 1,000-foot study area (see Figure 1-2) as well as the barge sediment transport routes to the sediment disposal sites. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to

Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill in Half Moon Bay (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing State and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review. The dredging area is within a heavily developed industrialized area in the city of Petaluma, approximately 0.21 mile northeast from U.S. Highway 101. Lind Marine, Inc., operates a sand mining offloading terminal immediately west of the Vulcan site. All dredging activities are proposed within the Petaluma River, and no activities are proposed on land at 210 Landing Way.

Shollenberger Park is located east of the proposed dredging area on the Petaluma River. Shollenberger Park is an open space area owned by the City of Petaluma that offers expansive views of the Petaluma River and is known for its 2-mile circular trail and expansive wildlife viewing. The Shollenberger Park trail is a hiking and biking trail that parallels the Adobe Creek as it flows southwest into the Petaluma River then turns to the south to follow the Petaluma River.

The barge sediment transport routes include the Petaluma River from the dredging area to San Pablo Bay and could include the SF-10 or CRRP disposal sites in San Pablo Bay or the MWRP site at the eastern edge of Suisun Marsh. Vessel transit to the disposal sites would occur within designated navigation lanes within San Francisco Bay.

Scenic Highways

An eligible scenic highway, State Route (SR) 116, is located approximately 0.55 mile northeast of the proposed dredging area (Caltrans n.d.-a; 2019). Only a segment of SR 116 between SR 1 (near Jenner) and Highway 101 (Cotati) is designated as an eligible scenic highway.

Highway 101, approximately 0.21 mile southeast, is designated as a Scenic Corridor by the Sonoma County General Plan.

The sediment transport routes for barges would include traveling under SR 37 on the Petaluma River near San Pablo Bay, and, for transit to the MWRP site, barges would travel under Interstate 80 and SR 680 in the Carquinez Strait. If any solid waste disposal is required, sediment transport by barge to Pillar Point Harbor would include travel under SR 580 and the Interstate 80 San Francisco-Oakland

Bay Bridge. None of these state highways are designated as a State Scenic Highway.

Scenic Vistas

The Sonoma County General Plan 2020 does not identify specific scenic vistas; instead the County General Plan designates scenic corridors and Scenic Resource Areas (Scenic Landscape Units and Community Separators).

Highway 101 and SR 116 are designated as scenic corridors in the Sonoma County General Plan 2020 (Sonoma County 2016). The view corridor of Highway 101 provides views of open grassy hillsides and ridgelines. Located at the Marin-Sonoma County border, this area serves as a gateway to the County. The Project area is not visible from Highway 116 but is visible from Highway 101.

Viewshed

Viewers of the proposed dredging area would primarily include park users at Shollenberger Park (especially trail users approximately 620 feet from the proposed dredging area), recreation and commercial users of the Petaluma River, and, potentially, motorists on Landing Way. The proposed dredging area may also be seen by motorists on Highway 101 (approximately 1,000 feet west) and passengers on the Sonoma-Marin Area Rail Transit (SMART) train (approximately 450 feet west); however, views of the Project would be limited due to the speed of travel and obscured by intervening features. Views of the transport barges (four vessel trips) could occur from SR 37 over the Petaluma River and other public access locations along the Petaluma River from the dredging area to San Pablo Bay.

3.1.2 Regulatory Setting

No federal or State laws, regulations, or policies pertaining to aesthetics are relevant to the Project. Local laws and regulations pertaining to aesthetics that are relevant to the proposed Project are listed below.

3.1.2.1 Sonoma County General Plan 2020

The following goals and policies from the Sonoma County General Plan 2020 are relevant to the Project (Sonoma County [2008] 2016):

- **GOAL OSRC-4:** Preserve and maintain views of the nighttime skies and visual character of urban, rural and natural areas, while allowing for nighttime lighting levels appropriate to the use and location.
- **Policy OSRC-4c:** Discourage light levels that are in excess of industry and State standards.

3.1.3 Impact Analysis

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

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

No Impact

There are no designated scenic vistas in the proposed dredging area and disposal sites. The nearest scenic vista to the proposed dredging area is approximately 12 miles to the southeast (Caltrans 2021). The transport barges would be visible along the transit routes for sediment disposal but would not change public view points for scenic vistas within San Francisco Bay as the barges would be consistent with existing vessel traffic.

The Project dredging activities would occur within an existing industrialized area which already contains cranes and barges. The dredging activities would take place in the Petaluma River, below the water surface, with no damage to the visual landscape. As previously explained in the Section 3.1.1, the Project area would not include any portion of a designated state scenic highway. The Project would not damage any scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway, or other aesthetic resources.

Therefore, no impacts would occur.

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

Less Than Significant Impact

The proposed dredging area would be located within an urbanized area that currently supports industrial uses. The potential disposal sites consist of permitted disposal sites that are either below the water surface or are a landfill. The proposed dredging area would not be within a Scenic Corridor, Scenic Landscape Unit, Community Separator, or Historic District designated by Sonoma County (CPRMD n.d.-b) and would be within an area designated as General Industrial (GI), which does not have restrictions pertaining to scenic quality (CPRMD n.d.-b). Therefore, no impact would occur.

The transport barge routes, covering the lower 5 miles of the Petaluma River to San Pablo Bay, would be within a non-urbanized setting primarily surrounded by marsh wildlife management areas and agricultural lands. Viewers could include mariners and recreationalists on the Petaluma River as well as passing motorists on Landing Way and Highway 101 and passengers on the SMART train. However, Project barges traversing through the lower portion of the Petaluma River would not substantially degrade the existing visual character of the river, given the transitory and infrequent duration of this activity and existing baseline presence of industrial and recreational vessels that are frequently present in this area, as supported by the Port of Sonoma near SR 37 and Petaluma Marina approximately 0.5 mile upriver from the dredging area.

The proposed dredging activities and vessel transport of sediment would be temporary and would not conflict with existing uses. No change to land use or zoning is proposed, and there would be no conflicts with any land use plans, policies, or regulations governing scenic quality. Therefore, the impact would be less than significant.

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

No Impact

Dredging activities would occur from 8:00 a.m. to 5:00 p.m., Monday through Friday, and would not include sources of light or glare. Other work vessels used for mobilization to the dredging site and for sediment transport to disposal sites in San Francisco Bay could operate up to 10 hours in a workday and may require lighting. However, these vessels would have standard navigation lighting and would not require additional lighting that would introduce a new substantial source of light or glare. Therefore, no impact would occur.

3.2 AGRICULTURE AND FORESTRY RESOURCES

AGRICULTURE AND FORESTRY RESOURCES - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Natural Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220, subd. (g)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104, subd. (g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.1 Environmental Setting

The Project area consists of the dredging area and barge sediment transport routes to the authorized sediment disposal sites (see Figure 2-3). The potential sediment disposal sites have been permitted for sediment disposal and contain no agricultural or forest resources. The California Department of Conservation's Farmland Mapping and Monitoring Program provides data for use in planning for the present and future use of California's agricultural land resources (California Department of Conservation [CDOC] 2018). The Project area is not under a Williamson Act contract and has no forest resources.

3.2.2 Regulatory Setting

There are no federal, State, or local laws, regulations, or policies pertaining to agriculture and forest resources and relevant to the Project.

3.2.3 Impact Analysis

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

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

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220, subd. (g)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104, subd. (g))?

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

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

(a-e) No Impact

The proposed dredging area is within the Petaluma River and adjacent to areas designated as Urban and Built-up Land. There is no Prime Farmland, Unique

Farmland, Farmland of Statewide Importance, forest land, or timberland that occurs anywhere within the Project area. Potential farmland may exist in the upland areas along the lower approximate 5 miles of the Petaluma River to San Pablo Bay. The nearest grazing land is located approximately 0.22 mile west of the dredging area (CDOC 2016). Therefore, the proposed Project would not directly or indirectly convert any designated Farmland to a non-agricultural use or forest lands to non-forest use, including any agricultural lands adjacent to the transport barge route, and would not result in a loss of forest land.

The Project does not conflict with existing zoning for agricultural use, and the Project area does not include or conflict with any lands under a Williamson Act contract (Sonoma County PRMD n.d.-a).Therefore, no impacts would occur.

3.3 AIR QUALITY

AIR QUALITY - Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors)	☐	☐	☒	☐

AIR QUALITY - Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
adversely affecting a substantial number of people?				

3.3.1 Environmental Setting

The federal government has established the National Ambient Air Quality Standards (NAAQS) to protect public health (primary standards) and welfare (secondary standards). The State of California has established separate, mostly more stringent, standards, the California Ambient Air Quality Standards (CAAQS). Federal and state standards have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide, suspended particulate matter (a mixture of extremely small particles and liquid droplets, e.g., dust), and lead. In addition, California has standards for ethylene, hydrogen sulfide, sulfates, and visibility-reducing particles.

The Project dredging site is located within southern Sonoma County; the barge sediment transport routes are located within the counties of Sonoma, Marin, Solano, Contra Costa, and San Mateo; and the truck route for transporting debris from Pillar Point Harbor to the Ox Mountain Landfill is located within San Mateo County. The entire Project area, inclusive of sediment transport routes, is located within the San Francisco Bay Area Air Basin (SFBAAB) and, therefore, under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Only one of the in-Bay or beneficial reuse sites would be ultimately selected for sediment disposal, which could also include sediment and debris transport to Pillar Point Harbor for disposal at the Ox Mountain Landfill (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review.

The SFBAAB experiences low to moderate concentrations of most pollutants when compared to federal or State standards and is designated as non-

attainment for federal and/or State standards for ozone, fine particulate matter ($PM_{2.5}$), and respirable particulate matter (PM_{10}). The SFBAAB is in attainment or unclassified for all other federal and state standards (BAAQMD 2022a).

3.3.1.1 Local Climate and Meteorology

The SFBAAB can be described as having a coastal Mediterranean climate (BAAQMD 2017c). The basin consists of coastal mountain ranges with inland valleys and bays that distort normal wind flow patterns. Temperatures in Sonoma County rarely reach below freezing and are warm during the summertime, with cool evenings. On warm summer days, land inland of San Francisco Bay can be 35 degrees warmer than coastal areas. Nighttime temperatures tend to differ by less than 10 degrees Fahrenheit between the coast and inland areas (BAAQMD 2022a).

3.3.1.2 Sensitive Receptors and Land Uses in the Surrounding Area

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

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

The nearest sensitive receptor is a residence approximately 0.42 mile west of the proposed dredging area. The Bridge Haven School is located approximately 0.6 mile from the proposed dredging area. There are also sensitive receptors along the truck route for transporting sediment to the Ox Mountain Landfill, including the El Granada Elementary School and Wilkinson School, but use of this route would be limited to no more than one trip.

3.3.1.3 Criteria Pollutants

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

Ozone

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

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

Nitrogen Dioxide

NO_2 is an air pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_X. A precursor to ozone formation, NO_X is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NO_X emitted from fuel combustion is in the form of nitric oxide and NO_2. Nitric oxide is converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere. NO_2 has the potential to irritate airways in the human respiratory system. Short-term exposures can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or

difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections.

Carbon Monoxide

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

Particulate Matter (PM)

PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter is emitted into the atmosphere from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates can also damage materials and reduce visibility. Sulfur dioxide and lead sulfur dioxide are produced through the combustion of sulfur or sulfur-containing fuels such as coal. Sulfur dioxide is also a precursor to the formation of atmospheric sulfate and particulate matter (PM_{10} and $PM_{2.5}$) and contributes to the atmospheric formation of sulfuric acid that could precipitate downwind as acid rain.

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

Toxic Air Contaminants

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

3.3.2 Regulatory Setting

Air pollution control in the Project area is administered on three governmental levels: the EPA has jurisdiction under the Clean Air Act; the California Air Resources Board (CARB) has jurisdiction under the California Health and Safety Code and the California Clean Air Act; and BAAQMD shares responsibility with CARB for ensuring that all of the federal and state ambient air quality standards (NAAQS and CAAQS) are attained. The EPA and CARB classify an area as attainment, unclassified, or nonattainment, depending on whether the monitored ambient air quality data show compliance, insufficient data to determine compliance (i.e., unclassified), or non-compliance with the NAAQS and CAAQS, respectively.

At the local level, policies related to air quality are identified in local jurisdiction general plans for the overall study area, and BAAQMD has adopted an air quality plan and CEQA significance thresholds that are applicable to the Project area.

3.3.2.1 Air Quality Standards

The EPA established the NAAQS to protect public health (primary standards) and welfare (secondary standards), and CARB established its CAAQS to protect the health of the most sensitive groups of people. The EPA and CARB are required to designate air basins as "attainment" or "nonattainment" based on

whether air quality meets the NAAQS and CAAQS, respectively. Table 3-1, below, lists applicable federal and State ambient air quality standards and attainment status. As shown below, the BAAQMD is in nonattainment for the following pollutants: ozone (0_3) 8-hour (state and national), 0_3 1-hour (state and national), PM_{10} annual (state), PM_{10} 24-hour (state), $PM_{2.5}$ annual (state), and $PM_{2.5}$ 24-hour (national).

Table 3-1 Ambient Air Quality Standards

Pollutant	Averaging time	CAAQS	Attainment status	NAAQS	Attainment Status
Ozone (0_3)	8 Hours	0.070 ppm	**N**	0.070 ppm	**N**
Ozone (0_3)	1-Hour	0.09 ppm	**N**	Revoked in 2005	**N**
Carbon monoxide (CO)	8 Hours	9.0 ppm	A	9 ppm	A
Carbon monoxide (CO)	1-Hour	20 ppm	A	35 ppm	A
Nitrogen dioxide (NO_2)	1-Hour	0.18 ppm	A	0.100 ppm	A
Nitrogen dioxide (NO_2)	Annual	0.030 ppm	A	0.053 ppm	A
Sulfur dioxide (SO_2)	24 Hours	0.04 ppm	A	0.14 ppm	—
Sulfur dioxide (SO_2)	1-Hour	0.25 ppm	A	0.075 ppm	—
Sulfur dioxide (SO_2)	Annual Arithmetic Mean	—	—	0.030 ppm	—
Respirable particulate	Annual	20 µg/m^3	**N**	—	—

Pollutant	Averaging time	CAAQS	Attainment status	NAAQS	Attainment Status
matter (PM_{10})					
Respirable particulate matter (PM_{10})	24 Hours	50 µg/m^3	**N**	150 µg/m_3	U
Fine particulate matter ($PM_{2.5}$)	Annual	12 µg/m^3	**N**	12 µg/m^3	U/A
Fine particulate matter ($PM_{2.5}$)	24 Hours	—	—	35 µg/m^3	**N**
Hydrogen sulfide (H_2S)	1 Hour	0.03 ppm	U	—	—
Vinyl chloride	24 Hours	0.01 ppm	—	—	—
Sulfates	24 Hours	25 µg/m^3	A	—	—
Lead	30-Day Average	1.5 µg/m^3	A	—	A
Lead	Calendar Quarter	—	—	1.5 µg/m^3	A
Lead	Rolling 3-Month Average	—	—	0.15 µg/m^3	—
Visibility reducing particles	8-Hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more due to particles	U	—	—

Pollutant	Averaging time	CAAQS	Attainment status	NAAQS	Attainment Status
		when relative humidity is less than 70%			

NOTES:
A=Attainment N=Nonattainment U=Unclassified
µg/m^3 = micrograms per cubic meter; ppm = parts per million
SOURCE: (BAAQMD 2017a)

3.3.2.2 Sonoma County General Plan

The following policies from the Sonoma County General Plan's Open Space and Resource Conservation Element (Sonoma County [2008] 2016) (Sonoma County, 2016) may be applicable to the Project:

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

3.3.2.3 Bay Area Clean Air Plan

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

3.3.2.4 California Commercial Harbor Craft Regulation

California Commercial Harbor Craft (CHC) Regulation (17 CCR § 93118.5) was adopted by CARB in 2008 to reduce emissions of *diesel particulate matter*

(DPM), NOx, and ROG from diesel engines used on CHC operated in California Regulated Waters. As applicable to this Project, the CHC defines California Regulated Waters to include all California internal and estuarine waters. The regulation includes requirements for both new and in-use diesel engines used on CHC operation in California-regulated waters. The regulation applies to all CHC vessels, such as ferries, excursion vessels, tugboats, towboats, crew and supply vessels, work boats, pilot vessels, research vessels, emergency response vessels, barges, and commercial and charter fishing boats. Mandatory upgrades to in-use engines were implemented from 2009 through 2022.

In-use requirements for ferries, excursion vessels, tugboats, and towboats include meeting U.S. EPA Tier 2 or Tier 3 marine engine emission standards over a regulatory compliance schedule. Tier 4 is required for newly built vessels. Zero-emission options are required where feasible, and cleaner combustion Tier 3 and Tier 4 engines on all other vessels. The regulation also requires the use of CARB-verified Level 3 *diesel particulate filters* (DPFs) (Tier 3 + DPF or Tier 4 + DPF) on affected vessels. The DPF requirements will be phased in from 2024 to 2031, depending on the type and model year of the vessel. This regulation also requires CHC to use 99 percent or higher renewable diesel.

3.3.2.5 Significance Thresholds

BAAQMD's CEQA Air Quality Guidelines include adopted impact significance thresholds recommended for use in assessing a project's short-term (construction) and long-term (operational) air pollutant emissions (BAAQMD 2022b). The Project would have a significant impact on air quality if it would generate air pollutant exhaust emissions exceeding the thresholds listed in Table 3-2, below. The significance thresholds are focused on NOx, PM_{10}, $PM_{2.5}$, and ROG, as a precursor of ozone, as these pollutants are those for which the SFBAAB are in nonattainment.

Table 3-2 Bay Area Air Quality Management District Air Quality

Criteria air pollutant/precursor	Construction: average daily emissions (pounds per day)	Operational: average daily emissions (pounds per day)	Operational: maximum annual emissions (tons per year)
NO_X	54	54	10
ROG	54	54	10
PM_{10}	82*	82	15
$PM_{2.5}$	54*	54	10

NOTES: NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; PM_{10} = respirable particulate matter; ROG = reactive organic gases
*Applies to construction exhaust emissions only.
SOURCE: (BAAQMD 2022b)

For CO emissions, BAAQMD has not set a threshold for daily emissions for construction; for operational emissions, the significance threshold for 8-hour average emissions is 9 parts per million (ppm), and the significance threshold for 1-hour average emissions is 20 ppm.

3.3.3 Impact Analysis

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

No Impact

The applicable air quality plan for the Project area is the 2017 Bay Area Clean Air Plan. The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide (CO_2) by reducing fossil fuel combustion.

The control measures included in the Clean Air Plan apply to stationary sources, transportation (on road), buildings, and energy. None of the control measures included in the 2017 Bay Area Clean Air Plan apply to dredging activities or barge sediment transport, which are conducted in water using water-borne

equipment. The Project would not conflict with any control measures in the applicable air quality plan. In addition, BAAQMD guidance states that "if approval of a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project would be considered consistent with the Clean Air Plan" (BAAQMD 2017). As discussed in impact b, below, the six days of Project activities result in a less-than-significant air quality impact. Therefore, no impact would occur.

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

Less Than Significant Impact

As described in Section 3.3.2.1 Air Quality Standards, the SFBAAB is in nonattainment for the following pollutants: ozone (0_3) 8-hour (state and national), 0_3 1-hour (state and national), particulate matter (PM_{10}) annual (state), PM_{10} 24-hour (state), $PM_{2.5}$ annual (state), and $PM_{2.5}$ 24-hour (national) (BAAQMD 2017b). During Project activities, equipment and exhaust would emit ROG and NO_x, which are ozone precursors; in addition, carbon monoxide (CO) and particulate matter (both PM_{10} and $PM_{2.5}$) would be emitted in the form of exhaust from equipment used for dredging activities, including the crane and mechanical clamshell dredge, tugboats, support vessels, and forklift. All Project work vessels would be equipped with Tier 3 marine engines.

Construction related emissions of criteria air pollutants from use of Project equipment were estimated using CARB's EMFAC emissions inventory model; CARB OFFROAD emission factors derived from CalEEMod Version 2022; and the Sacramento Metropolitan Air Quality Management District (SMAQMD) Harborcraft, Dredge, and Barge Emission Factors Calculator. EMFAC is the latest emission inventory model that calculates emission inventories and emission rates for motor vehicles operating on roads in California and reflects CARB's current understanding of how vehicles travel and how much they emit (CARB 2021). OFFROAD is the latest emission inventory model that calculates emission inventories and emission rates for off-road equipment (e.g., cranes) and reflects CARB's current understanding of how equipment operates and how much they emit (CARB 2021). SMAQMD's Harborcraft, Dredge, and Barge Emission Factors Calculator estimates emission rates for harbor craft engines based on CARB emission estimation databases. This calculator, being applicable to all air basins

in California, was used to calculate Project emissions for on-water equipment, as the BAAQMD does not have their own specific calculator. See Appendix A for the modeling output assumptions and calculations used in the emissions modeling.

Project-specific data for the activity schedule and equipment were provided by the Project Applicant and were used in the model to estimate daily and annual emissions for the Project. The emissions calculations were then compared to the BAAQMD significance thresholds for criteria pollutants for which the SFBAAB are in nonattainment status. The estimated average daily and annual criteria pollutant emissions for the Project and BAAQMD emissions thresholds are presented in Table 3-3.

Table 3-3 Project Average Daily and Annual Emissions

Criteria pollutant	Project average daily emissions (lbs./day)	BAAQMD construction average daily threshold (lbs./day)	Project annual emissions (tons)	BAAQMD maximum annual emissions thresholds (tons)
NO_X	39.99	54	0.27	10
ROG	5.21	54	0.02	10
CO*	91.12	NA	0.27	NA
Exhaust PM_{10}	1.21	82	0.00	15
Exhaust $PM_{2.5}$	1.05	54	0.00	10

NOTES: BAAQMD does not set significance thresholds for CO for construction emissions, only operational emissions as 8-hour and 1-hour ppm.
Source: (BAAQMD 2017b)

As shown in Table 3-3, average daily emissions and annual emissions associated with the Project would not exceed the BAAQMD thresholds of significance. Therefore, the Project's construction-related exhaust emissions of criteria air

pollutants, with respect to attainment of ambient air quality standards for ROG, ozone, PM_{10}, and $PM_{2.5}$, would result in a less than significant impact.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact

As discussed in Impact b, Project criteria pollutant emissions would fall below BAAQMD thresholds for significance. In addition, the Project dredging activities would be conducted in the water and would not generate fugitive dust. Furthermore, dredge material would be saturated and would not become airborne while transported off-site.

Due to the distance to sensitive receptors, limited temporary activity window (approximately 6 days), and minimal particulate matter emitted by the Project, sensitive receptors would not be exposed to substantial pollutant concentrations. Therefore, a less than significant impact would occur.

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

Less Than Significant Impact

Project dredging equipment (e.g., tugboats) may generate temporary odors from exhaust fumes. The nearest sensitive receptor is a residence 0.42 mile west of the proposed dredging area. Due to the distance to the receptor, limited use of equipment for the dredging activities, duration of activities (6 days), and highly dispersive nature of diesel exhaust, the Project would not result in emissions that could cause long-term odors or other adverse effects during its operation. Therefore, a less than significant impact would occur.

3.4 BIOLOGICAL RESOURCES

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

BIOLOGICAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
direct removal, filling, hydrological interruption, or other means?				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including essential fish habitat)?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

3.4.1 Environmental Setting

This section describes the existing regulatory and environmental setting in the study area for biological resources. The study area is defined as the proposed dredging area plus a 1,000-foot study area for nesting special status avian species and includes the barge sediment transport routes to the disposal sites. Only one of the in-Bay or beneficial reuse sites would be ultimately selected for sediment disposal, which could also include sediment and debris transport to Pillar Point Harbor for disposal of debris at the Ox Mountain Landfill (see Figure 2-

3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review.

Existing species, including special status species and habitats (including designated critical habitat) are described. The analysis presented in this section is based on both publicly available and subscription-based biological resources data. The following data sources were consulted to support this analysis:

- U.S. Geological Survey 7.5-minute topographic maps for the Petaluma River and surrounding quadrangles
- Historic and current aerial imagery
- The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW n.d.-a) and Natural Communities List (CDFW 2025)
- The California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants (California Native Plant Society, n.d.)
- The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation Species List (USFWS n.d.)
- The National Wetlands Inventory database (USFWS n.d.)

3.4.1.1 Natural Communities

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

The only habitat type identified in the proposed Project disturbance area is open water (within the Petaluma River). Developed/disturbed land is present at 210 Landing Way but is not considered a vegetation community. The proposed dredging area is located adjacent to an existing industrial area, which is entirely developed with permanent and impervious features. The adjacent industrial area does not contain vegetation. Habitats in the study area (within 1,000 feet from the dredging area) include tidal marsh and nonnative grassland, primarily

along the riverfront in Shollenberger Park across the river from the proposed dredging area; however, CDFW staff confirmed that both of these habitat types are highly disturbed at this location and that the river banks, adjacent tidal marsh inland from the bank, and any vegetation in this area (including special status plant species) would not be impacted by the proposed dredging and transport activities (pers. comm. with James Hansen on 5/13/25). Therefore, while these habitat types are within the study area, the IS/ND does not discuss them further.

Open Water

The Petaluma River is an open-water tidal slough bordered by stands of marsh vegetation. The riverbanks include subtidal habitat and intertidal mudflat. Intertidal mudflat includes intertidal areas not continuously submerged, upslope of the subtidal areas, and in numerous smaller tidal channels and is generally devoid of vegetation. Mudflat provides foraging opportunities for shorebirds while deeper waters provide foraging and resting habitat for grebes, cormorants, and diving ducks. Shallow waters could provide habitat for dabbling ducks such as mallard, northern shoveler, and gadwall, and for western pond turtle.

Eelgrass (*Zostera marina* and *Z. pacifica*) is an *essential fish habitat* (EFH) and a Habitat of Particular Concern under the Magnuson-Stevens Fishery Conservation and Management Act. Eelgrass is found in areas within the Bay Delta. Eelgrass data and locations are provided in the online database EcoAtlas, which includes maps of mitigation projects and associated monitoring reports. The regional survey maps for eelgrass represent the best available data for eelgrass distribution in coastal embayments and estuaries in California for the period 1994-2015. EcoAtlas displays eelgrass survey data along the coast from Humboldt Bay to San Diego Bay and information on over 60 eelgrass mitigation projects. According to EcoAtlas, the Petaluma River does not contain eelgrass. The nearest recorded area for eelgrass is located approximately 20 miles southeast near Point Pinole Regional Park (California Wetlands Monitoring Workgroup [CWMW] n.d.).

Additionally, the California Natural Resources Agency (CNRA) provides an interactive web map that shows the locations of eelgrass in the Bay. The CNRA San Francisco Bay Eelgrass web map does not show eelgrass within or near the Project area, including the dredging site, disposal sites, and transit routes (San

Francisco Bay Conservation & Development Commission [BCDC] 2020). While eelgrass is present near the Richmond Inner Harbor Channel and Oakland Inner Harbor, the USACE's Environmental Assessment/ Environmental Impact Report, San Francisco Bay Federal Channels Operation and Maintenance Dredging and Sediment Placement Activities, Dredging Years 2025 – 2034, determined that eelgrass does not occur within the Petaluma Channel boundaries or within the Petaluma Federal Navigation Channel (USACE and SF Bay RWQB 2024). Therefore, based on the best available data, there are no eelgrass beds within or in the vicinity of the dredging site.

3.4.1.2 Special Status Species

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

Table 3-4 provides the federal and State special status species that have a moderate or higher potential to occur near the proposed dredging area, compiled from sources identified in Section 3.4.1, above. No special status plant species were considered to have a moderate or higher potential to occur, given the disturbed nature of the marsh and grassland habitat present within the study area. The species listed in Table 9 are described below in greater detail (see Figure 3-1).

Table 3-4. Special Status Species Known to Occur or Potentially Occur in the Dredging Area

Species	Status[1]
Fish	
Southern Population of North American Green Sturgeon distinct population segment (DPS) (*Acipenser medirostris*)	FT/CH
Steelhead, Central California Coast (CCC) Evolutionarily Significant Unit (ESU) (*Oncorhynchus mykiss irideus*)	FT/CH/CT

Species	Status[1]
Chinook Salmon, Fall/late fall-run ESU (*Oncorhynchus tshawytscha*)	SOC
Longfin smelt (*Spirinchus thaleichthys*)[2]	FE/CT
Birds	
California Ridgway's rail (*Rallus longirostris obsoletus*)	FE/CT
California black rail (*Laterallus jamaicensis*)	CT
Reptiles	
Western pond turtle (*Actinemys marmorata*)	PT/SSC

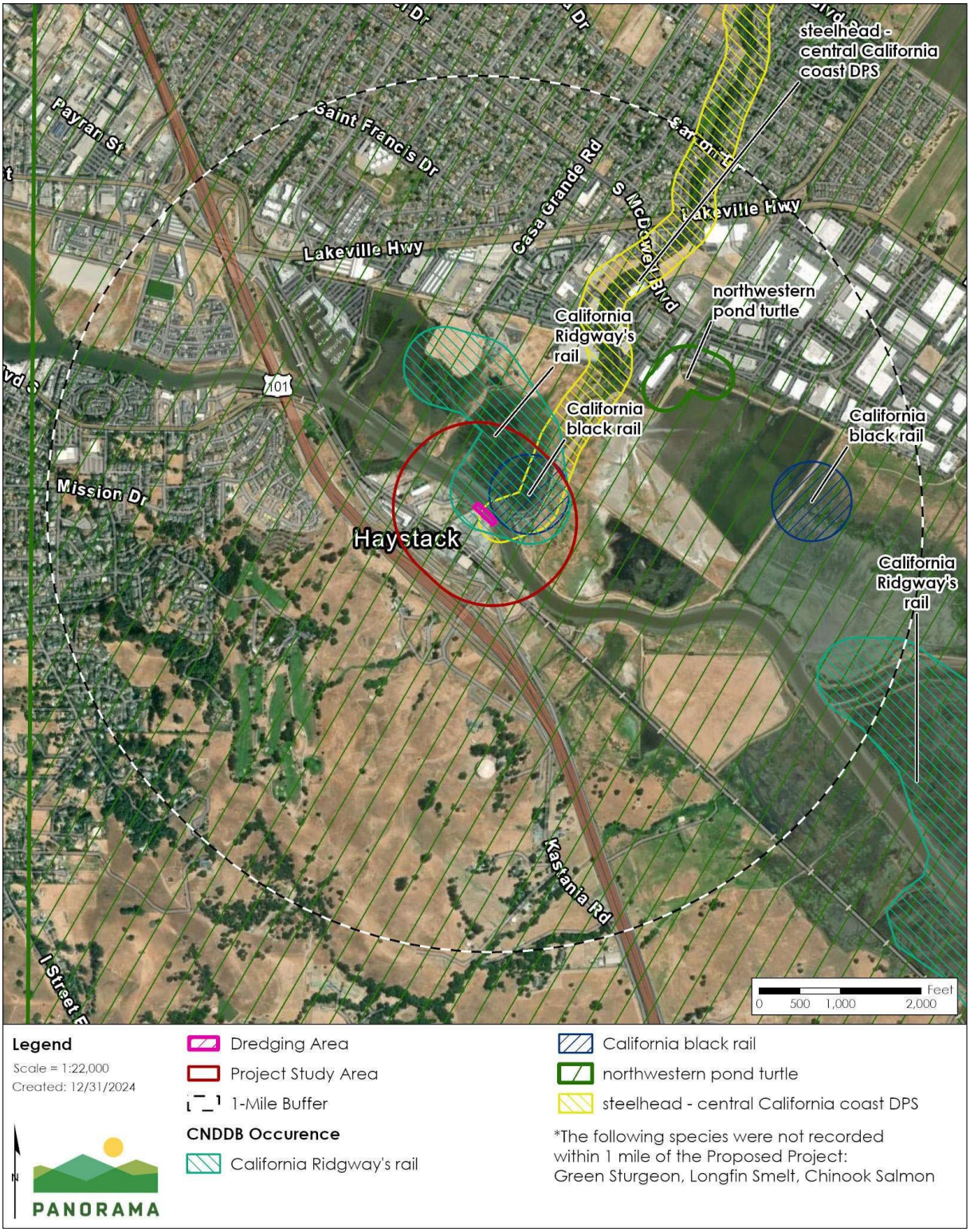
Notes:
[1] Federal status (determined by U.S. Fish and Wildlife Service): CH = Critical Habitat; FT = Federally Listed Threatened; FE= Federally Endangered, SOC = Species of Concern, PT = Proposed Threatened; CT = California Threated; CE = California Endangered; SSC = California Species of Special Concern
[2] Longfin smelt are a candidate for listing as threatened under the Federal Endangered Species Act (ESA); they are included in this assessment as they are listed as threatened under California Endangered Species Act.
Source: (USFWS n.d.; CWMW n.d.; California Native Plant Society, n.d.; CDFW n.d.-a)

Green Sturgeon

Green sturgeon primarily spawn in the upper Sacramento River and migrate to coastal Pacific Ocean waters, frequently entering large coastal bays and estuaries, including the San Francisco Bay estuary, during the summer to feed. Juveniles spend two to four years in estuaries before emigrating to the sea and sub-adults seek out protected bays, including San Francisco Bay in the warm months.

A principal factor in the decline of the Southern Distinct Population Segment (DPS) is the reduction of historical spawning areas to a limited section of the Sacramento River. This remains a threat due to increased risk of extirpation due to catastrophic events. Insufficient freshwater flow rates in spawning areas, contaminants (e.g., pesticides), accidental bycatch of green sturgeon in fisheries, potential poaching (e.g., for caviar), entrainment by water projects,

Figure 3-1 Project Dredging Area and CNDDB Species Mapping



increase in invasive species, small population size, impassable barriers, and elevated water temperatures likely pose a threat to this species. Additionally, green sturgeon may be susceptible to overfishing as sexual maturity is not reached until 15 to 20 years of age.

Critical habitat for the green sturgeon includes the Sacramento River, the Sacramento-San Joaquin Delta, and Suisun and San Pablo Bays along with all of San Francisco Bay below mean higher high water. Green sturgeon have the potential to be present throughout all marine portions of the Project area at any time of the year.

Central California Coast Steelhead

The Central California Coast (CCC) steelhead DPS is federally listed as threatened. This DPS includes those fish found in coastal river basins from the Russian River south to Soquel and Aptos Creek, California and the drainages of San Francisco Bay and San Pablo Bay, including the Petaluma River. The species may be resident (non-migratory, referred to as "rainbow trout") or may migrate to the open ocean (anadromous). They are also known to migrate to the South Bay, where they spawn in the Guadalupe River, Coyote Creek, and San Francisquito Creek. Also included are adjacent riparian zones, all waters of San Pablo Bay westward of the Carquinez Bridge, and all waters of San Francisco Bay from San Pablo Bay to the Golden Gate Bridge. Major river basins containing habitat comprise approximately 6,516 square miles. These basins are located within Alameda, Contra Costa, Marin, Mendocino, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma counties. Historically, most streams with suitable habitat within the San Francisco Bay Estuary supported steelhead populations. Current runs are estimated at fewer than 10,000 fish in San Francisco Bay tributaries (Leidy 2000).

Adult steelhead lay eggs in wintertime; juvenile fish rear in freshwater until they become large enough to migrate to the ocean. Steelhead select spawning sites that contain gravel substrate and have sufficient flow velocity to maintain circulation through the gravel and provide a clean, well-oxygenated environment for incubating eggs. Steelhead fry generally rear in edgewater habitats and move gradually into pools and riffles as they grow larger. Cover is an important habitat component for juvenile steelhead, both as a velocity refuge and as a means of avoiding predation.

The largest factor limiting growth of this species is the placement of migration barriers that prevent access to spawning habitat. Water diversions further reduce freshwater habitat quality throughout the range of these species. Other threats to steelhead include agricultural operations, forestry operations, gravel extraction, illegal harvest, streambed alteration, unscreened or substandard fish screens on diversions, suction dredging, urbanization, water pollution, potential genetic modification in hatchery stocks resulting from domestication selection, incidental mortality from catch-and-release hooking, climatic variation leading to drought, flooding, variable ocean conditions, and predation. Secondarily, the quantity and quality of summer rearing habitat with cool water pools and extensive cover for older juvenile steelhead can be considered limiting factors for steelhead in California streams.

CCC Steelhead migrate up the Petaluma River in the fall and winter to spawn in the winter and spring. Though the proposed dredging area does not provide suitable gravel substrate for spawning, adults of this *evolutionarily significant unit* (ESU) likely migrate through the dredging area, and larger Project area, in search of spawning habitat. The Petaluma River is considered critical habitat for this ESU by the National Marine Fisheries Service (NMFS)(NMFS 2005), and CNDDB records indicate that this ESU has been observed in the Petaluma River system (NMFS 2014). Therefore, this species has the potential to migrate through the Project area.

Chinook Salmon, Fall/Late Fall-Run ESU

The Central Valley fall/late fall-run ESU includes all naturally spawned fall-run populations from the Sacramento – San Joaquin River mainstem and its tributaries. Late-fall run Chinook salmon are morphologically similar to spring-run chinook. The Chinook salmon is the largest and least abundant species of Pacific salmon. Like all salmonids, the chinook is anadromous but, unlike steelhead, Chinook salmon are semelparous (i.e., they die following a single spawning event).

Adult Chinook utilize the coastal waters of California, migrating through the Golden Gate, Central Bay, North Bay, San Pablo Bay, and Suisun Bay and into the Sacramento River. Out-migrating juveniles follow the same path in reverse. Studies conducted by NMFS and CDFW indicate that the primary migration corridor for Chinook is through the Suisun and San Pablo Bays (Raccoon Straight

and north of Yerba Buena Island) through the northern reaches of Central San Francisco Bay (Klimley et al. 2010). The great majority of late-fall chinook salmon appear to spawn in the mainstem of the Sacramento River, which they enter from October through February. Spawning occurs in January, February, and March; however, it may extend into April in some years. Fry have emerged by early June, and the juveniles hold in the river for nearly a year before moving out to sea the following December through March.

Threats to the Chinook include loss and degradation of spawning habitat and restricted access to spawning habitat from river and stream blockages.

Following winter rains, this species may migrate through the Project area in search of appropriate spawning habitat. However, there is no gravelly substrate characteristic of Chinook spawning habitat within the proposed dredging area.

Longfin Smelt

Juvenile and sub-adult longfin smelt predominately inhabit brackish water areas of the San Francisco Bay Estuary and nearshore coastal marine waters outside the Golden Gate. Adult longfin smelt return to spawn in the freshwater regions of the lower Sacramento River, near or downstream of Rio Vista, and in the lower San Joaquin River downstream of Medford Island. Spawning typically occurs between January and April but may begin as early as November and last as late as June, occurring over sandy substrate. Longfin smelt are primarily an open water fish species, except for the larval stage, and inhabit the middle to lower water column.

Longfin smelt were once one of the most abundant open-water fish in the San Francisco Bay-Delta and other Northern California estuaries. However, since 2000, the Bay-Delta longfin smelt population has fallen to unprecedented low numbers. This dramatic change in population has been associated with *pelagic organism decline* (POD), defined as a sudden overlapping and striking decline of San Francisco Bay-Delta Estuary pelagic fishes. Longfin smelt are one of four Delta fish species (which also include delta smelt, threadfin shad, and striped bass) whose decreasing population numbers have been characterized and studied as part of the POD to determine the causes and potential impacts of this trend on aforementioned species.

While declines in longfin smelt abundance are consistent throughout the Bay-Delta, recent UC Davis surveys have documented individual smelt in areas not previously monitored, including Alviso Marsh in South San Francisco Bay and the Cache-Lindsey Complex of the North Delta. Additionally, because longfin smelt migrate throughout the Bay-Delta and waters of coastal California in response to seasonal fluctuations in salinity, sampling programs may be underestimating the overall size of the population (Hobbs and Moyle 2015; Rosenfield and Baxter 2007).

As described above, the Bay-Delta longfin smelt population has been significantly reduced from its historical extent. While a number of interrelated factors have contributed to this reduction, it ultimately stems from competition between humans and fish for water. That is, the removal of water from the Bay-Delta has fundamentally changed the physical and biological processes to which longfin smelt are accustomed. In addition, persistent drought conditions have likely exacerbated the degree to which the reduction in freshwater outflow has impacted smelt abundance. Further, studies and observations have suggested that longfin smelt actively avoid water temperatures above 22 degrees Celsius (71.6 degrees Fahrenheit). Reduced food availability, attributed to decreased primary production due in part to the reduction in seasonally inundated wetlands, competition for food resources with non-native fish and macroinvertebrates (e.g., filter feeding by the non-native Asian overbite clam, *Corbula amurensis*), and competition among native and non-native zooplankton species has impacted smelt populations in recent years.

Longfin smelt are primarily present in Central San Francisco Bay during the late summer months before migrating upstream in fall and winter. Longfin smelt adults seasonally occur within South San Francisco Bay but are generally more concentrated in Suisun and San Pablo Bays. Recent surveys cited by CDFW (Tempel et al. 2021)indicate occurrence in the Petaluma River.

Ridgway's Rail and California Black Rail

Ridgway's rail, a federally listed and state-listed endangered species, and California black rail, a state-listed threatened species, primarily inhabit dense marsh vegetation. Ridgway's rail maintains large home ranges in tidal and brackish marshes, and the species has high site fidelity. Ridgway's rail occurs within a range of tidal and brackish marshes where the quality of a marsh

strongly influences the population density of rails it can support. The California black rail may inhabit saltwater, brackish, and freshwater marshes.

The California black rail and Ridgway's rail have been recorded numerous times in the past 10 to 15 years in marshes along the Petaluma River and in San Pablo Bay.

California Ridgway's rails are year-round residents of the tidal wetlands of the Bay estuaries. Based on the lack of suitable habitat within the proposed dredging area and results from surveys conducted in recent years, it is unlikely that the California Ridgway's rail would nest within or immediately adjacent to the proposed dredging area; however, both California Ridgway's rail and California black rail have been documented within the biological study area, as shown on Figure 3-1. Nesting habitat for California Ridgway's rail and California black rail in proximity to the dredging area is also indicated on Figure 3-1.

Western Pond Turtle

The range of the western pond turtle extends from the Puget Sound lowlands in Washington through western Oregon and California and south to Baja California. Western pond turtles live in streams, ponds, lakes, and permanent and ephemeral wetlands. The species spend most of their lives in water but require terrestrial habitat for nesting, which occurs from late May to mid-July. Populations of western pond turtles are in decline due to disease, upland and aquatic habitat alterations and destruction, in addition to the introduction of predators. The biggest threat to the species is the bullfrog and introduced warm freshwater fish, such as bass. The species is not currently listed under the ESA but has been proposed for listing as threatened (USFWS 2015).

Western pond turtles have been recorded in proximity to the proposed dredging area as shown in Figure 3-1. The proposed dredging area within the Petaluma River provides suitable aquatic habitat for western pond turtle but does not contain breeding habitat for western pond turtle, as pond turtles require terrestrial areas for nesting.

3.4.1.3 Breeding and Migratory Birds

Tidal marsh and nonnative grassland near the proposed dredging area may provide nesting and foraging habitat for a variety of resident and migratory

birds in shrubs or dense ground vegetation. Birds such as San Pablo song sparrow, marsh wren, and salt marsh common yellowthroat may nest in the marsh along with shorebirds and waterbirds, including dabbling ducks, that would also use adjacent lowland grassland habitats.

3.4.1.4 Invasive Species

Golden Mussel

Golden mussel (*Limnoperna fortunei*) is an invasive, non-native freshwater/brackish bivalve that was recently detected within the Sacramento - San Joaquin Delta. The species poses a significant immediate threat to the natural ecosystems, water conveyance systems, infrastructure, and water quality in California. Golden mussels are similar in appearance, biology, and impacts to quagga and zebra mussels but can establish in waters with considerably lower calcium levels and greater salinity than required by quagga and zebra mussels.

Golden mussels were discovered at Rough and Ready Island, just west of the Port of Stockton and further downstream at a location known as Turner Cut in October 2024. These mussels were likely introduced to California through the discharge of ballast water from a ship traveling from an international port. This discovery of golden mussels in the Delta is the first known occurrence in North America. The nearest documented occurrence of golden mussels is located approximately 45 miles southeast of the proposed dredging area, near the City of Antioch (CDFW n.d.-b).

Quagga and Zebra Mussels

Quagga and zebra mussels are invasive, non-native freshwater bivalves that clog water intake structures, such as pipelines and screens, reducing pumping capabilities for power and water treatment facilities. Recreation-based industries and activities are also affected by the mussels which take up residence on docks, breakwalls, buoys, boats and beaches. For boaters, quagga and zebra mussels increase drag, clog engines causing overheating and can affect steerage.

Quagga and zebra mussels have not been recorded within the Bay Delta. The nearest recorded occurrence of quagga mussels is located in Pyramid Lake in Los Angeles County. The nearest recorded occurrence of zebra mussels is

located approximately 125 miles southeast of the proposed dredging area, in the San Justo Reservoir in San Benito County (CDFW n.d.).

3.4.2 Regulatory Setting

3.4.2.1 Federal

Endangered Species Act

Under the Endangered Species Act (ESA) (16 U.S.C. §§ 1531-1544; Pub.L. 93-205 (Dec. 28, 1973), as amended), all federal agencies shall, in consultation with the Secretary of the Interior, use their authority to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of habitat determined under the ESA to be critical. The ESA provides a program for conserving threatened and endangered plants and animals and the habitats in which they are found. It is designed to protect critically imperiled species from extinction. The ESA is administered by the USFWS and NMFS. In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fishes while all other species are under USFWS jurisdiction.

The ESA provides protection for federally listed special status species and requires conservation of the critical habitat for those species. An *endangered species* is a species in danger of extinction throughout all or a significant portion of its range. A *threatened species* is one that is likely to become endangered in the foreseeable future without further protection. Other federally listed special status species include *proposed* and *candidate* species. Proposed species are those that have been officially proposed for listing as threatened or endangered through publication in the Federal Register. Candidate species are those for which enough information is on file to propose listing as endangered or threatened. A *delisted species* is one whose population has reached its recovery goal and is no longer in jeopardy.

Areas of habitat considered essential to the conservation of a listed endangered or threatened species may be designated as critical habitat (referred to above), which is protected under the ESA. Critical habitat designations are the USFWS and NMFS method of identifying, for federal agencies, those physical or biological features believed to be essential to the

conservation of the species (such as space, food, cover, and protected habitat), focusing on the principal biological or physical constituent elements in an area considered essential (such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, and soil type). Primary constituent elements are the elements of physical or biological features that—when laid out in the appropriate quantity and spatial arrangement to provide for a species' life-history processes— are considered to be essential to the conservation of the species. Critical habitat designations are intended as a tool to be used by the USFWS and NMFS in helping federal agencies comply with their obligations under Section 7 of the ESA.

Section 9 of the ESA prohibits the "take" of federally listed endangered or threatened species. Section 7 of the ESA requires federal agencies to formally consult with USFWS or NMFS for projects that may affect those species that are either listed as or proposed for listing as endangered or threatened so as to ensure that the proposed action will not jeopardize the continued existence of federally listed species or destroy or adversely modify designated critical habitat. The Section 7 consultation process provides a means of authorizing the "take" of federally listed special status species. *Take* is defined by the ESA (Section 3[19]) to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; Pub.L. 94-265 (Apr. 13, 1976)) establishes a management system for national marine and estuarine fishery resources. This legislation mandates the identification, conservation, and enhancement of EFH, which is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," for all managed species. The Amended Magnuson-Stevens Fishery Conservation and Management Act of 1996, also known as the Sustainable Fisheries Act (Pub.L. 104-297 (Oct. 11, 1996)), requires all federal agencies to consult with the Secretary of Commerce on proposed projects authorized, funded, or undertaken by that agency that may adversely affect EFH. The main purpose of the EFH provisions of the Sustainable Fisheries Act is to avoid loss of fisheries due to disturbance and degradation of the fisheries habitat.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. §§ 703-712; 49 Stat. 1556 (June 20, 1936)) established special protection for migratory birds by regulating hunting or trade in migratory birds. Furthermore, this act forbids anyone to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 Code of Federal Regulations part 10 (1973), including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. part 21 (1974)). Definition of *take* includes any disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young), and such activity is potentially punishable by fines and/or imprisonment.

Marine Mammal Protection Act

The Marine Mammal Protection Act (16 U.S.C. §§ 1361-1421h; Pub.L. 92-522 (Oct. 21, 1972)), adopted in 1972, makes it unlawful to take or import any marine mammals and/or their products. Under Section 101(a)(5)(D) of this act, an incidental harassment permit may be issued for activities other than commercial fishing that may impact small numbers of marine mammals. An incidental harassment permit covers activities that extend for periods of not more than 1 year and that will have a negligible impact on the impacted species. Amendments to this act in 1994 statutorily defined two levels of harassment. Level A harassment is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal in the wild. Level B harassment is defined as harassment having potential to disturb marine mammals by causing disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

Clean Water Act Section 404

Under the Clean Water Act (CWA; 33 U.S.C. §§ 1251-1389; Pub.L. 92-500 (Oct. 18, 1972)), USACE regulates the discharge of dredged and fill materials into "waters of the United States," which include intrastate lakes, rivers, streams (including intermittent streams), bayflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and wetlands adjacent to any water of the United States (33 C.F.R. part 328 (1986)). In areas subject to tidal influence, jurisdiction extends to the high tide line or boundary of any adjacent wetlands.

The USACE issues Section 404 permits for discharges of dredged or fill material into waters of the United States pursuant to Title 33 of the Code of Federal Regulations part 323 (1986).

Clean Water Act Section 401

Section 401 of the CWA relates to *water quality certification* (WQC). The CWA and USACE regulations (33 C.F.R. § 336.1(a)(1)) require USACE to seek a state WQC for discharges of dredged or fill material into waters of the United States. In California, the authority to grant WQCs is delegated to the State Water Resources Control Board; in the San Francisco Bay Area, applications for certification under CWA Section 401 are processed by the San Francisco Bay Regional Water Quality Control Board (SF Bay RWQB).

Executive Order 11990: Protection of Wetlands

Executive Order 11990 (42 Fed. Reg. 26961, May 25, 1977) requires federal agencies to minimize destruction of wetlands when managing lands, when administering federal programs, or when undertaking construction. Agencies are also required to consider the effects of federal actions on the health and quality of wetlands.

Executive Order 13112: Invasive Species

The purpose of Executive Order 13112 (64 Fed. Reg. 6183, Feb. 3, 1999) is to prevent the introduction of invasive species and to provide control for the spread of invasive species that have already been introduced. This order states that the federal government "shall, to the extent practicable and permitted by law, not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions."

3.4.2.2 State

California Endangered Species Act

As similar to the federal ESA, the California Endangered Species Act (CESA) (Cal. Fish and G. Code, §§ 2050-2089.25), along with the Native Plant Protection Act, authorizes the California Department of Fish and Wildlife (CDFW) to designate, protect, and regulate the taking of special status species in the state of California. CESA defines *endangered species* as those whose continued existence in California is jeopardized. State-listed *threatened species* are those not currently threatened with extinction but that may become endangered if their environments change or deteriorate. Any proposed projects that may adversely impact state-listed threatened or endangered species must formally consult with CDFW as a trustee agency.

As a federal agency, USACE is not required to seek incidental take authorization or other authorization under CESA. In issuing a WQC, however, the Regional Water Board must comply with CESA.

The NMFS established acceptable work windows for in-water dredging activities in the San Francisco Bay and Estuary to minimize impacts to special status species that could occur in the potential dredging area, including Chinook salmon, Central California Coast steelhead, and green sturgeon, under the Long-Term Management Strategy (LTMS) Biological Opinion (NMFS 2015). The work windows are determined according to the periods during which species will not be or is very unlikely to be present and are based on species-specific conditions such as migration, breeding, and spawning seasons. **Table 3-5**, below, provides the recommended agency-approved work windows for the Project area. Green sturgeon has the potential to be present throughout all marine portions of the Project area at any time of the year; thus, CDFW has not established a work window for green sturgeon.

Table 3-5 NMFS Recommended Work Windows for Special Status Species

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Green sturgeon	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Longfin smelt	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No
Chinook salmon	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No
Steelhead (CCC)	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No
California Ridgway's rail	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
California black rail	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No

Source: (NMFS 2015)

3.4.2.3 Regional

Sonoma County General Plan 2020

Below are the relevant goals and policies from the Sonoma County General Plan 2020 (Sonoma County [2008] 2016):

- **Goal OSRC-7:** Protect and enhance the County's natural habitats and diverse plant and animal communities.
- **Policy OSRC-7b:** Rezone to the Biotic Resources combining district all lands designated as Biotic Habitat Areas. Prepare and adopt an ordinance that provides for protection of designated Biotic Habitat Areas in conformance with the following principles. Until the ordinance is adopted, require that land use and development in designated areas comply with these principles:

  (1) For discretionary projects, notify applicants of protected habitats

and species and possible requirements of Federal and State regulatory agencies, request identification of known protected habitats and species, and:

(a) In designated Biotic Habitat Areas, require site assessment and adequate mitigation. The priorities for adequate mitigation are in order of highest to lowest priority: Avoid the habitat; Mitigate on site to achieve no net loss; Mitigate off site to achieve no net loss; Create replacement habitat off site to achieve no net loss. To the extent feasible, the mitigation required by the County should be consistent with permit requirements of Federal and State regulatory agencies.

(b) In designated Marshes and Wetlands, require a setback of 100 feet from the delineated edges of wetlands. The setback may be reduced based upon site assessment and appropriate mitigation.

(c) In designated Habitat Connectivity Corridors, encourage property owners to consult with CDFG, install wildlife friendly fencing, and provide for roadway undercrossings and oversized culverts and bridges to allow movement of terrestrial wildlife.

(d) The acreage required for adequate mitigation and replacement habitat shall be at least two times the acreage affected unless a lower level is acceptable to the applicable State and Federal agencies, with the amount depending on the habitat affected and the applicable mitigation priority value.

(2) For discretionary projects in all designated Biotic Habitat Areas, send referrals to appropriate regulatory agencies and, where such agencies' comments or other agency information indicates biotic resources could be adversely affected, require site assessment, compliance with agency requirements and adequate mitigation pursuant to the priorities in (1)(a).

- **Policy OSRC-7t:** Continue to actively participate in the FishNet4C program and work cooperatively with participating agencies to implement recommendations to improve and restore aquatic habitat for listed anadromous fish species and other fishery resources.

Sonoma County Ordinance No. 6089

Zoning code changes adopted in 2014 in Sonoma County Ordinance No. 6089 implement the stream protection policies of the Sonoma County General Plan 2020 and added the Riparian Corridor (RC) Combining Zone to all designated streams shown on the general plan's open space maps, including the Petaluma River (Sonoma County Code Ordinance No. 6089). The Petaluma River is designated RC 100, a "riparian corridor with a streamside conservation area of 100 feet on each side of a designated stream measured from the top of the higher bank."

Grading, vegetation removal, structures, roads, utility lines, and parking lots are prohibited within any stream channel or streamside conservation area. However, an exception to this prohibition may be approved by the director with a zoning permit if the use (a) involves the minor expansion of an existing, legally established structure, where it is demonstrated that the expansion will be accomplished with a minimum of vegetation removal and the protection of riparian functions; or (b) involves only the maintenance, restoration, or reconstruction of an existing, legally established structure.

3.4.2.4 Long Term Management Strategy (LTMS)

As part of the implementation of the LTMS, the LTMS agencies initiated ESA consultation with NMFS and USFWS for maintenance dredging and disposal projects. These consultations reduced the need for individual consultation for maintenance dredging projects through the establishment of programmatic work windows. These programmatic work windows are based on presence/absence information for various sensitive species and establish times and locations wherein dredging and disposal activities may take place without further (formal or informal) consultation.

Pursuant to the ESA, any projects proposing deviation from the work windows for federally listed species are required to undergo consultation with NMFS and/or USFWS, as appropriate. The outcome of the individual consultation would determine whether any additional dredging period for that project is appropriate, and if necessary, provide a "take authorization."

In addition, the programmatic biological opinions issued by NMFS and USFWS for the LTMS provide federal endangered or threatened species "incidental take"

authorization for projects operating within the environmental work window for their area. This "take authorization" protects the dredger from enforcement action in the event of accidental harm to a listed species as a result of the dredging project.

Analysis of biological resources for this section primarily describes and implements the established environmental protection measures of the LTMS for San Francisco Bay, as administered through the San Francisco Bay Dredged Materials Management Office (DMMO) for protection of San Francisco Bay biological resources (see Section 1.7.2). The environmental protection measures implemented through the DMMO stem from a previously certified 1998 Final Policy Environmental Impact Statement and Programmatic Environmental Impact Report for the LTMS, for implementation of the LTMS, LTMS Management Plan, and Biological Opinions issued from NMFS, USFWS, and CDFW, including a NMFS Programmatic Agreement for the LTMS for Essential Fish Habitat, among other supporting documents. These supporting documents establish environmental protection measures and work windows for all special status species for the primary components of dredging projects, which include dredging, sediment transport, and sediment disposal, with heavy focus on impacts from dredging activities and sediment disposal as the activities with greatest potential to impact environmental resources in the Bay region.

Sediment transport (from dredging site to disposal site) is generally characterized through these supporting documents as a routine shipping activity in San Francisco Bay (given heavy existing shipping presence in the Bay) subject to established mariner navigation laws and having a low potential for impact on biological resources, which can be further reduced through compliance with standard operations plans for commercial vessels for prevention of spills and accidents. The disposal sites within the DMMO's purview have existing state and federal authorization to receive the sediment and are not subject to additional CEQA review for sediment disposal related to this Project. Accordingly, impact analysis of biological resources for this section is substantially focused on dredging activities at the proposed dredging area. Project conformance with the DMMO process ensures conformance with the LTMS.

3.4.3 Impact Analysis

In April 2024, Vulcan Materials submitted their application to the DMMO for proposed dredging and to demonstrate proposed conformance with all

required environmental protection measures of the LTMS, LTMS Management Plan, and NMFS Programmatic Agreement for the LTMS for biological resources, as substantially demonstrated with a proposed work window limited to the month of September to avoid impacts to special status species. On May 10, 2024, the Project received final approval from the DMMO with a determination that the proposed dredging material was found suitable for unconfined aquatic disposal at the SF-10 disposal site and for beneficial reuse at the CRRP and MWRP sites (see Appendix C). Therefore, dredged material placement is not discussed or analyzed further in Section 3.4.

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, or that is a species of interest to the State Lands Commission or the California Coastal Commission; or cause a marine wildlife population to drop below self-sustaining levels?

Less Than Significant Impact

3.4.3.1 Aquatic Invasive Species

Golden mussel (*Limnoperna fortunei*) is an invasive, non-native freshwater/brackish bivalve that occurs within the Sacramento-San Joaquin Delta. The species poses a significant immediate threat to the natural ecosystems, water conveyance systems, infrastructure, and water quality in California and across the U.S. The nearest documented case of golden mussel is located approximately 45 miles southeast of the Project near the City of Antioch (CDFW n.d.-b). The Project would not use vessels or equipment that have been used in the Bay Delta where golden mussels have been recorded. Equipment/vessels would be those that are used in the San Francisco Bay, a highly saline environment that is outside the salinity tolerance of golden mussels. The vessels used for these dredging activities would also utilize antifouling paint on their hulls to deter attachment by golden mussels and other aquatic biofouling species. Thus, the Project would not introduce golden mussels to the Petaluma River.

Quagga and zebra mussels have not been recorded within the Bay Delta. The nearest recorded case of quagga mussel is located in Pyramid Lake in Los

Angeles County. The nearest recorded case of zebra mussel is located approximately 125 miles southeast of the Project in the San Justo Reservoir in San Benito County (CDFW n.d.). The Project would not use equipment that has been in locations where quagga and zebra mussels have been recorded. As the nearest recorded sightings of quagga and zebra mussels are over 125 miles away, the Project is not expected to be in contact or introduce quagga and zebra mussels.

3.4.3.2 Hazardous Materials

All dredging equipment would be located on the barge and support vessels. Hazardous substances such as fuel and lubricants, used in normal operations, may be located on barges and support vessels.

All construction activities would be conducted in compliance with regulatory and resource agency permits. As part of required permitting, the contractor would provide a Dredge Operations Plan (DOP), which would include *best management practices* (BMPs) for the handling, storage, and disposal of hazardous materials. The DOP would detail pre- and post-construction bathymetric surveys, construction operations and sequencing, and avoidance of the risk of accidental minor oil spills, hydraulic fluid leaks and/or hazardous materials releases into receiving water from vessels involved in dredging work and sediment transport to a disposal site. The risk is minimized and substantially prevented by the ongoing implementation of a vessel emergency spill response plan, which would limit the potential of these materials to enter the receiving water, along with contingency plans in the event of a spill.

As a regulatory requirement with the jurisdictional permitting agencies, the Project is required to prepare and submit a Spill Prevention Control and Countermeasure Plan (SPCCP) to CSLC staff and all other pertinent agencies for review and approval at least 30 days prior to the implementation of the Project. The SPCCP would include Materials Safety Data Sheets (MSDS) that contain information on potential hazardous materials and chemicals onsite. The SPCCP would then outline the procedures to be undertaken in the event of a spill or emergency. Preparation of a SPCCP would ensure that the Project follows all state and federal regulations pertaining to the storage and use of hazardous substances. With the DOP and SPCCP, the potential impact to special status species would be less than significant.

3.4.3.3 Special Status Aquatic Plants

The nearest record of eelgrass is approximately 20 miles southeast of the proposed dredging area near Point Pinole Regional Park (CWMW n.d.) (EcoAtlas, 2024). Due to the absence of eelgrass within the proposed dredging area or vicinity, the proposed dredging activities within the Petaluma River would not impact eelgrass. Therefore, there would be no impact.

3.4.3.4 Special Status Fish Species

Overview of Dredging Impacts on Fish Species

Suspended sediments in the water column have the potential to affect fish by disrupting normal feeding behavior, reducing growth rates, increasing stress levels, and reducing respiratory functions. Sediment resuspension that occurs during debris removal is due to minor sediment losses from surface tension release of the object being pulled from the sediment surface and from sediment that clings to the object while being lifted through the water column.

Increased suspended solids can also impact aquatic organisms by reducing dissolved oxygen levels and light transmission or when sediment resettles, which could have the potential to smother aquatic habitats and organisms. Substantially depressed oxygen levels (i.e., below 5.0 milligrams/liter [mg/L]) may cause respiratory stress to aquatic life, and levels below 3.0 mg/L may cause mortality. Resuspended sediment levels caused by natural phenomena such as floods, storms, large tides, and winds are often higher and of longer duration than those caused by dredging or other construction activities, especially in lakes and bays.

Increased turbidity levels associated with in-water dredging activities would be minor, limited to a 6-day period, and generally localized to the immediate proposed dredging area. Following dredging activities, sediments would disperse, and background levels would be restored within hours of disturbance. In addition, normal circulation and strong currents rapidly circulate and disperse water temporarily affected by construction activities. Turbidity would disperse within a matter of hours, and the particulate concentrations would be diluted to levels that would pose no major threat to water quality or aquatic wildlife.

Entrainment of fish species during dredging episodes is generally not a concern as the fish would avoid the dredging activities due to the turbidity and

suspended sediment caused by the activity and the low-frequency vibration caused from lowering the bucket into the water (Boudreau Associates LLC 2023). In addition, the Project proposes mechanical dredging using a clamshell bucket, which provides the opportunity for a captured fish (if captured as the bucket is lowered in the water column) to escape through the water vents incorporated into the top of the bucket (USACE and SF Bay RWQB 2024).

CCC steelhead, Central Valley steelhead, Chinook salmon

Water quality in the Project area may be slightly impacted during dredging activities as discussed above. The Project has been designed so that dredging activities would only occur during the month of September, which avoids the migration seasons of both adult and juvenile anadromous salmonids and complies with the NMFS's San Francisco Bay Region LTMS work windows to avoid or minimize impacts to CCC steelhead, Central Valley steelhead (fall/late-fall run), Sacramento River winter-run Chinook salmon, and Central Valley spring-run Chinook. Therefore, a less than significant impact would occur from both entrainment and turbidity.

Green Sturgeon

Green sturgeon may occur in the Project area year-round and may be exposed to the Project's temporary disturbance of suspended sediments. Green sturgeon forage in bottom sediments and thus are well adapted to living in estuaries with fine sediment substrate and are tolerant of elevated levels of turbidity. Listed species in the estuary commonly encounter areas of increased turbidity due to storm flow runoff events, wind and wave action, and benthic foraging activities of other aquatic organisms. Because green sturgeon are relatively tolerant of increased turbidity, the 6 days of dredging activities and limited associated increase in turbidity would have a less than significant impact on green sturgeon.

Sturgeon are typically found at the bottoms of channels and therefore have a risk of entrainment. However, the Project proposes mechanical dredging using a clamshell bucket, which would create a low-frequency vibration and splashing as it enters the water and would be preceded by a pressure wave as it sinks through the water column. These effects would promote active avoidance by the sturgeon and any other fish in the dredging footprint. Due to the use of

mechanical dredging, the impact from entrainment on green sturgeon would be less than significant.

Longfin Smelt

Longfin smelt have the potential to occur within the Project Area. Longfin smelt has been documented throughout San Francisco Bay and the delta region. Recent surveys cited by CDFW (CDFW 2018) indicate occurrence in the Petaluma River. However, the Project has been designed so that dredging activities would only occur during the month of September, which avoids the spawning season for longfin smelt, when the species would occur in the proposed dredging area, and which complies with the NMFS work windows (**Table 3-5**) to avoid or minimize impacts. Therefore, the impact on longfin smelt would be less than significant.

3.4.3.5 Special Status Avian Species

There is tidal marsh habitat within 1,000 feet of the proposed dredging area that supports California Ridgway's rail and California black rail as shown in Figure 3-1. However, the Project would not remove any vegetation or habitat for California Ridgway's rail or California black rail since no habitat occurs in the area of dredging. Nonetheless, the dredging activity and noise could potentially impact California Ridgway's rail or California black rail nesting activity if the activity were to occur during the nesting season for either species. As shown in **Table 3-5**, the NMFS work window for California black rail is between September and January. The Project has been designed so that dredging activities would only occur during the month of September (the NMFS-approved work window) and would thus occur outside of the nesting season for California Ridgway's rail and California black rail. Therefore, impacts to California Ridgway's rail and California black rail would be less than significant.

3.4.3.6 Special Status Reptiles

As shown in Figure 3-1, the western pond turtle is found in proximity to the proposed dredging area. All dredging activities would occur within the open water of Petaluma River, which does not contain nesting or foraging habitat for western pond turtle. The barges and marine vessels that would be used for the dredging activity are similar to other marine traffic in the area, and the presence of the barges in the river for 6 days would not significantly impact

western pond turtle. Activities would be conducted during the month of September and outside of the nesting season for western pond turtle. This being the case, the Project would not remove foraging habitat for western pond turtle or disturb western pond turtle nesting activities. Dredging activities could result in a temporary increase in turbidity during the dredging activities; however, the turbidity would return to baseline levels at the completion of the dredging. Therefore, the impact would be less than significant.

3.4.3.7 Special Status Mammals

Direct Impacts

Marine mammals, such as Harbor Seals or California Sea Lion, have the potential to temporarily transit near the proposed dredging area or within the routes of sediment transport. Vessel traffic in the San Francisco Bay consists of inbound and outbound vessels and wholly in-Bay vessel movements. This vessel traffic includes tugs, government vessels, passenger ferry ships, commercial shipping vessels, recreational boats, commercial and sport fishing boats, board sailors, and personal watercraft.

Most marine mammals present in the Petaluma River and Bay avoid boats that are underway that are traveling at moderate to high speeds. The high-speed ferries that frequent Bay waters, which are predominantly multi-hull boats, travel at speeds in excess of 20 knots and regularly transit across the western part of the central Bay. These vessels have not been reported to be involved in any known marine mammal strikes. Dredging vessels would be moving at much slower speeds (under 10 knots). NMFS, in an assessment of potential effects to marine mammals from firework displays in the Monterey Bay National Marine Sanctuary, reviewed monitoring studies done between 1993 and 2001 that observed both firework noise and the interaction of spectator boats with marine mammals. NMFS determined the potential for spectator boats colliding with a marine mammal during highly congested circumstances was virtually non-existent and classified it as negligible. NMFS based this determination on no observed collisions during multiple events per year over 9 years and the observed avoidance of these congested areas by marine mammals (Boudreau Associates LLC 2012).

U.S. Coast Guard (USCG) regulations are explicit that the operator (captain) of a vessel is responsible for the safe operation of that vessel at all times. Under NMFS regulations, the operator of the vessel could be cited and fined for harassment of any kind to marine mammals under the Marine Mammal Protection Act. While marine mammals have the potential to occur in the Project area, marine mammals are frequently exposed to vessel traffic, highly mobile, and can easily avoid dredging activities and sediment transport routes. Thus, Project activities are not expected to directly strike or harm mammal species.

Indirect Impacts

Increased turbidity and activity during dredging may disturb marine mammal foraging activities by temporarily decreasing visibility or causing the relocation of mobile prey from the area affected by the sediment plume. Marine mammals would not be substantially affected by dredging operations because they forage over large areas of San Francisco Bay and the ocean and can avoid small areas of temporarily increased turbidity and dredging disturbance. Therefore, impacts would be less than significant.

Clamshell dredges have a repetitive sequence of sounds generated by the winches, bucket impact with the substrate, the closing and opening of the bucket, and sounds associated with releasing the dredged material into a barge. The highest level of sound is produced during the bucket's impact with the substrate, with peak sound pressure levels (SPL) of 124 decibels (dB) measured 150 meters from the bucket strike location (USACE and SF Bay RWQB 2024). NMFS established criteria for sound exposure to marine mammals for underwater noises from impulse sounds is 160 dB root mean square (RMS) and continuous sounds at or above 120 dB as constituting harassment to marine mammals. Noise from dredging could exceed 120 dB level for continuous sounds constituting harassment of marine mammals. Noise levels produced by commercial and recreational boating can result in sound levels between 160 and 180 dB RMS (Boudreau Associates LLC 2012). However, the actual sound levels from dredging are not continuous nor are they generated from an impulse device such as pile driving. Thus, dredging activity sound levels would not pose significant adverse effects and would be within the range of ambient noise resulting from commercial and recreational boating within the Project area.

Underwater noise produced during dredging may have temporary adverse effects on fish and marine mammals, including fleeing, the cessation of feeding, or other behavioral changes. The Petaluma River receives regular boat traffic and, therefore, has high background levels of underwater noise. The Project noise levels would be similar to background noise levels, and therefore the impacts would be less than significant.

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

Less Than Significant Impact

3.4.3.8 Riparian Habitat and Benthic Habitat Impacts

The Project would not directly impact riparian habitat or sensitive natural communities. Proposed dredging activities would only occur in the open water (Petaluma River), and no riparian habitat or sensitive natural communities occur in the Project area of direct effect. In addition, no eelgrass or other sensitive natural community occurs in immediate proximity to the dredging area However, there is riparian habitat along the banks of Shollenberger Park opposite the dredging area, and dredging activities may result in indirect impacts to the riparian areas due to turbidity. Based on the Project's small affected area, distance to the nearest riparian habitat within the study area, and short duration of dredging activities, the impacts to the riparian habitat would be less than significant.

In general, there would be a temporary loss of habitat within the dredged boundary. However, the benthic community and the grain size of fines within the Project area are both one of the most common in San Francisco Bay-Delta and Central Bay (Thompson et al. 2013). Following dredging, the deposition of sediments, comparable to pre-dredging conditions, would begin almost immediately, and the benthic community inhabiting those sediments would be expected to recover to pre-dredging composition and abundances within a few months to up to 2 years, depending on when dredging occurs and other ecological factors affecting recolonization (Blake, Moshiri, and Maciolek 1996; Newell, Hitchcock, and Seiderer 1998). Based on the very small dredging area (0.5 acre) being affected compared to available habitat within Petaluma River,

the temporary time period over which the habitat would be unavailable for use by benthic species, and the overall temporary nature of the loss, the potential loss of benthic habitat from proposed dredging is expected to be less than significant.

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

Less Than Significant Impact

3.4.3.9 Wetlands

The proposed Project would not directly impact state- or federally protected wetlands. Proposed dredging activities would only occur in the Petaluma River, an open water area that does not contain wetlands. The proposed Project is located adjacent to an existing industrial area, which also does not contain wetlands.

3.4.3.10 Turbidity and Sedimentation

Dredging activities would temporarily increase river turbidity and sedimentation. However, the increased turbidity levels associated with the Project's dredging activities would be minor, short-term, and generally localized to the immediate area of dredging. Following dredging, sediments would disperse, and background levels of turbidity and sediment deposition would be restored within hours of disturbance. This being the case, the Project would not affect the rate of sedimentation at downstream wetlands. Therefore, the impact would be less than significant.

All dredged material associated with the Project would be removed and disposed of at a sediment disposal site with existing state and federal authorization. Sediment disposal at a beneficial reuse site, such as the Montezuma Wetlands Restoration Project site, would have a beneficial impact as used for restoration of marsh and wetland habitat.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant Impact

3.4.3.11 Fish Movement Corridors

The Petaluma River serves as a wildlife corridor for fish and waterbirds and serves as a nursery area for juvenile fish while marshlands along the river provide movement corridors for shorebirds, small mammals, reptiles, and amphibians. The Project's dredging activities in the river would result in temporary impacts on the Petaluma River but would not affect terrestrial habitat which could be used by wildlife. As discussed in Section 3.4.3.3 Special Status Fish Species and Section 3.4.3.5 Special Status Avian Species, the dredging activities would be temporary (6 days) and would take place in September to avoid the fish spawning and migration seasons as well as the bird nesting season. Therefore, the Project would not impede use of native fish or wildlife nursery sites and would not impact fish or wildlife migration. The impact would be less than significant.

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

No Impact

3.4.3.12 Local Policies and Ordinances

The Project would comply with all City of Petaluma General Plan and Sonoma County General Plan 2020 policies related to the Petaluma River and sensitive natural communities on its banks as no sensitive natural communities occur in the Project area. The Project would not conflict with any of the local policies or ordinances protecting biological resources. Therefore, no impact would occur.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

No Impact

3.4.3.13 Habitat Conservation Plan and Natural Communities Conservation Plan

The Project area is not located within a Habitat Conservation Plan (HCP), and accordingly, would not conflict with any provisions of an adopted Habitat

Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

3.5 CULTURAL RESOURCES

CULTURAL RESOURCES- Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☒
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

3.5.1 Environmental Setting

3.5.1.1 Cultural Resources Records Search and Surveys

An Archaeological Review Memorandum was prepared for the Project by Basin Research Associates to identify any potential cultural resources that could be present within the *area of potential effects* (APE) (Appendix B). Although the analyzed Project area includes the sediment transport routes, the APE for the Project is limited to the proposed 0.5-acre berth (dredging) area as the only area of the Project with potential land disturbance. The vertical APE for underwater dredging ranges in the dredge area down to -8 feet MLLW plus 1 foot over-depth. The APE does not include the transport routes as vessel transit through sediment transport routes is not anticipated to impact cultural resources and the routes are routinely used for vessel travel. As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's

associated disposal activities at those sites are not subject to further CEQA review.

A prehistoric and historic site record and literature search was completed for a 0.25-mile radius of the APE by the California Historical Resources Information System, Northwest Information Center, Sonoma State University, Rohnert Park (CHRIS/NWIC File No. 23-1753 dated 6/28/2024 by Neal). Specialized listings for cultural resources consulted include the following:

- National Register of Historic Places (NRHP) listings in Sonoma County (California Department of Parks and Recreation, Office of Historic Preservation [Cal/OHP] 2024)
- California History Plan (Cal/OHP 1973a; 1973b)
- California Inventory of Historic Resources (Cal/OHP 1988) (CAL/OHP 1976)
- Five Views: An Ethnic Sites Survey for California (Cal/OHP 1988) (CAL/OHP 1988)
- Office of Historic Preservation (OHP) Built Environment Resources Directory for Sonoma County (Cal/OHP 2024c)
- California Historical Resources for Sonoma County (Cal/OHP 2024b)
- Archaeological Determinations of Eligibility for Sonoma County (ADOE) (Cal/OHP 2024a)

A field inventory was not completed as the APE is submerged and not visible.

The CHRIS/NWIC records search lists three studies (excluding OHP correspondence) in or adjacent to the APE with 28 additional studies (excluding OHP correspondence) within 0.25 mile of the APE (see Appendix B, Table 1 and Table 2). All studies have negative findings for the APE.

3.5.2 Regulatory Setting

3.5.2.1 Federal

The regulations implementing Section 106 of the National Historic Preservation Act (NHPA; Pub.L. 89-665 (Oct. 15, 1966)) define an *effect* as any action that would alter the characteristics of the property that may qualify the property for inclusion in the NRHP and diminish the integrity of a property's location, setting,

design, materials, workmanship, feeling or association (36 C.F.R. part 800.5(a)(1-2)).

3.5.2.2 State

CEQA Statute and Guidelines

The CEQA Guidelines (14 C.C.R. § 1500 et seq.) include procedures for identifying, analyzing, and disclosing potential adverse impacts to cultural resources. For archaeological sites, the CEQA Guidelines [Section 15064.5(c)(1)] require that the lead agency first determine whether the site is a "historical resource" or as a "unique archaeological resource." In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource.

The CEQA Guidelines [Section 15064.5(a)] define *historical resource* as including the following:

- A resource listed in, or eligible for listing in, the California Register of Historic Resources (CRHR)
- A resource listed in a local register of historical resources (as defined at PRC Section 5020.1(k))
- A resource identified as significant in a historical resources survey meeting the requirements of PRC Section 5024.1(g)
- Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a resource is considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the CRHR

A project that causes a "substantial adverse change" in the significance of a historical resource may have a significant effect on the environment (CEQA Guidelines Section 15064.5(b)).

PRC Section 5024.1: California Register of Historical Resources

The CRHR includes resources that are listed in or formally determined eligible for listing in the NRHP as well as some designated California State Landmarks and

Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR.

Health and Safety Code (HSC) Section 7050.5: Discovery of Human Remains

HSC sections 7050.5(b) and 7050.5(c) pertain to the discovery of human remains in a location outside a dedicated cemetery. The HSC requires that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there must be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the County Coroner has examined the remains.

3.5.2.3 Regional

Sonoma County General Plan 2020

The following goals and objectives from the Open Space and Resource Conservation Element of the Sonoma County General Plan 2020 are included for informational purposes (Sonoma County [2008] 2016).

- **GOAL OSRC-19:** Protect and preserve significant archaeological and historical sites that represent the ethnic, cultural, and economic groups that have lived and worked in Sonoma County, including Native American populations. Preserve unique or historically significant heritage or landmark trees.
- **Policy OSRC-19n:** Develop procedures for complying with the provisions of State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98, if applicable, in the event of the discovery of a burial or suspected human bone. Develop procedures for consultation with the Most Likely Descendant as identified by the California Native American Heritage Commission, in the event that the remains are determined to be Native American.

3.5.3 Impact Analysis

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

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

(a-b) No Impact

No listed or other known NRHP and/or CRHR historic resources, pursuant to CEQA Guidelines section 15064.5, are located within or adjacent to the APE. No other significant or potentially significant local, state, or federal cultural resources or historic properties, landmarks, or points of interest have been identified within or adjacent to the APE. The closest notable historical resource is Haystack Landing, formerly known as Rudesill's, located approximately 1,000 feet north of the APE and along the shoreline. The former Haystack House (P-49-001368 / CA-SON-1465H) is located 800 feet southwest of the APE; however, the building burned in 2004, and the area is now vacant. The alignment of a former railroad grade associated with the Northwestern Pacific Railroad (P-49-002834 / CA-SON-2322H) is 475 feet south of the APE. Finally, the APE has a very low sensitivity for the presence of archaeological resources, based on the available archival data, historic maps, and prior dredging and construction activities.

The Project would remove sediment that has naturally accumulated over the past decades, and therefore the presence of undiscovered historical and archaeological resources is not expected. Furthermore, the main channel of the river is periodically dredged by the USACE and disturbed, so historic or archeological resources are also not expected to occur in the Project vicinity (Basin Research Associates 2024).

The APE does not contain any known or listed historical or archaeological resources, and the dredging activities would not impact unanticipated historic or archaeological resources.

Therefore, no impacts would occur.

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

Less Than Significant Impact

There is a very low potential for the discovery of human remains within the APE as the dredging activity would remove sediments which have accumulated in the area and are not likely to include human remains. Discovery of any human

remains, the treatment of human remains, or any associated or unassociated funerary objects discovered during any soil-disturbing activity within the APE would comply with applicable state laws, including section 7050.5 of the Health and Safety Code and sections 5097.94, 5097.98 and 5097.99 of the Public Resources Code. Therefore, the impact would be less than significant.

3.6 CULTURAL RESOURCES – TRIBAL

TRIBAL CULTURAL RESOURCES - Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1, subdivision (k), or	☐	☐	☐	☒
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency	☐	☐	☐	☒

TRIBAL CULTURAL RESOURCES - Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
shall consider the significance of the resource to a California Native American tribe.				

3.6.1 Environmental Setting

3.6.1.1 Ethnographic Context

The APE for Tribal Cultural Resources (see Section 3.5 Cultural Resources Records Search and Surveys) is within Coast Miwok territory within the Petaluma River Valley. The nearest known village site to the APE was at the town of Petaluma or, alternatively, north of present-day Petaluma (Basin Research Associates 2024).

The Coast Miwok language, a member of the Miwok subfamily of the Penutian family, is divided into two dialects: the Western (or Bodega) and the Southern (or Marin), which in turn is subdivided into valley and coast. *Miwok* refers to the entire language family that is spoken by the Coast Miwok as well as Lake, Valley, and Sierra Miwok. Coast Miwok territory encompasses all present-day Marin County and parts of Sonoma County, from Duncan's Point on the coast to between the Sonoma and Napa rivers. Each large village had a tribal leader, but there does not appear to have been any defined broader-scale organization.

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

By the mid-1800s Spanish missionization, diseases, raids by Mexican slave traders, and dense immigrant settlement had disrupted Coast Miwok culture, dramatically reducing the population and displacing the native people from their villages and land-based resources. By the time of California's initial integration into the United States in the late 1840s, the Coast Miwok population had dwindled from approximately 2,000 individuals to one-eighth of its size before European contact.

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

Since then, tribal members have continued to protect their cultural heritage and identity despite being essentially landless. On December 27, 2000, President Clinton signed into law legislation that restored federal recognition to the Federated Indians of Graton Rancheria. The tribe currently has approximately

1,100 members, employs a Tribal Historic Preservation Officer (THPO)[2] and is engaged in the protection and interpretation of its tribal cultural resources (CSLC 2023).

3.6.2 Regulatory Setting

3.6.2.1 Federal

American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act (Pub.L. 95-341 (Aug. 11, 1978)) established federal policy to protect and preserve the inherent rights of freedom for American Indians, Eskimos, Aleuts, and Native Hawaiians to believe, express, and exercise their traditional religions on federal and tribal trust lands. Among these rights are access to sites, use and possession of sacred objects, and the freedom to worship through traditional ceremonies and rites.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001 et seq.; Pub.L. 101-601 (Nov. 16, 1990)) was intended to ensure the protection and rightful disposition of Native American cultural items and burials located on federal or tribal trust lands and in the possession or control of the federal government. All Indian tribes and representatives identified by the NAHC must be consulted whenever archaeological investigations encounter, or are expected to encounter, Native American cultural items or when such items are unexpectedly discovered on federal or tribal lands. Excavation or removal of any such items also must be done under the procedures required by the Archaeological Resources Protection Act.

[2] The National Historic Preservation Act allows tribes to assume any or all the functions of a State Historic Preservation Officer with respect to tribal land (54 U.S.C. § 302702).

3.6.2.2 State Regulations, Policies and Standards

Public Resources Code Sections 5097.91 through 5097.98: California Native American Heritage Commission

The California NAHC identifies and catalogs places of special religious or social significance to Native Americans and known graves and cemeteries of Native Americans on private lands. Section 5097 requires consultation with the California NAHC whenever Native American graves are found. When the NAHC is notified of human remains, a process begins to identify and notify those persons it believes to be the most likely descendants and determine disposition of the remains.

California Public Resources Code Section 21080.3.1 (AB 52)

Assembly Bill (AB) 52 (Gatto, Chapter 532, Statutes of 2014) amended CEQA to specify that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" is a project that may have a significant effect on the environment and that tribal knowledge about land and resources should be included in environmental assessments.

The AB 52 process requires the CEQA lead agency to consult with traditionally and culturally affiliated California Native American Tribes with the geographic area of the proposed project, upon request. Draft CEQA documents cannot be released for public review before the tribe(s) has had the opportunity to request consultation and, if requested, for consultation to be completed, including agreeing to acceptable mitigation measures.

Supplementing AB 52, the CSLC follows its 2016 Tribal Consultation Policy, which recognizes that tribes have a connection to areas that may be affected by CSLC actions and "that these Tribes and their members have unique and valuable knowledge and practices for conserving and using these resources sustainably" (CSLC 2016). Additionally, under AB 52, lead agencies must avoid damaging effects on tribal cultural resources, when feasible, whether consultation occurred or is required.

3.6.2.3 Tribal Consultation

The CSLC contacted the NAHC, which maintains two databases, the Sacred Lands File and Native American Contacts, to assist cultural resources specialists in identifying cultural resources of concern to California Native Americans. CSLC

staff contacted the NAHC to obtain information about known cultural and Tribal cultural resources and request a list of Native American Tribal representatives who may have geographic or cultural affiliation in the Project Area. The NAHC responded on May 18, 2024, stating that the Sacred Lands File database did not include any previously identified sacred sites in the Project Area. The NAHC also forwarded a list of 8 tribal contacts for 4 Native American tribes. On June 19, 2024, the CSLC sent Project notification letters and an invitation to consult to the four tribes on the NAHC contact list to ensure all tribes would have an opportunity to provide meaningful input on the potential for Tribal cultural resources to be found in the Project Area and recommend steps to be taken to ensure adverse impacts to Tribal cultural resources are avoided.

The outreach letters were sent to chairpersons and representatives of the following Tribes:

- Federated Indians of Graton Rancheria
- Guidiville Rancheria of California
- Lytton Rancheria
- Pinoleville Pomo Nation

As of the Draft IS/ND's publication on June 9, 2025, no tribes have responded to the outreach letters for the Project.

3.6.3 Impact Analysis

Would the project cause a substantial adverse change in the significance of a Tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code section 5020.1, subdivision (k), or

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the

criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact

Based on the results of correspondence with the NAHC, the Project is not expected to affect Tribal Cultural Resources. No Tribal Cultural Resources have been identified within the Project area, based on the results of the NAHC's Sacred Lands File search and cultural resource evaluation (see Appendix B). CSLC has also reached out to Native American Tribal representatives, as subject-matter experts for Tribal Cultural Resource presence, impacts, and mitigation, who may have geographic or cultural affiliation in the Project Area. To date, no California Native American tribes have requested consultation with CSLC.

The Project would remove sediment that has naturally accumulated over the past decades and, therefore, the presence of undiscovered Tribal Cultural Resources is not expected. Furthermore, the main channel of the river is periodically dredged by the USACE and disturbed, so Tribal Cultural Resources are also not expected to occur in the Project vicinity. The APE does not contain any listed or otherwise identified Tribal Cultural Resources and the dredging activities would not impact unanticipated Tribal Cultural Resources. Therefore, no impact would occur.

3.7 ENERGY

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

3.7.1 Environmental Setting

The Project area consists of the dredging area and barge sediment transport routes to the sediment disposal sites. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review. Analyzed Project activities consisting of both dredging activities and sediment transport through use of barges and towing vessels would require use of diesel fueled equipment and work vessels.

3.7.2 Regulatory Setting

No federal regulations or policies pertaining to energy are relevant to the Project.

3.7.2.1 State

California Energy Action Plan II

California's Energy Action Plan II is the State's principal energy planning and policy document (CEC and CPUC 2005). The plan describes a coordinated implementation plan for State energy policies and refines and strengthens California's original Energy Action Plan I, published in 2003. California Energy Action Plan II identifies specific action areas so that California's energy is adequate, affordable, technologically advanced, and environmentally sound. The plan adopts a loading order of preferred energy resources to meet the state's needs and reduce reliance on natural gas and other fossil fuels, also important for achieving greenhouse gas (GHG) emissions reductions from the electricity sector.

California Energy Action Plan II considers energy efficiency and demand response as the first ways to meet the energy needs of California's growing population. The plan considers renewable energy and distributed generation as the best ways to achieve energy efficiency on the supply side. To the extent that energy efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, the California Energy Commission (CEC) supports clean and efficient fossil fuel-fired generation to meet California's energy needs. The 2008 Energy Action Plan Update provides a status update to Energy Action Plan II and continues the goals of Energy Action Plan I (CEC and CPUC 2008).

Climate Change Scoping Plan and Climate Change Scoping Plan Updates

The first Climate Change Scoping Plan was approved in 2008 and has been updated periodically ever since. These plans have focused on specific GHG emission reduction targets for California's industrial, energy, and transportation sectors—first, to meet 1990 levels by 2020, and then to meet the more aggressive target of 40 percent below 1990 levels by 2030. In December 2022, CARB adopted the 2022 Scoping Plan Update. The 2022 Scoping Plan Update extends and expands on these earlier plans, with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045 (CARB 2022).

3.7.2.2 Regional

Sonoma County General Plan 2020

The following policy from the Open Space and Resource Conservation Element of the Sonoma County General Plan is applicable to the Project (Sonoma County [2008] 2016).

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

3.7.3 Impact Analysis

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

Less Than Significant Impact

Construction-related energy expenditures would include both direct and indirect energy use, primarily through the use of petroleum-based diesel and gasoline fuels. These fuels would power the derrick crane barge tugboats and small support vessels for crew transportation as indicated in **Error! Reference source not found.**.

The dredging work would be conducted for up to six days in September, and fuel would be consumed for both dredging and transportation of the dredged materials to a disposal site. Project activities would comply with all applicable federal, state, and local requirements for energy conservation. Due to the very short duration of activities and limited use of fuel/equipment for the activity, the Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the impacts would be less than significant.

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

No Impact

Project activities would be temporary (6 days) and would not require use of line power. No renewable energy generation is proposed within the proposed dredging area, and the Project would not introduce any infrastructure that

would require energy use. The proposed Project would not conflict with or obstruct a state or local plan, and therefore no impact would occur.

3.8 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide,	☐	☐	☐	☒

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
lateral spreading, subsidence, liquefaction or collapse?				
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

3.8.1 Environmental Setting

3.8.1.1 Regional and Site Geomorphology and Geology

The Project area consists of the dredging area and barge sediment transport routes to the disposal sites. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review. The Project does not include any proposed development or structures that could be affected by geologic

hazards. Accordingly, analysis of impacts for geology, soils, and paleontological resources is limited to dredging as the only proposed activity involving ground disturbance.

The proposed dredging area is situated along the Petaluma River, within the Coast Ranges Geomorphic Province. This province is generally characterized by northwest-trending mountain ranges and intervening valleys, which reflect the dominant northwest structural trend of the bedrock in the region. The basement rock in the northern portion of this province consists predominantly of the Franciscan Complex, a subduction complex of diverse groups of igneous, sedimentary, and metamorphic rocks of Cretaceous to Upper Jurassic age. To the east, the Coast Range Ophiolite[3] and the Great Valley Complex is an Upper to Middle Jurassic age volcanic ophiolite sequence with associated Lower Cretaceous to Upper Jurassic sedimentary rocks (California Geological Survey [CGS] 2002).

3.8.1.2 Soils

Since the dredging area is a submerged site, it does not have an organic topsoil layer that is characteristic of vegetated terrestrial soils. As a new dredging area, the proposed dredging area consists of soils composed of historic sediments that have accumulated within the area over time. After the area is dredged, the area will eventually infill with sediments back towards existing conditions.

3.8.1.3 Seismicity, Faulting, and Liquefaction

Fault Rupture

The proposed dredging area is not located within a delineated earthquake fault zone (EFZ); the nearest EFZ is the Hayward–Rodgers Creek fault zone, approximately 4.8 miles northeast of the proposed dredging area (CGS 2021).

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

The San Andreas Fault Zone, which defines the westernmost boundary of the local bedrock, is located approximately 16 miles southwest of the proposed dredging area (CDOC 2012).

Ground Shaking

The proposed dredging area is located approximately 5 miles from the Rogers Creek fault zone, a historically seismically active region of California (CGS 2021). The combined Hayward–Rodgers Creek fault system is considered the most likely fault system in proximity to the dredging area to experience a magnitude 6.7 or greater earthquake in the next 30 years (Watt et al. 2016).

Liquefaction and Lateral Spreading

Liquefaction and lateral spreading liquefaction are phenomenon in which unconsolidated, water-saturated sediments become unstable as a result of strong seismic shaking. During an earthquake, these sediments can behave like a liquid, potentially causing severe damage to overlying structures. Lateral spreading is a variety of minor landsliding that occurs when unconsolidated liquefiable material breaks and spreads, usually down gentle slopes, as a result of the effects of gravity. Liquefaction-induced lateral spreading is defined as the finite, lateral displacement of gently sloping ground as a result of pore-pressure buildup or liquefaction in a shallow underlying deposit during an earthquake. The occurrence of this phenomenon is dependent on many complex factors, including the intensity and duration of ground shaking, particle-size distribution, and soil density. The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving and cracking of structure slabs as a result of sand boiling, and buckling of deep foundations caused by ground settlement. Dynamic settlement (i.e., pronounced consolidation and settlement from seismic shaking) may also occur in loose, dry sands above the water table, resulting in settlement of and possible damage to overlying structures. In general, relatively high potential for liquefaction exists in loose, sandy soils that are within 50 feet of the ground surface and are saturated (below the groundwater table).

Landslides

Landslides are one of the various types of downslope movements in which rock, soil, and other debris are displaced as a result of gravity. The potential for

material to detach and move downslope depends on a variety of factors, such as the type of material, water content, and the steepness of the terrain. The proposed dredging area is within the Petaluma River where there is no potential for landslides.

Paleontological Resources

Paleontological resources are the fossilized remains or impressions of plants and animals, including vertebrates (animals with backbones, such as mammals, birds, and fish), invertebrates (animals without backbones, such as starfish, clams, and coral), and microscopic plants and animals (microfossils). Fossils can be used to determine the relative ages of the depositional layers in which they occur and of the geologic events that created those deposits. The age, abundance, and distribution of fossils depend on the geologic formation in which they occur and the topography of the area in which they are exposed.

The ground surface in the proposed dredging area vicinity is underlain by deposits mapped as early Holocene-age intertidal deposits composed of peaty-mud and Holocene-age bay muds, clay, peat, and fine sands deposited near sea level in San Pablo Bay (BioMaAS 2020). Based on the surrounding conditions, it is assumed that the dredging area is underlain by clays with lesser fine-grain sands and silts to a depth of about 122 feet below ground surface (Kleinfelder 2023).

3.8.2 Regulatory Setting

No federal laws, regulations, or policies pertaining to geology, soils, and paleontological resources are relevant to the Project.

3.8.2.1 State

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

3.8.2.2 Regional

Sonoma County General Plan

The following policy from the Public Safety Element of the Sonoma County General Plan is applicable to the Project:

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

3.8.3 Impact Analysis

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii) Strong seismic ground shaking?

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?

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

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

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

(a-e) No Impact

The proposed dredging area does not lie within an EFZ. The nearest EFZ is the Hayward–Rodgers Creek fault zone, approximately 4.8 miles northeast of the proposed dredging area. Dredging activities would be conducted within the Petaluma River from barges/vessels, do not include construction of any habitable structures or other structures that would be affected by liquefaction, would not expose people or structures to potential substantial adverse effects associated with the rupture of a known earthquake fault, and would not include construction of any habitable structures that would expose people or structures to potential risks to life or property. Finally, the Project would not include the use of septic tanks or alternative wastewater disposal systems.

As noted in Section 3.8.1.3 Seismicity, Faulting, and Liquefaction and Section 3.8.1.2 Soils, the proposed dredging area is within the Petaluma River where there is no potential for landslides and no occurrence of topsoil. Although the dredging area consists of saturated sedimentary soils, the proposed dredging is not expected to introduce or worsen any known hazards pertaining to liquefaction and lateral spreading of soils. The proposed dredging area is not located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and there is no potential for the Project to result in on- or off-site landslide, lateral spreading, subsidence, liquification, or collapse.

Therefore, no impacts would occur.

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

Less Than Significant Impact

No records of fossils have been reported from the intertidal and bay mud deposits present in the vicinity of the proposed dredging area (BioMaAS 2020). In addition to the factors as discussed in impacts a through e, above, since proposed dredging activities would disturb more recent sediment deposits in the Petaluma River, the likelihood of encountering paleontological resources is considered extremely low. Therefore, the impact would be less than significant.

3.9 GREENHOUSE GAS EMISSIONS

GREENHOUSE GAS EMISSIONS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.9.1 Environmental Setting

The Project area includes the dredging area and sediment transport routes to the disposal sites. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review.

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

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

CO_2, methane, nitrous oxide, hydrofluorocarbons, and perfluorocarbons are the principal GHGs. When concentrations of these gases exceed historical concentrations in the atmosphere, the greenhouse effect is intensified. CO_2, methane, and nitrous oxide occur naturally and are also generated by human activity. Emissions of CO_2 are largely byproducts of fossil fuel combustion while methane results from off-gassing, natural gas leaks from pipelines and industrial processes, and incomplete combustion associated with agricultural practices, landfills, energy providers, and other industrial facilities. Nitrous oxide emissions are also largely attributable to agricultural practices and soil management. CO_2 sinks include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, and are two of the largest reservoirs of CO_2 sequestration. Other human-generated GHGs include fluorinated gases such as hydrofluorocarbons and perfluorocarbons, which have much higher potential for heat absorption than CO_2 and are byproducts of certain industrial processes.

CO_2 is the reference gas for climate change as it is the GHG emitted in the highest volume. The effect of each GHG on global warming is the product of the mass of their emissions and their global warming potential (GWP). The GWP of a gas indicates how much the gas is predicted to contribute to global warming relative to the amount of warming that would be predicted to be caused by the same mass of CO_2, which has a GWP of 1. For example, methane and nitrous oxide are substantially more potent GHGs than CO_2, with GWPs of 25 and 298 times that of CO_2, respectively (CARB n.d.-b). In emissions inventories, GHG emissions are typically reported in their "CO_2 equivalent" (CO2e) values. CO_2e is calculated as the product of the mass emitted of a given GHG and its specific GWP. Methane and nitrous oxide have much higher GWPs than CO_2, but CO_2 is emitted in higher quantities and accounts for the majority of GHG

emissions in CO_2e, both from land use developments and from human activity in general.

3.9.1.1 Effects of Global Climate Change

Among the potential global warming impacts in California are loss of snowpack, sea level rise, increases in the number of extreme-heat days per year and the number of days with high ground-level ozone, larger forest fires, and increased drought in some parts of the state. Secondary effects are likely to include the displacement of thousands of coastal businesses and residences (as a result of sea level rise), impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. When enacting Assembly Bill (AB) 32, the Global Warming Solutions Act, the California Legislature found that global warming would cause detrimental effects on some of the state's largest industries—agriculture, winemaking, tourism, skiing, commercial and recreational fishing, and forestry—and on the adequacy of electrical power generation (CARB 2008).

3.9.2 Regulatory Setting

3.9.2.1 Federal

Supreme Court Ruling in *Massachusetts et al. v. Environmental Protection Agency*

The EPA is the federal agency responsible for implementing the federal CAA and its amendments. The U.S. Supreme Court ruled in 2007 that CO_2 is an air pollutant as defined under the CAA, and that USEPA has the authority to regulate GHG emissions (*Massachusetts v. EPA* [2007] 549 U.S. 497). The ruling in this case resulted in EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

3.9.2.2 State

California Air Resources Board

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs. Currently, no state regulations establish ambient air quality standards for GHG emissions. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several

State legislative actions related to climate change and GHG emissions have come into play in the past decade.

Executive Order S-3-05

In 2005, California Executive Order (EO) S-3-05 proclaimed that California is vulnerable to the impacts of climate change. It declared that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emissions reductions goals for the state. Specifically, statewide GHG emissions were to be reduced to 2000 levels by 2010, 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Assembly Bill 32, the California Global Warming Solutions Act

In 2006, the California Global Warming Solutions Act, AB 32, was enacted. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and puts a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020.

Senate Bill 32

Senate Bill (SB) 32 was enacted in 2016 and serves to extend California's GHG emissions reductions programs beyond 2020. SB 32 enacted Health and Safety Code section 38566, which contains language to authorize CARB to achieve statewide GHG emissions reductions of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets that were established by EO B-30-15 for 2030.

Executive Order B-55-18

In 2018, EO B-55-18 established a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." This EO directs CARB to ensure that future climate change scoping plans identify and recommend measures to achieve the carbon neutrality goal.

Assembly Bill 1279 and 2022 Climate Change Scoping Plan

The State Legislature enacted AB 1279, the California Climate Crisis Act, in 2022. AB 1279 establishes the State's policy to achieve net-zero GHG emissions as soon as possible but no later than 2045, and to achieve and maintain net-negative GHG emissions thereafter. Furthermore AB 1279 mandates that by 2045, statewide anthropogenic GHG emissions are to be reduced at least 85 percent below 1990 levels. AB 1279 also requires CARB to ensure that the Scoping Plan identifies and recommends measures to achieve carbon neutrality, and to identify and implement policies and strategies for CO_2 removal solutions and carbon capture, utilization, and storage technologies.

The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) (CARB 2022) responded to AB 1279, outlining a strategy to achieve the State's climate target of reducing anthropogenic GHG emissions to 85 percent below 1990 levels by 2045, and to achieve carbon neutrality by 2045 or earlier.

State CEQA Guidelines

Section 15064.4 of the State CEQA Guidelines addresses the significance of GHG emissions. Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG emissions impacts should include consideration of: (1) the extent to which a project may increase or reduce GHG emissions, (2) whether project emissions would exceed a locally applicable threshold of significance, and (3) the extent to which a project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions." However, the State CEQA Guidelines do not set a numerical threshold of significance for GHG emissions.

3.9.2.3 Regional

Sonoma County General Plan 2020

The following policy from the Land Use Element and Open Space and Resource Conservation Element of the Sonoma County General Plan 2020 may be applicable to the Project (Sonoma County [2008] 2016):

- **Policy LU-11a:** Encourage reduction in greenhouse gas emissions, including alternatives to use of gas-powered vehicles. Such alternatives

include public transit, alternatively fueled vehicles, bicycle and pedestrian routes, and bicycle and pedestrian friendly development design.

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

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

The following are local measures from Chapter 3, "Reducing Community Emissions," of CA2020 (RCPA 2016).

- **7-L2:** Electrify Construction Equipment. Incentivize replacement of fossil fuel construction equipment with alternatively fueled or electric equipment.
- **7-L3:** Reduce Fossil Fuel Use in Equipment through Efficiency or Fuel Switching. Encourage use of more efficient equipment and support equipment conversion to alternative fuels with lower GHG intensity.

Sonoma County Climate Action Resolution

Unable to adopt the Climate Action 2020 Plan, the Sonoma County Board of Supervisors adopted the Climate Change Action Resolution in 2018 (Sonoma County Board of Supervisors 2018). The resolution is intended to help create countywide consistency and clear guidance about coordinated implementation of the GHG emissions reduction measures. Sonoma County committed to reduce GHG emissions by 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050 in accordance with the targets set by RCPA. Sonoma County also adopted all the goals identified in CA2020 to reduce GHG emissions to pursue local actions that support these goals.

Marin County

The Marin County Unincorporated Area Climate Action Plan 2030 sets targets for reducing the county's contributions to climate change by the year 2030 and

outlines ways for unincorporated Marin County to meet that goal (County of Marin 2020).

Solano County

The following policy from the Solano County General Plan Chapter 5 Public Health and Safety is relevant to GHS impacts from the Proposed Project (Solano County 2024):

- **Policy HS.P-85**: Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.

Solano County's Board of Supervisors adopted its Climate Action Plan on June 7, 2011, to address GHG emissions at the local level (County of Solano 2011). The Climate Action Plan establishes a communitywide GHG emissions reduction goal of 20 percent below 2005 levels by 2020, which exceeds guidance provided in the Scoping Plan and Bay Area Air Quality Management District (BAAQMD) California Environmental Quality Act (CEQA) Guidelines.

Contra Costa County

The Contra Costa County General Plan establishes a GHG-reduction goal (Goal HS-3) supported by specific policies and actions focused on reducing GHG emissions throughout the county. The County's Climate Action and Adaptation Plan identifies how the County will achieve the AB 32 GHG emissions reduction target of 15 percent below baseline levels by the year 2020 in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents (Contra Costa County 2015).

The Contra Costa County 2024 Climate Action and Adaptation Plan Update, also forecasts the County's GHG emissions and sets reduction targets and strategies (Contra Costa County 2024).

San Mateo County

The climate element of the San Mateo County General Plan outlines priority actions to reduce greenhouse gas (GHG) emissions to meet or exceed State mandates, while also improving the quality of life and long-term viability of the County's unincorporated communities (San Mateo County 2022a). This element

and the associated Community Climate Action Plan (CCAP) (San Mateo County 2022b) set a path to exceed State targets as well as reduce energy and transportation costs, improve access to livable wage career opportunities, improve public health, improve neighborhood resilience to power shutoffs and natural disasters, increase access to parks and essential services, and support a vibrant and economically sustainable agricultural community.

3.9.3 Impact Analysis

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

Less Than Significant Impact

BAAQMD does not have an adopted significance threshold for construction-related GHG emissions. However, it requires projects to quantify and disclose GHG emissions that are expected to occur during construction and then determine whether the estimated project emissions are consistent with the state's GHG reduction goals. The following analysis considers a two-fold approach:

- Whether GHG emissions generated by the proposed Project would conflict with the state's GHG reduction goals.
- In the absence of a quantitative significance threshold from BAAQMD for construction-related GHG emissions, CSLC can consider such a significance threshold adopted by another nearby air district. Although not directly applicable to BAAQMD's jurisdiction, the analysis provides a comparison to the Sacramento Metropolitan Air Quality Management District's GHG mass-emissions (or "bright-line") threshold of 1,100 metric tons of CO_2e per year for construction activity.

During proposed Project activities, GHGs would be emitted by fuel combustion from construction equipment, barges, and support vessels conducting dredging and traveling to and from the proposed dredging area. Project-related GHG emissions from dredging equipment, support vessels, and other vehicle and equipment exhaust were estimated using the CalEEMod emissions model (Version 2022.1.1.25). Table 3-6 presents the total GHG emissions for the Project.

See Appendix A for the output information from the CalEEMod assumptions and output information.

Table 3-6 Greenhouse Gas Emissions from Project Dredging

Source	Total GHG emissions (metric tons CO_2e)
Offroad mobile equipment and harborcraft	39
Onroad vehicles	2
Total GHG emissions for all sources	41

Source: (California Air Pollution Control Officers Association 2024)

GHG emissions would only be generated during dredging activities and transport of dredged material (up to 6 days total). Implementation of the Project may result in future, reduced GHG emissions from tugs/barges conducting operations at Vulcan Materials, as vessels would be able to more readily access the bulkhead wall instead of idling while waiting for high tides to provide site access. Due to the small Project area (0.5 acre) and the short-term duration of proposed dredging activities, the Project would not conflict with state's GHG reduction goals. Furthermore, the proposed Project's GHG emissions would be well below 1,100 metric tons of CO_2e per year. Therefore, impacts would be less than significant.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact

The Project would generate emissions primarily from dredging equipment, support barges, and vessels. Neither CARB nor BAAQMD targets construction activities as a sector to achieve GHG reductions to meet the state's GHG emissions reduction goals. Instead, both CARB and BAAQMD target operational sources, such as building energy use and transportation, as sectors where maximum reductions can be achieved. Therefore, CARB's 2017 Scoping Plan

Update does not include any strategies or actions that address construction and maintenance activities such as dredging.

The 2022 Scoping Plan Update also identifies transportation electrification, reduction of automobile vehicle miles traveled, and building decarbonization as the priority strategies for local government climate action. However, there are no measures that address marine vessels.

The Sonoma County General Plan 2020 and climate action planning policies includes measures that are applicable to construction activities and equipment, such as encouraging the use of more efficient construction equipment, transitioning from fossil fuels to alternative low-carbon fuels, and limiting idling by construction equipment and vehicles. Project equipment and vehicles would be subject to CARB's airborne toxic control measure limiting idling by diesel-fueled commercial equipment and vehicles. Furthermore, the Project would not increase operational emissions and instead may result in future reduced GHG emissions from tug/barge idling as vessels would be able to more readily access the Vulcan Materials bulkhead wall instead of waiting for high tides to gain site access. Therefore, there would be no impact.

3.10 HAZARDS AND HAZARDOUS MATERIALS

HAZARDS AND HAZARDOUS MATERIALS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use	☐	☐	☐	☒

HAZARDS AND HAZARDOUS MATERIALS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
airport, would the project result in a safety hazard or excessive noise or people residing or working in the project area?				
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

3.10.1 Environmental Setting

The Project area is defined as the proposed dredging area (see Figure ES-3) as well as the barge sediment transport routes to the sediment disposal sites. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review.

Hazardous Materials Definitions

Terms used in the characterization of baseline conditions, regulatory framework, and impact analysis for hazards and hazardous materials are defined below. The term *hazardous material* can have varying definitions depending on the regulatory programs. For the purposes of this IS/ND, the term refers to both hazardous materials and hazardous wastes.

Hazardous Material

Section 25501(n) of the California Health and Safety Code defines a hazardous material as follows:

> *Hazardous material means [specified materials] that because of its quantity, concentrations, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.*

Hazardous Waste

A *hazardous waste* is a waste that because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or illness or may pose substantial or potential threats to public health or the environment when improperly handled (42 U.S.C. § 6903[5]).

California Code of Regulations title 22 chapter 11 sets waste acceptance criteria for landfills by chemical-specific concentrations used to define whether a material is a hazardous, designated, or nonhazardous waste including the Total Threshold Limit Concentrations (TTLCs), Soluble Threshold Limit Concentrations (STLCs), and Toxic Characteristic Leaching Procedures (TCLPs). Waste materials with chemical concentrations exceeding the TTLCs, STLCs, and TCLPs must be sent to Class I disposal facilities, may be sent to Class II disposal facilities depending on the waste material, and may not be sent to Class III disposal facilities.

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

The USEPA Regional Screening Levels and San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) Environmental Screening Levels (ESLs) are guidelines used to evaluate the potential risk associated with chemicals found in soil or groundwater where a release of hazardous materials has occurred. Though developed and maintained by the San Francisco Bay RWQCB, the ESLs are used by regulatory agencies throughout the state. Screening levels have been established both for residential and commercial/industrial land uses and for construction workers:

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

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

Hazardous Materials Database Search

The State Water Resources Control Board (SWRCB) GeoTracker website and the California Department of Toxic Substances Control (DTSC) EnviroStor website were reviewed to identify known hazardous materials sites listed on what is referred to as the Cortese List. The Cortese List identifies sites known to currently have or to have previously had hazardous materials spills or releases. There are three hazardous sites listed on the Geotracker database within 0.5 mile of the proposed dredging area (SWRCB n.d.-b). However, all the cases have been completed and closed (see Table 3-7, below). There are no sites listed on the EnviroStor database within 0.5 mile of the proposed dredging area (DTSC n.d.).

Table 3-7 Identified Hazardous Sites within 0.5 mile of the Proposed Dredging Area

Name	Address	Type	Status
West Sonoma Co. Disposal	2543 Petaluma Blvd S Petaluma, CA 94952	LUST Cleanup Site	Completed - Case Closed
Rinehart's Petaluma Truck Stop	2645 South Petaluma Blvd, Petaluma, CA 94952	Cleanup Program Site	Completed - Case Closed
Henris Supply Warehouse	172 Landing Way Petaluma, CA 94952	LUST Cleanup Site	Completed - Case Closed

Emergency Response/Evacuation Planning

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

Wildfire

The California Department of Forestry and Fire Protection (CAL FIRE) Forest Resource Assessment Program has published maps that delineate Very High Fire Hazard Severity Zones in State Responsibility Areas (SRAs) and Local Responsibility Areas (LRAs). Based on mapping by CAL FIRE, the Project is not located in or within the vicinity of an SRA (CAL FIRE n.d.).

3.10.2 Regulatory Setting

3.10.2.1 Federal

United States Environmental Protection Agency

The EPA is the lead agency responsible for enforcing federal laws and regulations governing hazardous materials that affect public health or the environment. The major federal laws and regulations enforced by the EPA include: the Resource Conservation and Recovery Act; the Toxic Substances Control Act; the Comprehensive Environmental Response, Compensation, and Liability Act; and the Superfund Amendments and Reauthorization Act. In California, the USEPA has granted most enforcement authority over federal hazardous materials regulations to the California Environmental Protection Agency (Cal/EPA).

United States Army Corps of Engineers

The USACE regulates water quality and potentially hazardous discharges through the Rivers and Harbors Acts of 1890 (superseded) and 1899 (33 U.S.C. § 401 et seq.), and the Clean Water Act (33 U.S.C. § 1251 et seq.). The provisions of each are described in Section 3.4 Hydrology and Water Quality.

Oil Pollution Act

The Oil Pollution Act (33 U.S.C. § 2701 et seq.) establishes a liability system for oil spills into navigable waters or adjacent shorelines that injure or are likely to injure natural resources, and/or the services that those resources provide to the ecosystem or humans.

3.10.2.2 State

California Environmental Protection Agency

Under the authority of the Cal/EPA, the Department of Toxic Substances Control and the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) are responsible for overseeing the cleanup of contaminated sites in the San Francisco Bay Area. The Department of Toxic Substances Control also regulates disposal of hazardous wastes under California's Hazardous Waste Control Law. This law requires the filing of a Hazardous Waste Manifest detailing the hauling and disposal of hazardous waste materials.

Oil Spill Prevention and Response Programs in California

Pursuant to the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (California Government Code 8670.1 et seq., California Public Resources Code 8750 et seq.), California has developed a comprehensive oil spill prevention and response program that requires all marine facilities and vessels to comply with an integrated system of statewide regulations, operation manuals, inspections, training and drill programs in order to provide the "best achievable protection" of the state's coastal and marine resources through the use of "best achievable technologies" and practices.

California Coastal Commission (CCC) staff work in partnership with seven other California state agencies and five federal agencies to ensure that California and federal regulations and programs for safe oil and gas exploration and development operations, and for oil spill prevention and response, are consistent with California Coastal Act policies. The California Office of Spill Prevention and Response is the state's lead agency for oil spill prevention, preparedness, response, and natural resource damage assessment.

The San Francisco BCDC has responsibilities for oil spill prevention and response in San Francisco Bay. The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act specified that BCDC must carry out certain responsibilities critical to the achievement of the goals of the state oil spill act. BCDC actively participates in planning to reduce the risk of oil spills in California waters through its membership on the San Francisco Bay Harbor Safety Committee (navigation safety) and to better respond if a spill does occur by its participation on the San Francisco Bay Delta Area Committee (contingency planning). Through its statutory permit authority, BCDC can condition a project in its jurisdiction to meet the objectives of the McAteer-Petris Act and policies of the San Francisco Bay Plan equivalent to achieving "best achievable protection" against an oil spill for San Francisco Bay. When required, BCDC can authorize emergency response activities that meet its laws and policies.

California Office of Emergency Services

The California Office of Emergency Services (CalOES) is responsible for the coordination of overall State agency response to major disasters in support of local government. CalOES is responsible for assuring the State's readiness to respond to, and recover from, all hazards—natural, man-made, and war-

caused emergencies and disasters—and for assisting local governments with emergency preparedness, response, recovery, and hazard mitigation efforts (CalOES 2014).

Each county has a local Office of Emergency Services, which coordinates with the State during emergency situations. When local and mutual aid resources are exhausted, the State coordinates its emergency resources through its State Operations Center in Sacramento, and its multiple Emergency Operations Centers throughout the region.

3.10.2.3 Regional

Dredged Material Management Office

The LTMS program for San Francisco Bay provides the basis for uniform federal- and state-dredged material disposal policies and regulations. The DMMO was established as part of the LTMS program to consolidate the processing of dredging permit applications. The process for obtaining approvals for dredging or dredged material disposal has three phases: (1) sediment quality testing and suitability determination; (2) permit process; and (3) approval for sediment disposal at existing authorized sediment disposal sites. The suitability determination process occurs at the DMMO level.

The applicant must submit results from recent sediment testing or submit sufficient data to support a finding by the agencies that the sediments are suitable for the proposed disposal environment. The applicant should submit to the DMMO either a sediment Sampling and Analysis Plan and Quality Assurance Project Plan, or a written request (with supporting information) for an exclusion from testing requirements based on factors such as previous testing history and physical characteristics of the material proposed for dredging. The applicant must submit the sampling results to the DMMO for review, and the DMMO would make a determination about where the materials can be disposed.

Although the DMMO provides initial review of permit applications and suitability recommendations, applicants must eventually obtain separate approval from the appropriate DMMO member agencies (such as a CWA Section 401 Certification from the Regional Water Board); each agency issues permit conditions and specific requirements about how the project is to be performed.

San Francisco Bay Area Water Emergency Transportation Authority

The San Francisco Bay Area Water Emergency Transportation Authority (WETA) is the agency of the Metropolitan Transportation Commission (MTC) that supports coordinated emergency response capabilities for transportation agencies throughout the nine-county San Francisco Bay Area, via a Regional Emergency Management Program. The Regional Emergency Management Program focuses on two key areas: (1) inter-agency communications and (2) preparation of detailed emergency response plans. The MTC created the San Francisco Bay Area Regional Transportation Emergency Management Plan (SFBARTEMP) in 2018 that outlines the responsibilities of WETA in the event of a regional emergency (MTC 2018).

In the event of a major disaster, particularly an earthquake, it is assumed that bridges and tunnels serving transbay corridors would be damaged or closed for assessment. Ferries and other maritime assets may play vital roles in providing both emergency response and basic transportation services. During an emergency, WETA would function as both an operator of emergency water transportation services and as coordinator of the region's water transit response. In coordination with CalOES, WETA would provide passenger water transit service through its operating arm, San Francisco Bay Ferry, which operates the Alameda/Oakland, Harbor Bay, Vallejo and South San Francisco ferry services.

Sonoma County General Plan 2020

The following objectives and goals contained in the Sonoma County General Plan 2020 are relevant to the Project (Sonoma County 2008a):

- **Objective PS-4.2:** Regulate the handling, storage, use, and disposal of hazardous materials in order to reduce the risks of damage and injury from hazardous materials.
- **Policy PS-4a:** While maintaining the autonomy granted to it pursuant to State zoning laws, implement Federal, State, and County requirements for the storage, handling, disposal, and use of hazardous materials, including requirements for management plans, security precautions, and contingency plans.
- **Policy PS-4g:** Maintain the Sonoma County Operational Area Hazardous Materials Incident Response Plan, which provides for effective responses to

releases of hazardous materials, the safe disposal of hazardous wastes, and a public information program.

3.10.3 Impact Analysis

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

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

(a-b) Less Than Significant Impact

Proposed dredging and barge sediment transport activities would involve the routine use of small quantities of commonly used hazardous materials such as fuels, lubricants, and oil for dredging equipment and support vessels. Vessel storage and use of hazardous materials for the Project during routine use could result in the accidental release of small quantities of hazardous materials, which could degrade soil and/or surface water within the Project area. The use, storage, transport, and disposal of hazardous materials during dredging activities and barge sediment transport would be carried out in accordance with federal, state, and county regulations.

In addition, standard BMPs would be implemented by Vulcan Materials and the contractor to avoid pollution due to fuels, oils, lubricants, and other harmful materials. The contractor would be required to provide a Dredging Operations Plan (DOP), which would include BMPs for the handling, storage, and disposal of hazardous materials. The DOP would detail pre- and post-construction bathymetric surveys, construction operations and sequencing, and measures to minimize or avoid the risk of accidental minor oil spills, hydraulic fluid leaks and/or hazardous materials releases into receiving water from vessels involved in dredging work. The risk is further minimized by the ongoing implementation of a Vessel Emergency Spill Response plan which would limit the potential of these materials to enter the receiving water along with contingency plans in the event of a spill.

The Project is required to prepare and submit a Spill Prevention Control and Countermeasure Plan (SPCCP) to CSLC staff and all other pertinent agencies for

review and approval at least 30 days prior to the implementation of the Project. The SPCCP would include Safety Data Sheets (SDS) that contain information on potential hazardous materials and chemicals on site. The SPCCP would outline the procedures to be undertaken in the event of a spill or emergency. Preparation of a SPCCP would ensure that the Project follows all state and federal regulations pertaining to the storage and use of hazardous substances. Additionally, as required by federal, state, and county regulations, Project-related spills of hazardous materials would be reported to appropriate regulatory entities, such as Sonoma County, USFWS, CDFW, and the San Francisco Bay RWQCB.

Conformance with these requirements would ensure that hazardous materials used for Project-related activities would be stored in appropriate containers, with secondary containment to prevent a potential release. Spills of hazardous materials would be cleaned up immediately consistent with state and local requirements. Therefore, the impact would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

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

(c-e) No Impact

The Project area is not located within 0.25 mile of an existing or proposed school. The nearest school is Bridge Haven School, approximately 0.6 mile northwest of the proposed dredging area. The sediment transport routes and disposal locations are not within 0.5 mile of a school. In addition, the Project would not be located on a site that is included on a list of hazardous materials sites (under the provisions of Government Code Section 65962.5, commonly referred to as the "Cortese List"). Finally, the Petaluma Municipal Airport is located approximately 2.2 miles north of the proposed dredging area. The Project area is

not within an airport land use plan, and the Project would not create a hazard for aircraft.

Therefore, no impacts would occur.

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

No Impact

Project activities would not require road closures and would not obstruct any major arterial roadways, as all proposed work activities would occur within the river. The Petaluma River is not primarily used for emergency response and/or evacuation, so dredging activities would not interfere with emergency response or evacuations.

The Project would dispose of the dredged material at disposal sites within San Francisco Bay that have been permitted to receive the material.

The Project's water-based activities would comply with the requirements of the SFBARTEMP. In the event of an emergency, Project barges would either temporarily cease operations or avoid the established ferry lanes that could be used for emergency evacuations. As shown in

Table 2-3, the Project anticipates up to four disposal trips. Therefore, no impact would occur.

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

No Impact

The Project is located within a river and is not within a Very High Fire Hazard Severity Zone or in either an SRA or LRA (see Section 3.20 Wildfire). The dredging activities would occur entirely within the Petaluma River, and the transit barges would operate within San Francisco Bay waterways, both areas where there is no potential for wildfire ignition. The Project would not expose people or structures directly or indirectly to wildland fires. Therefore, no impact would occur.

3.11 HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a	☐	☐	☒	☐

HYDROLOGY AND WATER QUALITY - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
stream or river or through the addition of impervious surfaces, in a manner that would:				
i) Result in substantial erosion or siltation on or off site;	☐	☐	☒	☐
ii) Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;	☐	☐	☐	☒
iii) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
iv) Impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

3.11.1 Environmental Setting

The Project area consists of the dredging area and barge sediment transport routes to the disposal sites. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the

sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review. This section describes the existing hydrologic setting of the Petaluma River and San Francisco Bay, with substantial focus on the dredging area setting as the location for primary impact consideration. Existing conditions and potential water quality impacts to fisheries and other aquatic species are addressed in Section 3.4 Biological Resources.

Surface Water

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

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

San Francisco Bay receives surface waters from the Delta and all other watersheds surrounding the Bay from perennial and intermittent surface waters that drain to the Bay, with discharge then to the Pacific Ocean. San Francisco Bay and Suisun Bay are listed as impaired for pesticides (e.g., chlordane, dichloro-diphenyl-trichloroethane (DDT), dieldrin, dioxin, and furan compounds), mercury, invasive species, polychlorinated biphenyls, selenium, and trash.

Groundwater

The proposed dredging area is within the approximately 46,000-acre Petaluma Valley groundwater basin, which is immediately north of San Pablo Bay and, for water quality planning purposes, part of the larger San Francisco Bay basin. The

major urban water supplier in the Petaluma Valley groundwater basin is the city of Petaluma, which relies primarily on imported surface water from the Russian River, supplied by Sonoma County Water Agency. The basin has been classified by the California Department of Water Resources as a medium-priority basin, with groundwater levels declining in some areas. Based on the Petaluma Valley groundwater basin's medium-priority designation, the groundwater sustainability agency for the basin—the Petaluma Valley Groundwater Sustainability Agency—adopted the Petaluma Valley Groundwater Sustainability Plan (Petaluma Valley Groundwater Sustainability Agency 2022). Sources of groundwater recharge in the basin include percolation of precipitation and excess irrigation water, infiltration from streams, and boundary inflow from neighboring groundwater basins.

Flooding

Flooding is inundation of normally dry land that results from a rise in surface water levels or rapid accumulation of stormwater runoff during storm events. The Federal Emergency Management Agency (FEMA), through its Flood Insurance Rate Mapping Program, designates areas where urban flooding could occur during 100-year and 500-year flood events. A 100-year flood event has a 1 percent probability of occurring in a single year, and a 500-year flood event has a 0.2-percent probability of occurring in a single year. These types of floods can occur in consecutive years or periodically throughout a decade; the terms *100-year* and *500-year* refer to probability, not to the period between such floods. According to the FEMA Flood Insurance Rate Map (FIRM), the proposed dredging area is within the 100-year floodplain (FEMA 2025).

Tsunami and Seiche

The proposed dredging area is approximately 10 miles north of San Pablo Bay and 20 miles east of the Pacific Ocean. The dredging area is not in a tsunami or seiche inundation area.

3.11.2 Regulatory Setting

3.11.2.1 Federal

Clean Water Act

The federal Clean Water Act (CWA; 33 U.S.C. §§ 1251-1389; Pub.L. 92-500 (Oct. 18, 1972)) requires states to set standards to protect water quality. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Specific sections of the CWA control discharge of pollutants and wastes into marine and aquatic environments, as further discussed below.

Section 303 – Water Quality Standards and Implementation Plans

Title 40 of the Code of Federal Regulations part 131.2 describes water quality standards as the water quality goals for a particular water body. These water quality goals are the designated uses for the water and the criteria to protect those uses.

A water quality standard defines the water quality goals of a waterbody, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the CWA. The standards should consider the use and value of public water supplies, propagation of fish, shellfish, and wildlife, recreation in and on the water, and agricultural, industrial, and other uses including navigation.

Pursuant to the CWA, the San Francisco Bay Regional Water Quality Control Board (SF Bay RWQCB) adopted the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan).

Section 303 – Impaired Water Bodies and Total Maximum Daily Loads

Under the CWA, each state is required to identify those waters within its boundaries for which effluent limits are not stringent enough to meet water quality standards. The state must establish priority rankings for these waters and develop Total Maximum Daily Loads (TMDLs) to maintain beneficial uses and improve water quality. Seasonal variations in loading and a margin of safety are considered when TMDLs are established. In California, the State Water Resources

Control Board (SWRCB) and Regional Water Quality Control Boards prepare the CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs.

Section 311 – Oil Pollution Act

The CWA also regulates the prevention of, and response to, accidental releases of oil and hazardous substances into navigable waters, on adjoining shorelines, or affecting natural resources belonging to or managed by the United States. The U.S. Coast Guard is responsible for regulations and enforcement related to vessels and marine transportation, and the USEPA is responsible for non-transportation–related facilities and onshore operations.

Section 313(a) – Federal Facilities Pollution Control

Congress expressly authorizes state regulation of federal activities that result in discharge or water pollution.

Section 401 – Water Quality Certification

Water Quality Certification (WQC) is required for any activity that requires a federal permit or license, and that may result in discharge into navigable waters. To receive certification under Section 401, an application must demonstrate that activities or discharges into waters are consistent with state effluent limitations, water quality effluent limitations, water quality standards and implementation plans, national standards of performance, toxic and pretreatment effluent standards, and "any other appropriate requirements of State law set forth in such certification." In California, the authority to grant WQC is delegated to the SWRCB, and in the San Francisco Bay area, applications for certification under CWA Section 401 are processed by the SF Bay RWQB. United States Army Corps of Engineers (USACE) regulations (33 C.F.R. § 336.1(a)(1)) require USACE to seek state WQC for discharges of dredged or fill material into waters of the United States.

Section 404 – Discharge of Dredged or Fill Material

Section 404 of the CWA regulates the discharge of dredged or fill material (e.g., fill, pier supports, and piles) into waters of the United States, which includes San

Francisco Bay. The USACE implements Section 404 of the CWA, and the EPA has oversight authority. Section 404(b)(1) of the CWA establishes procedures for the evaluation of permits for discharge of dredged or fill material into waters of the United States. The USACE issues Section 404 permits for discharges of dredged or fill material into waters of the United States pursuant to Title 33 of the Code of Federal Regulations part 323 (1986).

Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 (33 C.F.R. §§ 403–403a) regulates alteration of, and prohibits unauthorized obstruction of, navigable waters of the United States. Original construction of the federal navigation channels was authorized under the Rivers and Harbors Act, and USACE's maintenance dredging maintains the navigability of the channels in accordance with their authorized dimensions. The USACE, as the implementing authority of Section 10 of Rivers and Harbors Act, ensures its work or structures do not impede navigation in waters of the United States and, therefore, does not need to issue itself a permit pursuant to Section 10.

International Convention for the Prevention of Pollution from Ships

Prevention of pollution from ships is regulated by federal law (33 U.S.C. §§ 1901–1911). The regulations cover the prevention of pollution by oil, noxious liquids, harmful substances, and garbage from operational measures, as well as from accidental discharges. The U.S. Coast Guard is the responsible enforcement agency.

Floodplain Management

Federal Executive Order 11988 (42 Fed. Reg. 26951, May 24, 1977) requires that federal agency construction, permitting, or funding of a project must avoid incompatible floodplain development, be consistent with the standards and criteria of the National Flood Insurance Program, and restore and preserve natural and beneficial floodplain values.

3.11.2.2 State

Porter-Cologne Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act; Cal. Water Code Division 7), and associated regulations found in Title 23 California Code of

Regulations Chapters 22 and 23, establish a comprehensive program for the protection of water quality and the beneficial uses of waters of the state. It addresses both point and nonpoint source discharges to both surface and ground waters. The SWRCB and nine regional water quality control boards are the principal state agencies with responsibility for water quality control. The Porter- Cologne Act provides for the adoption of water quality control plans to designate beneficial uses of water, set water quality objectives to protect beneficial uses, and provide for a program to achieve those objectives. The Basin Plan is the Regional Water Board's master water quality control planning document. Pursuant to the Porter-Cologne Act and Title 23, the Regional Water Board is authorized to issue *waste discharge requirements* (WDRs) and WQCs (i.e., permits) for activities that may affect water quality. These permits must implement the Basin Plan, the Clean Water Act for point source discharges to waters of the United States, and statewide plans and policies, including, but not limited to, Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Water in California," which generally restricts dischargers from degrading water quality. As a federal agency, USACE is not required to apply for WDRs; however, the Regional Water Board may issue WDRs with the WQC.

3.11.2.3 Regional

<u>San Francisco Bay Conservation and Development Commission</u>

San Francisco Bay Plan

The San Francisco Bay Plan is BCDC's comprehensive plan for the Bay and its shoreline. The entire Project area is within the jurisdiction of BCDC and the Bay Plan. The San Francisco Bay Plan was completed and adopted by the San Francisco BCDC in 1968 and was transmitted to the California Legislature and the Governor in 1969.

The San Francisco Bay Plan presents the two essential parts of the Bay Plan: policies to guide future uses of the Bay and shoreline, and maps that apply these policies to the present Bay and shoreline (BCDC [2011] 2025). BCDC issues permits for placement of fill, extraction of materials, including dredging, and substantial changes in use within its jurisdiction. These permits ensure compliance with the Bay Plan.

Oil Spill Prevention and Response

See Section 3.10.2.2, State - Oil Spill Prevention and Response Programs in California for regulatory information.

Dredged Material Management Office

See Section 3.10.2.2 Regional – Dredged Material Management Office for regulatory information.

Water Quality Control Plan for the San Francisco Bay Basin

The proposed Project area is located within the jurisdiction of the SF Bay RWQCB, which establishes regulatory standards and water quality objectives in the *Water Quality Control Plan for the San Francisco Bay Basin*, commonly referred to as the Basin Plan (SF Bay RWQB 2017). The Basin Plan identifies existing and potential beneficial uses for surface water and groundwater and provides numerical and narrative water quality objectives designed to protect those uses. Projects must not result in adverse effects on designated beneficial uses. The Petaluma River has the following listed beneficial uses: Cold Freshwater Habitat, Estuarine Habitat, Fish Migration, Preservation of Rare and Endangered Species, Fish Spawning, Warm Freshwater Habitat, Wildlife Habitat, Water Contact Recreation, Non-Contact Water Recreation, and Navigation.

Sonoma County General Plan 2020

The following policies from the Water Resources Element of the Sonoma County General Plan 2020 pertain to the proposed Project's evaluation of hydrology and water quality (Sonoma County 2008b):

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

3.11.3 Impact Analysis

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

Less Than Significant Impact

The Project would result in approximately 2,519 CY of dredged materials being removed from the Petaluma River during the dredging activities. Dredging

activities could temporarily increase river turbidity, but the increased turbidity levels would be minor, short-term, and generally localized to the immediate area. Following the dredging event, sediments would disperse and background levels would be restored within hours of disturbance. In addition, normal circulation and strong currents would rapidly circulate and disperse water temporarily affected by the increased turbidity within a matter of hours, and the particulate concentrations would be diluted to levels that would pose no major threat to water quality or aquatic wildlife. Once dredging activities are completed, no additional riverbed disturbance or surface activities would occur that could contribute to water quality impacts. Section 3.10.3 Hazards and Hazardous Materials discusses Project practices to protect water quality during dredging events and barge transport. Therefore, the impact would be less than significant.

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

No Impact

The Project would not introduce impervious surfaces or alter groundwater recharge in the Project vicinity. Additionally, the Project does not propose to withdraw or use groundwater and, thus, would not decrease the groundwater supply. Therefore, no impact would occur.

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

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

Less Than Significant Impact

As noted in impact a, the Project would result in approximately 2,519 CY of dredged materials being removed from the berth during proposed dredging activities. As a federally maintained channel, the main channel of the Petaluma River (in the Project area vicinity) is already periodically dredged by the USACE. The Project proposes a one-time, new dredging event for sediment in the river, and would not dredge deeper than the adjacent main channel in order to align with

existing dredging and channel conditions. Following Project dredging, sediments would gradually infill the dredged area over time and back towards existing conditions.

Proposed dredging activities could temporarily displace silt during the dredging activities and produce turbidity. See impact a, above, regarding the Project's potential turbidity impacts. Given the minor volume and area (0.5 acre) of proposed dredging, and existing Petaluma River alterations from USACE maintenance dredging, the impact would be less than significant.

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

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

iv) Impede or redirect flood flows?

No Impact

As noted in impact b, the Project would not introduce new impervious surfaces, and all activities would be conducted from barges and marine vessels on the water. Project activities would not create or contribute runoff water that would exceed the capacity of the existing stormwater drainage system.

The Project is within the 100-year floodplain as designated on the FEMA FIRM for the area . However, the Project would not introduce or alter any structures within the floodplain. Therefore, the Project would have no impact related to flood flows. As a beneficial impact, Project activities, in conjunction with periodic maintenance dredging of the main channel by the USACE, could contribute to increased channel volume for enhanced capacity of high river levels, which could help minimize localized flooding.

Therefore, no impacts would occur.

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

No Impact

Although the proposed dredging area is within the 100-year floodplain, as designated on the FEMA FIRM for the area (FEMA 2025), the Project does not propose to store any hazardous materials or other pollutants that could be introduced into the Petaluma River during a flooding event. The dredging area is not located within a Tsunami Inundation Hazard Zone or subject to seiches. Therefore, there would be no impact.

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

Less Than Significant Impact

As noted in impact b, the Project would not increase impervious surface area; thus, the existing groundwater recharge capability would be maintained. The Project would not require the use of surface water or groundwater resources. Therefore, the Project would be consistent with sustainable management of groundwater resources.

Impact a, above, and Section 3.10.3 Hazards and Hazardous Materials discuss Project practices to protect water quality and ensure Basin Plan conformance during dredging events and barge transport. The Project would comply will all applicable water quality regulations and would not proceed without all required state and federal authorizations, including a CWA Section 401 Water Quality certification that also addresses compliance with the Basin Plan.

Therefore, the impacts would be less than significant.

3.12 LAND USE AND PLANNING

LAND USE AND PLANNING – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

3.12.1 Environmental Setting

The Project area consists of the dredging site the proposed dredging area plus the barge sediment transport routes to the sediment disposal sites. The area surrounding the dredging site includes industrial uses, a recreational area (Shollenberger Park), and the Petaluma River. The Petaluma River is a Federal Navigation Channel that is dredged by the USACE every 3 to 4 years.

Ownership of the Bay is divided. According to the San Francisco Bay Plan, private owners claim about 22 percent of the Bay (including extensive holdings in the South Bay) as a result of sales by the State 90 or more years ago. Cities and counties have received grants of land from the State totaling about 23 percent of the Bay. The State now owns only about 50 percent of the Bay, and the federal government owns about 5 percent.

3.12.2 Regulatory Setting

No federal, state, or local regulations or policies pertaining to land use and planning are relevant to the Project.

3.12.3 Impact Analysis

a) Physically divide an established community?

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

No Impact

The Project area is located within an existing industrial site. The Project would dredge portions of the Petaluma River immediately adjacent to the existing bulkhead wall. The Project does not include structures or features that would divide an established community.

Proposed dredging activities would not conflict with existing permitted uses. All dredging activities would occur in-water and would be conducted in compliance with regulatory permits, including scheduling of work during appropriate seasons to minimize or avoid effects on sensitive biological resources. The Project would not conflict with any land use plan, policy, or regulation.

Therefore, no impacts would occur.

3.13 MINERAL RESOURCES

MINERAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

3.13.1 Environmental Setting

For mineral resources, the following information is limited to the dredging area as sediment transport within San Francisco Bay would have no impact on the affected resource. The Mineral Resources Data System (MRDS), administered by the U.S. Geological Survey (USGS), provides data describing mineral resources, including deposit name, location, commodity, deposit description, production status, and references, and can be used to confirm the presence or absence of existing surface mines, closed mines, occurrences/prospects, and unknown or undefined mineral resources. According to available MRDS data, there are no significant mineral resources at the dredging area (USGS n.d.).

The California Geological Survey (CGS) maps and regulates the locations of potential mineral resources in California consistent with the Surface Mining and Reclamation Act (Cal. Pub. Resources Code §§ 2710-2796). To protect these potential mineral resources, CGS has classified the regional significance of mineral resources into Mineral Resources Zones (MRZ). A designation of MRZ-2 indicates an area where adequate information indicates that significant mineral

deposits are present or there is a high likelihood of their presence and development should be controlled. The proposed dredging area is not within an area that has been designated as MRZ-2 (CGS n.d.).

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

3.13.2 Regulatory Setting

No federal, state, or local laws or regulations pertaining to mineral resources are relevant to the Project.

3.13.3 Impact Analysis

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

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

(a-b) No Impact

According to the review of available data from USGS, CGS, CalGEM, and Sonoma County, the proposed dredging area is not located within an area designated for mineral resources. There are no significant mineral resources at the proposed dredging area, nor would the Project result in the loss of availability of any mineral resource in the area. Therefore, no impacts would occur.

3.14 NOISE

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

3.14.1 Environmental Setting

The Project area is located within an urbanized area that is zoned GI and currently supports industrial uses. Additionally, a railroad line and Highway 101 are located within the Project dredging site vicinity.

3.14.1.1 Noise Background

Sound is energy transmitted by pressure waves through a medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In

particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum. The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. However, noise levels rarely persist consistently over a long period of time. In fact, community noise varies continuously with time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. Background noise levels change throughout a typical day, but they do so gradually, corresponding to the addition and subtraction of distant noise sources and atmospheric conditions. The addition of short-duration, single-event noise sources (e.g., flyovers by helicopters and other aircraft, horns, sirens) makes community noise constantly variable throughout the day. These successive additions of sound to the community noise environment cause the community noise level to vary from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The following noise descriptors are discussed in this analysis:

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

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

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

3.14.1.2 Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The *peak particle velocity* (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts on buildings. Although PPV is appropriate for evaluating building damage, it is less suitable for evaluating human response. Sensitive receptors to vibration include people (especially residents, the elderly, and sick people), structures (especially older masonry structures), and vibration-sensitive equipment. Human response is better related to the average vibration amplitude. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (shown in vibration decibels [VdB]) is commonly used to express RMS. The decibel notation acts to compress the range of numbers required to describe vibration, as numbers can differ over several orders of magnitude.

3.14.1.3 Sensitive Receptors

The proposed dredging area is located in an urban, industrialized area that is separated from the closest residential area by Highway 101. Sensitive receptors include the Bridge Haven School, located approximately 0.6 mile from the proposed dredging area. The nearest residence to the proposed dredging area is approximately 0.42 mile west.

3.14.2 Regulatory Setting

3.14.2.1 Federal and State Guidance

CEQA does not specify a numerical threshold for "substantial increases" in noise, and no federal regulations that limit overall environmental noise levels are established. However, federal guidance documents address environmental noise and regulations for specific sources. The EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety in 1974 (EPA 1974), which provides information for State and local governments to use in developing their own ambient noise standards. The EPA determined that a day-night sound level of 55 dBA protects the public from indoor and outdoor activity interference.

The EPA, the Federal Highway Administration (FHWA), and the U.S. Department of Transportation (USDOT) have developed guidelines for noise (FHWA 2006; FTA 2018). The EPA established noise emission criteria and testing methods that apply to some construction and transportation equipment (portable air compressors and medium- and heavy-duty trucks).

The State of California addresses worker exposure to noise levels through the California Noise Exposure Regulations California Code of Regulations (CCR) title 8 section 5095. Adopted by the California Division of Occupational Safety and Health, these regulations limit worker exposure to noise levels of 85 dB or lower over an 8-hour period, which is consistent with federal OSHA standards. The State has not established noise exposure standards for non-workplace environments.

3.14.2.2 Regional

<u>Sonoma County General Plan 2020</u>

The following goal in the Noise Element of the Sonoma County General Plan 2020 is applicable to the Project:

> **Goal NE-1:** Protect people from the harmful effects of exposure to excessive noise and to achieve an environment in which people and land uses may function without impairment from noise. The intent of this goal is to protect persons from existing or future excessive levels of noise that interfere with sleep, communication, relaxation, health, or legally

permitted use of property. Noise-sensitive areas include residences, schools, hospitals, other medical care facilities, and other uses deemed noise sensitive by the local jurisdiction.

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

3.14.2.3 Local

City of Petaluma General Plan

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

- **Policy 10-P-3:** Protect public health and welfare by eliminating or minimizing the effects of existing noise problems, and by minimizing the increase of noise levels in the future.
- **Program D:** Continue to require control of noise or mitigation measures for any noise-emitting construction equipment or activity. The City's Noise Ordinance establishes controls on construction-related noise.

City of Petaluma Noise Ordinance

The City of Petaluma Noise Ordinance is defined in Section 21.040 of the City Zoning Code. Per section 21.040(3)(1) and 21.040(3)(7), construction and demolition activities are prohibited before 7:00 a.m. or after 10:00 p.m. daily (except Saturday, Sunday and State, Federal or Local Holidays, when the prohibited time shall be before 9:00 a.m. and after 10:00 p.m.).

The City generally limits noise generation to the limits defined in Table 3-8 at the property line per Section 21.040(4)(c).

Table 3-8 Maximum Exterior Noise Exposure (Leq, dBA)

	Time: 10 p.m. to 7 a.m. M-F	Time: 7 a.m. to 10 p.m. M-F
	10 p.m. to 8 a.m. S, S and Holidays	8 a.m. to 10 p.m. S, S and Holidays
General Plan Ambient	60	60
Cumulative period of 15 minutes or more in one hour	65	70
Cumulative period of 5 minutes or more in one hour	70	75
Cumulative period of 1 minute or more in one hour	75	80

Source: (City of Petaluma 2022)

3.14.3 Impact Analysis

Noise impact analysis is limited to the Project dredging site as the sediment transport work vessels would not create an appreciable increase in noise above baseline noise levels along the disposal routes, considering the transitory and limited duration of vessel transit activities. There would be no stationary or permanent introduction of noise from sediment transport activities. In addition, as explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review.

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

Less Than Significant Impact

Equipment that would be used for Project activities that would generate noise include the derrick crane, clamshell bucket, tugboats and support vessels. Table 3-9 provides the typical sound levels of Project equipment and the expected attenuated sound level at the nearest residence (2,200 feet) from the dredging site.

Table 3-9 Project Equipment Noise Levels

Equipment	Typical sound level (dBA) at 50 feet from source	Expected sound level (dBA) at nearest residence (2,200 feet)*
Derrick crane	88	55
Clamshell bucket	77	44
Tugboats	87	54
Support vessels	72	39

Notes: * Distance to the nearest residence
Source: (Epsilon Associates, Inc. 2006; FWHA 2006, tbl. 9.9; WKC Group, n.d.)

The highest sound level emitted by Project equipment would be from operation of the derrick crane. The typical noise level generated from operation of a derrick crane at a distance of 50 feet is approximately 88 dBA. The nearest residence is located approximately 2,200 feet from the proposed dredging area. At that distance, the noise from the operation of the derrick crane would attenuate to approximately 55 dBA with no intervening sound barriers (FTA 2018). The derrick crane would only operate for 2 hours per day for over a period of 6 days. The 55 dBA noise level at the nearest sensitive receptor is below the City of Petaluma noise standard of 60 dBA allowed in the noise ordinance. In addition, Section 21.040(5)(c) of the City of Petaluma noise ordinance exempts construction noise and noise from river operations from the zoning ordinance noise standards during the hours of 7 a.m. to 7 p.m. The noise levels generated during dredging operation would thus not exceed local standards.

The attenuated sound levels for support vessels at the nearest sensitive receptor would be 39 dBA, which would be well below the sound level of normal conversation (WKC Group, n.d.; Caltrans n.d.-b). Noise from the support vessels would be the same as that of other commercial and industrial vessels that

typically operate on the Petaluma River in the vicinity of the proposed dredging area.

The sound emitted by Project equipment operation would be short in duration and consistent with levels allowed in the City Noise Ordinance. The Project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project area in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies. By design, the permissible uses of the GI Zoning District (for Vulcan Materials property) are intended to include noise producing industrial land uses that are not located in close proximity to zoning districts with sensitive receptors and, instead, are located in proximity to other compatible noise generating land uses (i.e., Highway 101, railroad line, other compatible industrial uses, etc.).

The City of Petaluma noise ordinance (Petaluma Zoning Code Section 21.040A.(3)(a)(1)) prohibits use of construction equipment before 7 a.m. or after 10 p.m. daily (except Saturday and Sunday and state, federal or local holidays, when the prohibited time shall be before 9:00 a.m. and after 10:00 p.m.). Project construction activities would be conducted between 8 a.m. and 5 p.m., Monday through Friday, and no construction noise generating work would occur on Saturdays, Sundays, or federal holidays. As the proposed Project would generate noise during hours when construction noise is allowed by the City of Petaluma, the noise would not exceed local standards. Therefore, the impact would be less than significant.

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

Less Than Significant Impact

Project activities would occur almost entirely within the Petaluma River. Table 2-2 identifies proposed construction equipment and work vessels for the Project, and Table 3-9 identifies typical sound levels for this type of equipment. For dredging, the Project would not use a pile-driver or other equipment known for producing significant ground-borne vibrations or noise levels. In addition, vessel transport of sediment to the disposal sites would not generate excessive ground-borne vibration or noise levels. Therefore, impacts would be less than significant.

c) Be located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public

airport or public use airport and expose people residing or working in the project area to excessive noise levels?

No Impact

The nearest airport to the proposed dredging area is the Petaluma Municipal Airport, located approximately 2.5 miles northwest of the proposed dredging area. The proposed dredging area is not located within a public use airport referral area established by the Airport Land Use Commission for Sonoma County's Comprehensive Airport Land Use Plan (CALUP) (Sonoma County PRMD 2017). Therefore, no impact would occur.

3.15 POPULATION AND HOUSING

POPULATION AND HOUSING – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.15.1 Environmental Setting

The Project area consists of the dredging area and the sediment transport routes within San Francisco Bay to the disposal sites. The proposed dredging area is largely surrounded by industrial uses and the Petaluma River (see Figure 2-1 and Figure 2-2). According to Vulcan Materials, the dredging and sediment transport would not result in any increase in rock/gravel supply operations, activities that support market demand and associated development.

3.15.2 Regulatory Setting

No federal, state, or local laws related to population and housing are applicable to the Project.

3.15.3 Impact Analysis

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

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

(a-b) No Impact

The Project does not propose new homes or businesses or require extending roads or other infrastructure. In addition, the Project would not displace any housing or create long-term demand for housing. Dredging and barge transport activities would be temporary (approximately 6 days) and would not require workers to move to the area. The Project would not generate a need for additional housing, generate new permanent jobs in the region, or displace existing housing or owners/tenants. Therefore, no impacts would occur.

3.16 PUBLIC SERVICES

PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police Protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.16.1 Environmental Setting

The Project area consists of the dredging area and the barge sediment transport routes within San Francisco Bay to the disposal sites. As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review.

Fire Protection

The City of Petaluma Fire Department provides fire protection services to the Vulcan Materials property (not within the Project area). The nearest station, Station 1, is located approximately 1.75 miles to the northwest at 198 E D Street.

Police Protection

The Vulcan Materials property is served by the City of Petaluma Police Department. The nearest police station is located approximately 2.5 miles northwest of the Vulcan Materials property, at 969 Petaluma Blvd N.

Schools

The area surrounding the proposed dredging area is served by Petaluma City Schools. The nearest school is the Bridge Haven School located approximately 0.6 mile from the proposed dredging area, at 755 Baywood Drive.

Parks

The nearest park to the proposed dredging area is Shollenberger Park, which is located east at 1400 Cader Lane and along the Petaluma River. In addition, Riverview Park is located approximately 0.75 mile to the west, at 146-196 Mission Drive. Potential impacts on parks are discussed in Section 3.17 Recreation.

3.16.2 Regulatory Setting

No federal, state, or local goals, policies, or regulations related to public services are applicable to the Project.

3.16.3 Impact Analysis

a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities?

No Impact

The Project is a short-term dredging project and does not propose the construction of any residences, buildings, or other land uses that would require public services. The Project would not generate a need for any new government facilities or public services or alter existing facilities or services during or after the completion of Project activities. Therefore, no impact would occur.

3.17 RECREATION

RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
c) Would the project interfere with existing use of offshore recreational boating opportunities?	☐	☐	☒	☐

3.17.1 Environmental Setting

The Project area consists of the dredging area and the sediment transport routes in the San Francisco Bay to the disposal sites. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review.

The Petaluma River offers a variety of recreational activities such as birdwatching, boating, and fishing. There are no public boat ramps or beaches

at or in proximity to the proposed dredging area; the Petaluma Marina is located about 0.47 mile to the northwest, and the Lakeville Landing Marina is located about 3.7 mile to the southeast.

The nearest park to the proposed dredging area is Shollenberger Park, which is located on the opposite side of the River from the dredging area. Shollenberger Park is the largest city-owned park in Petaluma, at more than 160 acres, and is the city's most frequently visited park, with more than 150,000 visits per year (City of Petaluma, n.d.). The park provides several miles of popular paved and graveled paths, a fishing pier, and shore access to the Petaluma River.

3.17.2 Regulatory Setting

3.17.2.1 Federal

No federal goals, policies, or regulations related to recreation are applicable to the Project.

3.17.2.2 State

California Harbors and Navigation Code

The California Harbors and Navigation Code vests authority in California State Parks' Division of Boating and Waterways to regulate matters of navigational safety for the state's boating public. The code established a comprehensive set of state laws and regulations governing the equipment and operation of vessels on all waters of the state.

Public Trust

See Section 1.7.1 California State Lands Commission for description of common law Public Trust.

3.17.3 Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

(a-b) No Impact

The Project would not increase recreation-related navigation, create elevated use or demand on marinas in the Project region, or include the construction of any new recreational facilities. The Project's proposed dredging activities would be limited to the berth area adjacent to the Vulcan Materials property bulkhead and would only improve navigation access to this specific area. In addition, an increase in the use of recreational facilities is typically associated with a substantial increase in population or a substantial reduction in the availability of existing parks or other recreational facilities. The Project would not result in any population growth in the area, as described in Section 3.15 Population and Housing, or introduce additional recreationalists and therefore would not permanently increase the use of any existing recreational facilities. Therefore, no impact would occur.

c) Would the project interfere with existing use of offshore recreational boating opportunities?

Less Than Significant Impact

The Project's dredging activities (see Section 2.2 Marine/Riverine Components) could limit the public use of the affected stretch of the Petaluma River because recreational boating activities would be precluded within the dredging area for approximately 6 days. However, the Project would not require complete closure of the river, and recreational boats could navigate around the portion of the river that would be closed during dredging activities (see Figure 1-2). Additionally, dredging activities would be very short-term (6 days). Nonetheless, temporary impacts during dredging activities would occur due to limited navigation through a portion of the channel as previously explained.

It should also be noted that Vulcan currently offloads materials onto barges via their on-site bulkhead wall on the Petaluma River—approximately 6 barges per month, with each barge requiring approximately 8 hours to work the tide and offload. Thus, there are periods where navigation through this portion of the river is restricted during normal operating conditions. The Project's proposed

dredging is expected to reduce the number of hours for offloading materials due to improved navigation during low tide conditions.

As a condition of the lease, the applicant would be required to notify the USCG at least 15 days prior to dredging activities and post a notice to mariners of all in-water activities throughout the Project area. This would provide local marinas and mariners with adequate notice and ensure caution around the work area. The notice would reduce potential impacts as mariners would have advance notice of closures, allowing them to reschedule and/or change the location of recreational boat use and avoid Project work areas. Therefore, the impact would be less than significant.

3.18 TRANSPORTATION

TRANSPORTATION – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☐	☒
b) Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☐	☒

3.18.1 Environmental Setting

The Project area consists of the dredging area in the Petaluma River and the sediment transport routes within San Francisco Bay to the sediment disposal sites. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill (see Figure 2-3). As explained in Section 2.1.2 Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review. Vehicle access to the Vulcan Materials property is provided by Highway 101, located 500 feet west of the Project area. The Petaluma River also provides navigable access to the Vulcan Materials berth area.

Vessel traffic in the San Francisco Bay consists of inbound and outbound vessels and wholly in-Bay vessel movements. This vessel traffic includes tugs, government vessels, passenger ferry ships, commercial shipping vessels, recreational boats, commercial and sport fishing boats, board sailors, and personal watercraft.

3.18.2 Regulatory Setting

3.18.2.1 Federal

United States Coast Guard (USCG)

The USCG has authority for maritime law enforcement on the navigable waters of the United States as well as responsibilities for search and rescue. Title 33 of the Code of Federal Regulations Part 162 contains regulations for navigation by both commercial and non-commercial vessels.

Inland Navigational Rules Act of 1980

The Inland Navigational Rules Act of 1980 (Public Law 96-591, 94 Stat. 3415) and the Inland Rules (33 C.F.R. part 83) govern many rivers, lakes, harbors, and inland waterways. Directly applicable to the proposed Project is Rule 27 – Vessels Not Under Command or Restricted in Their Ability to Maneuver, which specifies lighting and safety requirements for vessels engaged in dredging or underwater operations that are restricted in their ability to maneuver.

Regulated Navigation Areas

The USCG has established regulated navigation areas (RNA) in the San Francisco Bay region to reduce vessel congestion where maneuvering room is limited. These RNAs increase navigational safety by organizing traffic flow patterns; reducing meeting, crossing, and overtaking situations between large vessels in constricted channels; and limiting vessel speed (U.S. Coast Guard 2013). The RNAs apply to all large vessels (defined as any power-driven vessels of 1,600 or more gross tons, or tugs with a tow of 1,600 or more gross tons).

Ports and Waterways Safety Act of 1972

The Ports and Waterways Safety Act of 1972 (33 U.S.C. §§ 1221–1233) authorizes the USCG to establish, operate, and maintain vessel traffic services for ports,

harbors, and other waters subject to congested vessel traffic. As a result, in 1972, the USCG established the Vessel Traffic Service (VTS) for San Francisco Bay and designated traffic lanes for inbound and outbound vessel traffic, specified separation zones between vessel traffic lanes, and set up rules to govern vessels entering and leaving ports (U.S. Coast Guard 2012). Although some small and private vessels are not required to coordinate their movements by contacting the VTS, the USCG monitors all commercial, United States Navy, and private marine traffic in San Francisco Bay and local coastal waters. VTS San Francisco averages 250 vessel movements a day (U.S. Coast Guard 2025).

The International Regulations for Preventing Collisions at Sea

The International Regulations for Preventing Collisions at Sea, also known as the Rules of the Road or International Navigation Rules, or 72 COLREGS, govern open bodies of water in which foreign shipping traffic is possible, and are a set of statutory requirements designed to promote navigational safety. These rules include requirements for navigation lights, day shapes, and steering, as well as sound signals for both good and restricted visibility. The USCG manages the regulations within the United States (33 C.F.R. Part 81).

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 established The America's Marine Highway Program, which is a Department of Transportation initiative to expand the use of waterborne transportation to relieve landside congestion and to reduce carbon emissions. The Energy Independence and Security Act defines America's Marine Highways as navigable waterways that have demonstrated the ability to provide additional capacity to relieve congested landside routes serving freight and passenger movement (USDOT 2011).

The Marine Highway Program does not develop or operate Marine Highway services. The private sector or state/local governments develop and operate Marine Highway services.

3.18.2.2 State

California Harbors and Navigation Code

The California Harbors and Navigation Code vests authority in California State Parks' Division of Boating and Waterways to regulate matters of navigational safety for the state's boating public. The code established a comprehensive set of state laws and regulations governing the equipment and operation of vessels on all waters of the state.

3.18.3 Impact Analysis

a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

No Impact

The Project would not involve any new or modified land uses that would generate vehicle trips or other features that may affect the local or regional circulation system. The Project is not expected to create a temporary source of new vehicle trips on Highway 101, Petaluma Boulevard, or Landing Way during dredging activities. All dredging activities would occur within the Petaluma River by a contractor and crew on a barge and/or support vessels. All dredged material would be transported by barges via the Petaluma River and San Francisco Bay to a sediment disposal location.

The Petaluma River is a Federal Navigation Channel that is maintained by the USACE through periodic maintenance dredging. Transit to the disposal sites would be via established navigation channels for maritime traffic—in this case, down the Petaluma River to San Pablo Bay and then transiting to either a beneficial reuse site (MWRP or CRRP), to SF-10, or to Pillar Point Harbor and then to the Ox Mountain landfill. Federal navigation channels are generally wide enough to allow the passage of vessel traffic and accommodate dredge equipment at the same time. All dredging and sediment transport activities would comply with all applicable safety and vessel traffic requirements. Transit to the disposal sites in San Francisco Bay would be via established navigation channels for maritime traffic. Transport of dredged material by truck would only occur in circumstances where debris is encountered in the dredged material and the material would need to be disposed of at the Ox Mountain landfill, and

no impacts on pedestrian and bicycle movement would occur. Landfill disposal would require one truck trip (approximately 9 miles) at most.

Therefore, there would be no impact.

b) Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact

CEQA Guidelines section 15064.3 indicates that *vehicle miles traveled* (VMTs) is the most appropriate measure for identifying transportation impacts. In December 2018, the Governor's Office of Planning and Research (now known as the Office of Land Use and Climate Innovation) provided an updated technical advisory to help evaluate transportation impacts under CEQA. In particular, the technical advisory screening threshold for small projects states that projects generating or attracting fewer than 110 one-way automobile trips per day may generally be assumed to cause a less than significant transportation impact (OPR 2018) .

As noted in impact a, all dredging activities would occur within the Petaluma River by a contractor and crew on a barge and/or support vessels. The crew would arrive at the dredging area via small support vessel, and barges and support vessels would moor at the existing bulkhead wall (berth area). Transport of dredged material by truck would only occur in circumstances where debris is encountered in the dredged material and the material would need to be disposed of at the Ox Mountain landfill. Landfill disposal would require one truck trip (approximately 9 miles) at most. Therefore, the impact would be less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact

In addition to the information in impact a, above, all Project activities would occur in-water and would be compatible with existing uses in the Project area (see Section 3.12 Land Use and Planning). During dredging activities, notification

and control of river traffic would be through USCG notification, at least 15 days prior to dredging activities as well as posting a notice to mariners of all in-water activities. This would provide local marinas and mariners with adequate notice and ensure caution, including rescheduled or changed location for recreational boat use to avoid the dredging work area and sediment transport routes. Therefore, the impact would be less than significant.

d) Result in inadequate emergency access?

No Impact

As noted in Section 3.10.3 Hazards and Hazardous Materials, Project activities would not require road closures and would not obstruct any major arterial roadways, as all proposed work activities would occur within the river. In the event of an emergency, Project barges would either temporarily cease operations or avoid the established ferry lanes that could be used for emergency evacuations. Therefore, no impact would occur.

3.19 UTILITIES AND SERVICE SYSTEMS

UTILITIES AND SERVICE SYSTEMS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and	☐	☐	☐	☒

UTILITIES AND SERVICE SYSTEMS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
reduction statutes and regulations related to solid waste?				

3.19.1 Environmental Setting

The Project area consists of the dredging area in the Petaluma River and the sediment transport routes within San Francisco Bay to the sediment disposal sites. The Project would not include activities or permanent components that would require new or expanded water, wastewater treatment, stormwater drainage, electrical power, or telecommunications facilities; therefore, these service systems are not discussed in this section.

Solid Waste

Locations of the dredged material placement sites are shown in Figure 2-3. Only one of the in-Bay or beneficial reuse sites would be selected for sediment disposal, which could also include sediment transport to Pillar Point Harbor for disposal of debris to the Ox Mountain Landfill. As explained in Section 2.1.2, Sediment Placement (Disposal) Sites, the sediment disposal sites have existing state and federal authorization for sediment disposal, and the Project's associated disposal activities at those sites are not subject to further CEQA review. All debris encountered during dredging operations would be removed and disposed of at the Ox Mountain Landfill site (see Section 2.1.2.3 Landfill Disposal). Project dredging would be characterized as new work, and dredge materials would only be authorized to be placed at the disposal sites authorized by the DMMO or the Ox Mountain Landfill site, depending on the quality of the material.

3.19.2 Regulatory Setting

No federal or state regulations or policies pertaining to utilities and service systems are relevant to the Project.

Dredge Material Management Office

See Section 3.10.2.2 Regional – Dredged Material Management Office for regulatory information.

3.19.3 Impact Analysis

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

(a-c) No Impact

The Project would not require any line power during dredging activities. The Project would not include activities or permanent components that would require new or expanded water, wastewater treatment, stormwater drainage, electric power, or telecommunications facilities. The Project does not require the use of water for dust control or other traditional construction-related services and is not a commercial or residential project that would require ongoing water supplies. There would be no water demand associated with the Project. Finally, the Project would not require new or expanded wastewater service connections and would not impact the wastewater treatment system. Therefore, no impacts would occur.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact

The Project would result in the removal of approximately 2,519 cubic yards of dredged materials. All dredged materials would be removed and disposed of at DMMO-approved locations. For the Project's proposed new dredging, the

Applicant has completed the DMMO process as explained in Section 2.1.2 and Appendix C. Any future maintenance dredging events would be subject to prior DMMO authorization for continued use of the sediment disposal sites, among other DMMO requirements.

Only material (e.g., debris) that is unsuitable for disposal at the DMMO-authorized disposal sites would be sent to Ox Mountain Landfill. If unsuitable material is encountered during dredging, it would be a very small volume that would not adversely affect the capacity of Ox Mountain Landfill. Therefore, the impact would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact

Only material (e.g., debris) that is unsuitable for disposal at the DMMO-authorized disposal sites would be sent to Ox Mountain Landfill in accordance with applicable solid waste laws, ensuring no conflicts with solid waste regulations. Once dredging activities are completed, no solid waste would be generated. Therefore, there would be no impact.

3.20 WILDFIRE

WILDFIRE - Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

3.20.1 Environmental Setting

The Project area consists of the dredging area and the sediment disposal routes in San Francisco Bay to the disposal sites. The California Department of Forestry and Fire Protection (CAL FIRE) Forest Resource Assessment Program has published maps that delineate Very High Fire Hazard Severity Zones in SRAs and

LRAs. Based on mapping by CAL FIRE, the proposed Project is not located in or within the vicinity of an SRA (CAL FIRE n.d.).

3.20.2 Regulatory Setting

No federal, state, or local laws and regulations pertaining to wildfire are relevant to the Project.

3.20.3 Impact Analysis

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment?

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

(a-d) No Impact

The Project is not located in or near a fire hazard severity zone or a state responsibility area and contains no terrestrial construction activities. For discussions on emergency response plans and emergency evacuations, see Sections 3.10 Hazards and Hazardous Materials and 3.18 Transportation. Therefore, there would be no impact.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE –	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present, and probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse	☐	☐	☒	☐

MANDATORY FINDINGS OF SIGNIFICANCE –	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
effects on human beings, either directly or indirectly?				

3.21.1 Impact Analysis

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact

As explained in the Environmental Setting section for Biological Resources, Cultural Resources, and Tribal Cultural Resources, the Project's potential impacts to these resources is limited to proposed dredging activities at the dredging area. As described in Section 3.4 Biological Resources, dredging activities could temporarily increase river turbidity. Increased turbidity levels associated with in-water dredging activities would be minor, short-term, and generally limited to the dredging area vicinity. Following construction, sediments would disperse, and background levels would be restored within hours of disturbance. In addition, normal circulation and strong currents rapidly circulate and disperse water temporarily affected by construction activities. Turbidity would disperse within a matter of hours, and the particulate concentrations would be diluted to levels that would pose no major threat to water quality or aquatic wildlife. Furthermore, the Project's in-water work would be conducted during the NMFS-approved work window (September) to avoid impacts to special status species. The Project would not adversely affect fish or wildlife habitat, nor would the Project initiate direct effects that could cause a fish or wildlife population to drop below self-sustaining levels, and impacts would be less than significant.

No listed or known potential NRHP and/or CRHR resources are located within or adjacent to the APE (Appendix B). No other significant or potentially significant

local, state, or federal cultural resources, historic properties, landmarks, or points of interest have been identified within or adjacent to the APE. The APE was determined to have a very low sensitivity for the presence of archaeological resources and/or tribal cultural resources based on the available archival data, historic maps, and environmental review associated with prior dredging and construction activities associated with USACE dredging of the federally maintained channel for the Petaluma River. The Project would only dredge the sediment that has naturally accumulated in the river adjacent to the existing bulkhead wall and would not dredge deeper than 8 feet below MLLW plus 1-foot over depth for consistency with USACE dredging of the federally maintained channel. The proposed sediment to be removed by the Project is expected to be naturally accumulated in the past decades, so the presence of historical resources is not expected. Furthermore, with the main channel of the Petaluma River periodically dredged by the USACE, archeological resources are not expected to occur in the Project vicinity (Basin Research Associates 2024). No impacts to examples of California history or prehistory would be expected to occur.

b) Does the project have impacts that would be individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less Than Significant Impact

The Project is designed to keep the facilities functioning and does not change the existing use of the facilities or increase capacity. As described herein, the Project would not result in significant impacts on any resources.

A review of the projects proposed in or approved by the City of Petaluma identified several planned and approved housing developments located along the Petaluma River. However, none of the projects currently in planning or recently approved are within 1 mile of the proposed dredging area. In addition, none of the projects involve in-water work. Even though the timing for construction of these projects may overlap with the timing of the proposed Project, the combined effects of these projects and the proposed Project would not result in cumulatively considerable impacts due to the different nature of the

on-land construction activities and distance from the proposed dredge area of over 1 mile.

In addition, the USACE periodically dredges the federally maintained channel of the Petaluma River and is scheduled to undertake dredging activities between August through November 2025 (USACE and SF Bay RWQB 2024). As described in Section 2.4 Work Schedule, no Project dredging activities would occur within 1 week (before or after) or within 0.5 mile of USACE dredging activities for the Petaluma River main channel. This Project feature provides temporal and spatial separation between both dredging activities to allow each Project's effects on turbidity, air emissions, noise, biological resources, public recreation, and navigation to return to baseline conditions prior to the next event. The USACE dredging work window is from August through November 2025 and, when compared to the short duration (6 days in September) and small area and volume of dredging activities (0.5 acres/2,519 CY) at the Vulcan Materials Project area, it is anticipated that the two dredging events would have an even greater temporal and spatial separation than one week or occurrences within 0.5 mile. As a beneficial impact, proposed dredging with the Project, in conjunction with periodic USACE dredging of the river channel, could contribute to increased channel volume for enhanced capacity of high river levels, which could minimize localized flooding.

Therefore, potential adverse cumulative impacts would be less than significant.

c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact

Consideration of Project impacts on human beings (directly or indirectly) is considered in the context of all affected resources throughout Sections 3 and 4 of this document, including impacts that may affect resources used or enjoyed by the public, residents, and others in the Project area (such as aesthetics, public services, and recreation); those that are protective of public safety and well-being (such as air quality, geology and soils, GHG emissions, hydrology, and water quality, and noise); and those that address community character and essential infrastructure (such as land use and planning, population and housing, transportation, and utilities). None of these analyses identified a potential substantial adverse effect on human beings. Proposed dredging would reduce

hazards with accumulated sediment to improve navigational safety for work vessels using the berth area for loading/offloading of rock materials at the Vulcan Materials property. An objective of proposed dredging includes ensuring reliable movement of goods for the benefit of local and regional economic growth and market demand for the rock materials. Therefore, impacts would be less than significant.

4.0 OTHER COMMISSION CONSIDERATIONS

In addition to the environmental review required pursuant to the California Environmental Quality Act (CEQA), a public agency may consider other information and policies in its decision-making process. This section presents information relevant to the California State Lands Commission's (CSLC's or Commission's) consideration of the Project. The considerations addressed below are:

- Climate change and sea level rise
- Commercial and recreational fishing
- Environmental justice
- Significant Lands Inventory

Other considerations may be addressed in the staff report presented at the time of the Commission's consideration of the Project.

4.1 CLIMATE CHANGE AND SEA LEVEL RISE

The proposed dredging Project would dredge sediment that has naturally accumulated in the Petaluma River adjacent to the existing bulkhead wall on the riverfront of the Vulcan Materials property. Dredging is required and necessary to provide adequate depth and safe navigation and approach for work vessels to utilize the berth area adjacent to the bulkhead wall for loading/offloading of rock materials. Dredging supports many activities consistent with the Public Trust, including navigation, recreation, public access, natural resources restoration, and reducing flood risk.

Climate change impacts, including sea level rise, more frequent and intense storm events, and increased flooding and erosion, affect both open coastal areas and inland waterways in California. The dredging area, located on the Petaluma River, is a tidally influenced site vulnerable to flooding at current sea levels and at a higher risk of flood exposure given projected scenarios of sea level rise.

The California Ocean Protection Council updated the State of California Sea Level Rise Guidance in 2024 to provide a synthesis of the best available science

on sea level rise projections and rates for multiple emissions scenarios. Commission staff evaluated the "intermediate-high" and "high" scenarios due to the vulnerability and exposure of the Project site and the continued global reliance on fossil fuels. The San Francisco tide gauge was used for the projected sea level rise scenario for the region, as listed in Table 4-1.

Table 4-1 Projected Sea Level Rise for San Francisco

Year	Intermediate-High (feet)	High (feet)
2040	0.7	0.8
2050	1.0	1.3
2070	2.2	2.9
2100	4.8	6.5

Source: Table 12, State of California Sea Level Rise Guidance: 2024 Update
Note: Projections are with respect to a 2000 baseline.

In addition to rising seas, warmer temperatures have led California to experience a megadrought from 2000 to 2022, measured as the driest 22 years in the past 1200 years, and more megadroughts are projected through the end of the century (U.S. Global Change Research Program 2023). Despite the region's increasing aridity, flooding from extreme precipitation events is projected to increase, attributed to earlier snowmelt, sea level rise, and more intense and frequent atmospheric rivers. Minor and moderate flooding (flooding events defined as disruptive to damaging), attributed to higher water levels, is expected to increase five to ten orders of magnitude by 2100, according to NOAA's 2022 Sea Level Rise Technical Report (NOAA 2022).

The combination of these projected conditions could increase the likelihood of damage to lease area structures (i.e., bulkhead wall) and affect access to the berth area during the term of the lease. For example, the potential for more frequent and stronger storm events may expose the bulkhead wall to higher flood risks and cause it to be damaged or dislodged, presenting hazards to public safety as well as dangers for navigation within the channel. Conversely, prolonged drought conditions could lower water levels, exposing the previously submerged portion of the bulkhead to the elements and potentially leading to increased wear and tear on the bulkhead wall for the berth area that also protects the upland property from erosion.

The bulkhead wall is fixed and therefore more vulnerable to sea level rise and more frequent flood events. It may need increased maintenance, due to increased flood exposure and more frequent storm events, to ensure it does not become dislodged or degraded and to reduce risks to public safety and navigation. Regular inspection and maintenance will help reduce the likelihood of severe structural degradation or dislodgement of the bulkhead wall.

4.2 COMMERCIAL AND RECREATIONAL FISHING

As described in Section 3.17 Recreation, proposed dredging activities would temporarily limit the public use of the Petaluma River in the vicinity of the proposed dredging area, because a portion of the river would not be available for fishing while barges are present. Further, fish are expected to temporarily avoid the area of dredging due to increased turbidity and vibration from equipment. Recreational fishing activities in the Project area vicinity may be affected for approximately 6 days in September. Commercial fishing is not anticipated in the general vicinity of the proposed dredging area in the Petaluma River as most commercial fishing occurs in San Francisco Bay. Transport of the dredged material on barges would not affect commercial fishing operations in the Bay due to the large area and because the barges would travel along established routes. Given the short duration and limited number of vessel trips (maximum of 4) to a sediment disposal site and the use of existing navigation lanes by vessels operating in San Francisco Bay, Project effects on recreational fishing would be negligible. There would be no Project effects on commercial fishing.

The Applicant is required to notify the USCG at least 15 days prior to dredging activities and post a notice to mariners of all in-water activities. This would provide local marinas and mariners with adequate notice and ensure caution around the work area buffer. The notice would reduce potential Project impacts as mariners would have advance notice of work activities, allowing them to reschedule and/or change the location of recreational boat use.

4.3 ENVIRONMENTAL JUSTICE

In keeping with its commitment to environmental sustainability and fair treatment for all, California was one of the first states to codify the concept of environmental justice in statute (Gov. Code sec. 65040.12(e)). Beyond the fair-treatment principles described in statute, the CSLC staff would like to include

individuals disproportionately affected by a proposed project's effects in the decision-making process for that project. The goal is that, through equal access to the decision-making process, everyone has equal protection from environmental and health hazards and can live, learn, play, and work in a healthy environment.

In 2016, SB 1000 was enacted to require local governments with disadvantaged communities, as defined in statute, to incorporate environmental justice into their general plans when two or more general plan elements (sections) are updated. The Governor's Office of Land Use and Climate Innovation (formerly the Office of Planning and Research, the lead state agency on planning issues) has worked with state agencies, local governments, and many partners to update the General Plan Guidelines to include guidance for communities on environmental justice elements (California Governor's Office of Planning and Research 2017).

Environmental justice is defined by California law as "the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Government Code Section 65040.12[e]). This definition is consistent with the Public Trust Doctrine principle that the management of trust lands is for the benefit of all people. The CSLC adopted an Environmental Justice Policy in December 2018 (Item 75, December 2018) to ensure that environmental justice is an essential consideration in CSLC's processes, decisions, and programs. Through its policy, CSLC reaffirms its commitment to an informed and open process in which all people are treated equitably and with dignity, and in which its decisions are tempered by environmental justice considerations. Among other goals, the policy commits CSLC to "strive to minimize additional burdens on and increase benefits to marginalized and disadvantaged communities resulting from a proposed project or lease" (California State Lands Commission (CSLC) 2018).

4.3.1.1 Population and Economic Characteristics

From a regional standpoint, the census tract containing the proposed dredging area (Census Tract 1506.12) has the highest median household income ($128,162) compared to the State of California, Sonoma County, and the City of Petaluma. Residents of Census Tract 1506.12 are supported primarily by employment in educational services, health care, and social assistance (U.S.

Census Bureau 2021a). With respect to populations living below the established poverty level, Sonoma County and Census Tract 1506.12 each have lower percentages (8.8 percent or less) than the State of California as a whole (12.6 percent).

4.3.1.2 California Office of Environmental Health Hazard Assessment CalEnviroScreen Results

The CSLC Environmental Justice Policy uses the term *disadvantaged community* to encompass not only the definitions contemplated by SB 1000 but also to include other low-income and minority populations that are disproportionately burdened by or less able to prevent, respond, and recover from adverse environmental impacts. To identify these communities, CalEPA developed CalEnviroScreen and designated the highest scoring 25 percent of census tracts as disadvantaged communities. The overall CalEnviroScreen score is calculated by multiplying the Pollution Burden and Population Characteristics scores. Since each group has a maximum score of 10, the maximum CalEnviroScreen Score is 100 (OEHHA 2021).

Dredging Area

Census Tract 1506.12 has a CalEnviroScreen 4.0 percentile score of 25, meaning that it scores better than three-quarters (75 percent) of all census tracts statewide. For pollution burden, this tract scores in the 63rd percentile, meaning that it has a higher overall pollution burden than about two-thirds of all census tracts statewide. The tract's primary exposures to pollution come from pesticides and traffic (i.e., exhaust from vehicles containing a large number of toxic chemicals, including oxides of nitrogen, carbon monoxide, and benzene). For both of these pollution exposure indicators, this census tract scored worse than two-thirds of all census tracts statewide, suggesting that these are the primary pollutant exposures of concern. The next highest exposure indicators were drinking water and toxic releases, for which this tract scored worse than only one-third of all census tracts statewide, suggesting that these are exposures of concern, but not disproportionately high compared to other areas of the state. For ozone, particulate matter, and lead from housing, this tract scored better than 85 to 90 percent of all tracts statewide, suggesting that these are minor exposures for this location. According to CalEnviroScreen, about 81 percent of the residents of Census Tract 1506.12 are white, 11 percent are Latino, 4 percent

are Asian American, and the remaining 4 percent are identified as "other/multiple races."

Barge Sediment Transport Routes

The census tracts covering the potential barge sediment transport routes are ordered from highest to lowest, based on their overall CalEnviroScreen score. A percentile for the overall score is then calculated from the ordered values. Table 4-2, below, lists the disadvantaged communities (defined as the highest scoring 25 percent of census tracts statewide) in the vicinity of the Project barge sediment transport routes along with their CalEnviroScreen scores and percentiles.

Table 4-2 SB 535 Disadvantaged Communities in the Vicinity of the Barge Sediment Transport Routes

	Approximate location	CalEnviroScreen score	CalEnviroScreen score percentile
Tract 2508.01	Unincorporated Solano County area	48.52	86.18
Tract 3580	Rodeo	49.34	87.24
Tract 179.03	San Francisco (Treasure Island)	50.63	88.5

(OEHHA 2022)

4.3.1.3 Conclusion

With more than 80 percent white residents and a median income nearly 150 percent that of Sonoma County, Census Tract 1506.12 does not represent a disadvantaged or low-income community, nor is it a disadvantaged community based on its CalEnviroScreen score. Therefore, the Project would not have a disproportionate adverse impact on a low-income or disadvantaged community.

4.4 SIGNIFICANT LANDS INVENTORY

The Project includes submerged lands identified as possessing significant environmental values as the entire Petaluma River is listed within the CSLC's Significant Lands Inventory, pursuant to Public Resources Code Section 6370 et seq. (CSLC 1975). The Petaluma River is in the Significant Lands Inventory as Parcel Number 21-095-000, which includes the submerged land in the Petaluma

River within the ordinary high-water mark. The subject lands are classified in use category Class B, which authorizes limited use. Environmental values identified for these lands include geological, biological (wildlife spawning and support), scenic, archaeological and historical, and recreational values.

Based on the CSLC staff's review of the Significant Lands Inventory and the CEQA analysis provided in this IS/ND, the Project, as proposed, would not significantly affect those lands and is consistent with the use classification.

5.0 IS/ND PREPARATION SOURCES AND REFERENCES

This Initial Study/Negative Declaration (IS/ND) was prepared by the staff of the CSLC Division of Environmental Science, Planning, and Management (DESPM), with the assistance of Panorama Environmental. The analysis in the IS/ND is based on information identified, acquired, reviewed, and synthesized based on DESPM guidance and recommendations.

5.1 CALIFORNIA STATE LANDS COMMISSION STAFF

Jason Ramos, Project Manager, Senior Environmental Scientist, DESPM
Nicole Dobroski, Chief, DESPM
Alexandra Borack, Assistant Chief, DESPM
Yessica Ramirez, Tribal / Environmental Justice Liaison, Executive Office
Andrew Kershen, Staff Attorney, Legal Division

5.2 SECTION AUTHORS AND REVIEWERS

Susanne Heim, Principal, Panorama Environmental, Inc., Project Description and QA/QC

Garett Peterson, Environmental Planner III, Panorama Environmental, Inc., Biological Resources, Geology, Soils, and Paleontological Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation, Utilities and Service Systems, Wildfire, Mandatory Findings, Climate Change and Sea Level Rise, Commercial and Recreational Fishing, Environmental Justice, Significant Lands Inventory

Lacar Musgrove, Environmental Planner, Panorama Environmental, Inc., Aesthetics, Agriculture and Forestry Resources, Air Quality, Cultural Resources, Energy, Greenhouse Gas Emissions, Noise

Dennis Kearney, Senior Consultant, Panorama Environmental, Inc., Reviewer

Colin Buby, Archaeologist, Basin Research Group, Archaeological Inventory

Daniel Jones, Meteorologist, RCH Group, Air Quality Modeling

5.3 REFERENCES CITED

Basin Research Associates. 2024. "Archaeological Review – In Support of Vulcan Materials Dredging Permit Application, 210 Landing Way, Petaluma, Sonoma County." Memorandum.

Bay Area Air Quality Management District (BAAQMD). 2017a. "Air Quality Standards and Attainment Status." January 5, 2017. https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status.

———. 2017b. "Air Quality Standards and Attainment Status." January 5, 2017. https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status.

———. 2017c. *Spare the Air: A Blueprint for Clean Air and Climate Protection in the Bay Area*. Available: https://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans.

———. 2022a. *California Environmental Quality Act Air Quality Guidelines.*. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

———. 2022b. "Chapter 3 Thresholds of Significance." In *California Environmental Quality Act Air Quality Guidelines*. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

Biological Monitoring and Assessment Specialists, Inc. (BioMaAS). 2020. "Paleontological Resource Assessment for Pacific Gas and Electric Company, R-708 Pipeline Replacement at Petaluma River, Petaluma, Sonoma County, California."

Blake, James A., W.H. Moshiri, and R.D. Maciolek. 1996. "Effects of Dredging on Benthic Infauna and Habitat: Cape Cod Canal and New Bedford Harbor, Massachusetts." Prepared for U.S. Army Corps of Engineers, New England District: Coastal Resource & Environmental Services.

Boudreau Associates LLC. 2012. "Environmental Assessment, Issuance of an Incidental Harassment Authorization to America's Cup Event Authority and Port of San Francisco to Take Marine Mammals by Harassment Incidental to Construction and Race Event Activities for the 34th America's Cup in San Francisco Bay, California." https://repository.library.noaa.gov/view/noaa/10864.

———. 2023. *Vulcan Landing Way Pier Dredging and Maintenance DMMO Joint Permit Application*.

California Air Pollution Control Officers Association. 2024. "Vulcan Landing Dredging and Maintenance v2 Custom Report." Generated June 21, 2024 using CalEEMod® https://www.caleemod.com/.

California Air Resources Board (CARB). 2008. *Climate Change Scoping Plan*. Pursuant to AB 32 The California Global Warming Solutions Act of 2006. https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/document/adopted_scoping_plan.pdf.

———. 2021. *EMFAC2021 Volume I – User's Guide*. https://ww2.arb.ca.gov/our-work/programs/msei/emfac2021-model-and-documentation.

———. 2022. *2022 Scoping Plan for Achieving Carbon Neutrality*. [Online]. https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents.
———. n.d.-a. "CARB Identified Toxic Air Contaminants." Accessed June 27, 2024. https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants.
———. n.d.-b. "GHG Global Warming Potentials." Accessed October 30, 2024. https://ww2.arb.ca.gov/ghg-gwps.
California Departent of Fish and Wildlife (CDFW). n.d. "Quagga and Zebra Mussels Incident Description." Accessed December 30, 2024.
California Department of Conservation (CDOC). 2012. "Fault Activity Map of California." Map service. Vecgtor digital data. "Fault Zones: Vulcan Landing Drediing and Maintenance" created by Panorama Environmental, Inc.: Using Arc GIS (June 10, 2024). Last updated April 11, 2022. https://hub.arcgis.com/datasets/510bf02ccc9543f99b625551a3e7c7d0/data?layer=21.
———. 2018. "Farmland of Local Importance." Available: https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx.
California Department of Conservation (CDOC), Division of Land Resource Protection, and Farmland Mapping and Monitoring Program. 2016. "California Important Farmland: Most Recent." Map service. Vector digital data. "Agriculture and Forestry: Vulcan Landing Dredging and Maintenance" created by Panorama Environmental, Inc.: Using Arc GIS Online (June 6, 2024). Last updated June 7, 2016. https://hub.arcgis.com/maps/99a6a743fb0241efab22f0b19668b4ba/about.
California Department of Fish and Wildlife (CDFW). 2018. "Longfin Smelt." January 3, 2018. https://wildlife.ca.gov/Conservation/Fishes/Longfin-Smelt.
———. n.d.-a. "California Natural Diversity Database." Accessed December 31, 2024. https://wildlife.ca.gov/Data/CNDDB.
———. n.d.-b. "California's Invaders: Golden Mussel." Accessed December 30, 2024. https://wildlife.ca.gov/Conservation/Invasives/Species/Golden-Mussel.
California Department of Forestry and Fire Protection (CAL FIRE). n.d. "Fire Hazard Severity Zones Maps." Accessed June 30, 2024. https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-maps-2022.
California Department of Parks and Recreation, Office of Historic Preservation (Cal/OHP). 1973a. *The California History Plan*. Vol. 1. 2 vols.

———. 1973b. *The California History Plan*. Vol. 2. 2 vols.
———. 1988. *Five Views: An Ethnic Sites Survey for California*.
———. 2024a. "Archeological Determinations of Eligibility for Sonoma County." Viewed as part of CHRIS/NWIC File No. 23-175. Dated June 28, 2024.
———. 2024b. "California Historical Resources – Sonoma County." Tabular data. Including National Register, State Landmark, California Register, and Point of Interest. Accessed June 5, 2024. http://ohp.parks.ca.gov/ListedResources/?view=county&criteria=49.
———. 2024c. "Office of Historic Preservation Built Environment Resources Directory (BERD) for Sonoma County Web, Accessed 6/05/2024." Online database. Tabular data. Includes National Historical Landmarks, National Register of Historic Places, Federal (Agency Nominations, California Register of Historical Resources, California Historical Landmarks and California Points of Historical Interest listings. Accessed June 5, 2024.
California Department of Toxic Substances Control (DTSC). n.d. "EnviroStor Map." Accessed May 30, 2025. https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=210+Landings+way%2C+Petaluma%2C+CA.
California Department of Transportation (Caltrans). 2019. "List of Designated and Eligible Routes." XLXS. Tabular data. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways.
———. 2021. "Vistas." Feature layer. Vector digital data. "Vulcan Dredging Nearest Scenic Vistas" created by Panorama Environmental, Inc.: Using Arc GIS Online May 31, 2024. Lsat updated February 16, 2022. https://www.arcgis.com/home/item.html?id=56afa8c826fc4bc0af3b6bf1cd7d5c2a.
———. n.d.-a. "California State Scenic Highway System Map." Online map viewer. Accessed May 31, 2024. https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa.
———. n.d.-b. "Typical Noise Levels." Accessed June 21, 2024. https://dot.ca.gov/programs/maintenance/pavement/noise-levels.
California Energy Commission (CEC) and California Public Utilities Commission (CPUC). 2005. *Energy Action Plan II - Implementation Roadmap for Energy Policies*. https://docs.cpuc.ca.gov/word_pdf/REPORT/51604.pdf.
———. 2008. *2008 Update Energy Action Plan*. Available: https://www.cpuc.ca.gov/industries-and-topics/natural-gas/energy-action-plans.
California Geologic Energy Management Division. n.d. "Well Finder." Accessed June 26, 2024. https://maps.conservation.ca.gov/doggr/wellfinder/.

California Geological Survey (CGS). 2002. "Note 36: California Geomorphic Provinces." https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-36.pdf.

———. 2021. "CGS Alquist Priolo Fault Zones." Feature service. Vector digital data. "CGS Alquist Priolo Fault Zones: Vulcan Landing Dredging and Maintenance" created by Panorama Environmental, Inc.: Using Arc GIS Online (June 9, 2024). Last updated February 21, 2024. https://cadoc.maps.arcgis.com/home/item.html?id=29d2f0e222924896833b69ff1b6d2ca3.

———. n.d. "CGS Information Warehouse: Mineral Land Classification." Accessed June 26, 2024. https://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/.

California Governor's Office of Emergency Services (CalOES). 2014. *Cal OES Fire and Rescue Assistant Chief Manual*. https://www.caloes.ca.gov/wp-content/uploads/Fire-Rescue/Documents/CalOES_-_Fire_and_Rescue_-_Assistant_Chief_Manual.pdf.

California Governor's Office of Planning and Research. 2017. "Section 4.8: Environmental Justice Element." In *State of California General Plan Guidelines*. California Governor's Office of Planning and Research. https://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf.

California Governor's Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

California Native Plant Society. n.d. "CNPS Inventory of Rare Plants." California Native Plant Society. Accessed December 31, 2024. https://www.cnps.org/rare-plants/cnps-inventory-of-rare-plants.

California State Lands Commission (CSLC). 1975. *Inventory of Unconveyed State School Lands and Tide and Submerged Lands Possessing Significant Environmental Values*. https://www.slc.ca.gov/land-types/inventory-of-unconveyed-state-school-lands-and-tide-and-submerged-lands-possessing-significant-environmental-values/.

———. 2016. "Tribal Consultation Policy." https://www.slc.ca.gov/Meeting_Summaries/2016_Documents/08-09-16/Items_and_Exhibits/61.pdf.

———. 2018. "Environmental Justice Policy." In .

———. 2023. *Initial Study and Mitigated Negative Declaration for the PG&E Line 021G Replacement Project Across the Petaluma River*.

California State Water Resources Control Board (SWRCB). n.d.-a. "2024 Integrated Report." Accessed December 30, 2024. https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2024-integrated-report.html.

———. n.d.-b. "GeoTracker." Accessed May 30, 2025. https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=210+Landings+Way%2C+Petaluma+CA.

California Wetlands Monitoring Workgroup (CWMW). n.d. "EcoAtlas: Bay/Delta - Map." Accessed December 30, 2024. https://ecoatlas.org/regions/ecoregion/bay-delta.

Caliifornia Department of Fish and Wildlife (CDFW). 2025. "Natural Communities List." Retrieved from: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities.

City of Petaluma. 2022. "City of Petaluma Noise Ordinance Section 21.040(4)(c)." Petaluma Municipal Code. 2022. https://petaluma.municipal.codes/ZoningOrds/21.040.

———. n.d. "Shollenberger Park." Accessed June 26, 2024. https://cityofpetaluma.org/shollenberger-park/.

Contra Costa County. 2015. *Contra Costa County Climate Action Plan*. Available: https://www.contracosta.ca.gov/8681/2015-Climate-Action-Plan.

———. 2024. *Contra Costa County Climate Action and Adaptation Plan 2024 Update*. Available: https://www.contracosta.ca.gov/8678/Climate-Action-Plan.

County of Marin. 2020. *Marin County Unincorporated Area Climate Action Plan 2030*. Available: https://www.marincounty.gov/departments/cda/sustainability/climate-action-plan/climate-action-plan-2030.

County of Solano. 2011. *Climate Action Plan*. https://www.solanocounty.com/civicax/filebank/blobdload.aspx?BlobID=10080.

Epsilon Associates, Inc. 2006. "Attachment J - Noise Impact Assessment." In *Hudson River PCBs Superfund Site Phase 1 Final Design Report*. Abany, NY: Prepared for General Electric Company. https://www3.epa.gov/hudson/pdf/2006_03_21%20Phase%20I%20FDR%20ATTACHMENT%20J.pdf#page=4.09.

Federal Emergency Management Agency (FEMA). 2025. "National Flood Hazard Layer FIRMette." FEMA Flood Map Service Center. Retrieved from: https://msc.fema.gov/portal/home.

Federal Highway Administration (FHWA). 2006. *FHWA Highway Construction Noise Handbaook*. Final Report, FHWA-HEP-06-015; DOT-VNTSC-FHWA-06-02; NTIS No. PB2006-109012. Prepared for: U.S. Department of Transportation, Federal Highway Administration, Office of Natural and Human Environment.

Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. Available:

https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123.

Hobbs, James, and Peter Moyle. 2015. "Last Days of the Longfin?" Water. September 8, 2015. https://deeply.thenewhumanitarian.org/water/community/2015/09/08/last-days-of-the-longfin.html.

Kleinfelder. 2023. "Updated Geotechnical Investigation Report (Revision 2), Pacific Gas and Electric Company, R-708 Pipeline Replacement at Petaluma River, Petaluma, California."

Klimley, Peter, Denise Tu, Alex Hearn, William Brostoff, Peter LaCivita, Allison Bremner, and San Francisco. 2010. "Juvenile Salmonid Outmigration and Distribution in the San Francisco Estuary:," January.

Leidy, Robert A. 2000. "Steelhead – Central California Coast ESU and Central Valley ESU."

Metropolitan Transportation Commission (MTC). 2018. *San Francisco Bay Area Regional Transportation Emergency Management Plan – 2018 Update*. https://mtc.ca.gov/sites/default/files/MTC%20Bay%20Area%20RTEMP%202018%20Update.pdf.

National Marine Fisheries Service. 2015. "Biological Opinion on the Long-Term Management Strategy for Placement of Dredged Material in the San Francisco Bay Region." https://www.spn.usace.army.mil/Portals/68/docs/Dredging/LMTS/LTMS%20NMFS%20BiOp%207_9_2015.pdf.

National Marine Fisheries Service (NMFS). 2005. "Endangered and Threatened Species: Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California" 70 (170). https://www.federalregister.gov/documents/2005/09/02/05-16389/endangered-and-threatened-species-designation-of-critical-habitat-for-seven-evolutionarily.

———. 2014. *Petaluma Watershed Steelhead Monitoring Report: 2013-2014 Spawning Surveys*. https://doi.org/10.13140/RG.2.1.1049.1921.

National Oceanic and Atmospheric Administration. 2022. *2022 Sea Level Rise Technical Report*. https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html.

Newell, R.C, D.R Hitchcock, and L.J. Seiderer. 1998. "The Impact of Dredging Works in Coastal Waters: A Review of the Sensitivity to Disturbance and Subsequent Recovery of Biological Resources on the Sea Bed." In *Oceanography and Marine Biology*. CRC Press.

Office of Environmental Health Hazard Assessment (OEHHA). 2021. *CalEnviroScreen 4.0*. California Environmental Protection Agency. Available: https://oehha.ca.gov/calenviroscreen/about-calenviroscreen.

———. 2022. "SB 535 Disadvantaged Communities 2022 (Tribal Update 2024) - Overview." Using Arc GIS Online (March 21, 2025). Last updated September 27, 2024. https://www.arcgis.com/home/item.html?id=15b93bb7650943dab83038359b6240ec.

Petaluma Valley Groundwater Sustainability Agency. 2022. *Groundwater Sustainability Plan for the Petaluma Valley Groundwater Basin*. https://petalumavalleygroundwater.org/gsp/.

Regional Climate Protection Authority (RCPA). 2016. *Climate Action 2020 and Beyond: Regional Climate Action Plan for Sonoma County*. Available: https://rcpa.ca.gov/what-we-do/climate-action-2020/.

Rosenfield, Jonathan A., and Randall D. Baxter. 2007. "Population Dynamics and Distribution Patterns of Longfin Smelt in the San Francisco Estuary." *Transactions of the American Fisheries Society* 136 (6): 1577–92. https://doi.org/10.1577/T06-148.1.

San Francisco Bay Conservation & Development Commission (BCDC). 2020. "SF Bay Eelgrass (BCDC 2020)." Feature layer. Vector digital data. Using Arc GIS Online (March 24, 2025). Last updated August 10, 2021. https://gis.data.cnra.ca.gov/datasets/BCDC::sf-bay-eelgrass-bcdc-2020/explore?location=37.949481,-122.302729,11.80.

San Francisco Bay Conservation and Development Commission (BCDC). (2011) 2025. *The San Francisco Bay Plan*. https://www.bcdc.ca.gov/resources/plans/san-francisco-bay-plan/.

San Francisco Bay Regional Water Quality Control Board. 2017. *Water Quality Control Plan for the San Francisco Bay Basin (Region 2)*. https://www.waterboards.ca.gov/sanfranciscobay/basin_planning.html.

San Mateo County. 2022a. "Chapter 17: Climate Element." In *San Mateo County General Plan*. https://www.smcgov.org/media/73461/download?inline=.

———. 2022b. *Climate Action Plan*. https://www.smcgov.org/media/73456/download?inline=.

Solano County. 2024. "Chapter 5 Public Health and Safety." In *Solano County General Plan*. https://www.solanocounty.com/depts/rm/planning/general_plan.asp.

Sonoma County. 2008a. "Public Safety Element." In *General Plan 2020:* https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Long%20Range%20Plans/General-Plan-Publis-Safety-Element.pdf.

———. 2008b. "Water Resources Element." In *General Plan 2020*. https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Archive/_Documents/General-Plan-Water-Resource-Element.pdf.

———. 2016. "Circulation and Transit Element." In *Sonoma County General Plan 2020*.

https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Archive/_Documents/General-Plan-Circulation-and-Transit.pdf.

———. (2008) 2016. "Open Space and Resource Conservation Element." In *Sonoma County General Plan 2020*. https://permitsonoma.org/longrangeplans/adoptedlong-rangeplans/generalplan/organizationandoverview/openspaceandresourceconservation.

———. 2021. *Sonoma County Multijurisdictional Hazard Mitigation Plan*.

Sonoma County Board of Supervisors. 2018. "Climate Change Action Resolution." https://www.sonomacounty.ca.gov/.

Sonoma County Permit and Resource Management Department (PRMD). 2017. "Airport Land Use Commission." Feature service. Vector digital data. "Airports: Vulcan Landing Dredging and Maintenance" created by Panorama Environmental, Inc.: Using Arc GIS Online (June 27, 2024). July 24, 2023. https://www.arcgis.com/home/item.html?id=fe8a2c7b3c9b4f029a49d6d75550be6c.

———. n.d.-a. "Zoning & Parcel Report." Parcel Number 019-220-016. Accessed June 6, 2024. https://parcelsearch.permitsonoma.org/ParcelSearch.

———. n.d.-b. "Zoning and Land Use." Online map viewer. Accessed May 31, 2024. https://sonomacounty.maps.arcgis.com/apps/webappviewer/index.html?id=06ac7fe1b8554171b4682dc141293962#.

Tempel, Trishelle L., Timothy D. Malinich, Jillian Burns, Arthur Barros, Christina E. Burdi, and James A. Hobbs. 2021. "The Value of Long-Term Monitoring of the San Francisco Estuary for Delta Smelt and Longfin Smelt." *California Fish and Wildlife Journal*, no. CESA Special Issue (July), 148–71. https://doi.org/10.51492/cfwj.cesasi.7.

Thompson, Bruce, J. Ananda Ranasinghe, Sarah Lowe, Aroon Melwani, and Stephen B. Weisberg. 2013. "Benthic Macrofaunal Assemblages of the San Francisco Estuary and Delta, USA." *Environmental Monitoring and Assessment* 185 (3): 2281–95. https://doi.org/10.1007/s10661-012-2708-8.

U.S. Army Corps of Engineers (USACE) and San Francisco Bay Regional Water Quality Control Board (SF Bay RWQB). 2024. *Environmental Assessment/Environmental Impact Report: San Francisco Bay Federal Channels Operation and Maintenance Dredging and Sediment Placement Activities, Dredging Years 2025–2034*. https://media.api.sf.gov/documents/2024-0000062_San_Francisco_Bay_Federal_Channels_Operation_and_Maintenance_Dred_eXxUt2l.pdf.

U.S. Coast Guard. 2012. "History of Vessel Traffic Services." https://navcen.uscg.gov/history-of-vessel-traffic-services.

———. 2013. "Marine Safety Information Bulletin 13-04: San Francisco Bay Regulated Navigation Areas and Traffic Management."
———. 2025. *VTS San Francisco User Manual*.
U.S. Department of Transportation (USDOT). 2011. *America's Marine Highway Report to Congress*. https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/intermodal-systems/marine-highways/3051/maradamhreporttocongress.pdf.
U.S. Environmental Protection Agency (EPA). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. 550/9-74–004.
U.S. Fish and Widlife Service (USFWS). 2015. "Western Pond Turtle (*Actinemys marmorata*)." April 10, 2015. https://www.fws.gov/species/western-pond-turtle-actinemys-marmorata.
U.S. Fish and Wildlfe Service (USFWS). n.d. "IPaC: Information for Planning and Consultation." Accessed December 31, 2024. https://ipac.ecosphere.fws.gov/.
U.S. Fish and Wildlife Service (USFWS). n.d. "Wetlands Data." Accessed May 29, 2025. https://www.fws.gov/program/national-wetlands-inventory/wetlands-data.
U.S. Geological Survey (USGS). n.d. "Mineral Resources Data System." Accessed June 26, 2024. https://mrdata.usgs.gov/mrds/map-graded.html#home.
U.S. Global Change Research Program. 2023. "Chapter 28: Southwest." In *Fifth National Climate Assessment*. U.S. Global Change Research Program. https://nca2023.globalchange.gov/chapter/28/.
Watt, Janet, David Ponce, Tom Parsons, and Patrick Hart. 2016. "Missing Link between the Hayward and Rodgers Creek Faults." *Science Advances* 2 (10): e1601441. https://doi.org/10.1126/sciadv.1601441.
WKC Group. n.d. "Sound Attenuation Calculator - Inverse Square Law." Accessed June 26, 2024. https://www.wkcgroup.com/tools-room/inverse-square-law-sound-calculator/.