INITIAL AND MAINTENANCE DREDGING at MILITARY OCEAN TERMINAL CONCORD (MOTCO) CONCORD, CALIFORNIA

Calendar Years 2025-2035





Draft Environmental Assessment May 2025



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DRAFT INITIAL AND MAINTENANCE DREDGING AT MILITARY OCEAN TERMINAL CONCORD, CA Proponent: Military Ocean Terminal Concord

Submitted to: Military Ocean Terminal Concord 5110 Port Chicago Highway Concord, CA 94520

May 2025

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DRAFT ENVIRONMENTAL ASSESSMENT

FOR

INITIAL AND MAINTENANCE DREDGING AT

MILITARY OCEAN TERMINAL CONCORD, CA

Proponent: Military Ocean Terminal Concord

NEPA Lead Agency: Surface Deployment and Distribution Command (SDDC) at the Military Ocean Terminal Concord

APPROVAL

This Environmental Assessment for Maintenance Dredging at the Military Oceanic Terminal Concord (MOTCO) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC §§ 4321 et seq.) and the United States Army's NEPA implementing regulations (32 CFR part 651).

Date

Lauren A Cabral LTC, LG CDR, 834th Trans BN (SDDC) Military Ocean Terminal Concord

FINDING OF NO SIGNIFICANT IMPACT

(32 CFR pt. 651)

Maintenance Dredging of the Military Ocean Terminal (MOTCO), Concord in Suisun Bay Calendar Years 2025 - 2035

1. Introduction: The Military Ocean Terminal, Concord (MOTCO), proposes to implement operations and maintenance dredging of the navigation approaches to MOTCO Wharves 2, 3, Barge Pier, and the Boat Ramp area in Suisun Bay, California, for a period of 10 years (2025 through 2035). The navigation approaches and preferred placement site is within Contra Costa County. However, the geographic scope may be expanded to identify an appropriate placement site in the greater San Francisco Bay geographical area.

2. Action: The Proposed Action is to implement maintenance dredging for the navigation approaches to MOTCO Wharves 2, 3, Barge Pier, and The Boat Ramp area from the Suisun Bay Channel using a mechanical dredge. Dredged material will be placed at an upland disposal site at MOTCO (Placement Site).

Under the Proposed Action, best management practices will be employed during maintenance dredging to minimize potential impacts to fish resources. This includes, but is not limited to, dredging in the annual work window, between August 1 and November 30. This will ensure that the Proposed Action does not adversely affect Federally-listed fish.

3. Factors Considered: Factors considered for this Finding of No Significant Impact were direct, indirect, and cumulative impacts on geology, soils, and sediment quality; hydrology and water quality; air quality, biological resources, including Federally-listed species; cultural and paleontological resources; and hazards and hazardous materials. Environmental resources that are not present in, or affected by the dredging, transportation of materials, or dredge disposal areas include forestry and agricultural land use, energy, noise, recreation, aesthetics, utilities and infrastructure, transportation, regional growth, and socioeconomics. These factors were previously analyzed in the Federal channels dredging compliance documents, and therefore additional analysis is not required in this document.

4. Conclusion: Based on a review of the information incorporated in the Environmental Assessment and supported by the administrative record, the United States Army Corps of Engineers concludes the proposed activity will not significantly affect the quality of the physical, biological, and human environment. In addition, avoidance, minimization, and mitigation measures are proposed to further support this determination. Therefore, pursuant to the provisions of the National Environmental

Policy Act of 1969, the preparation of an additional Environmental Impact Statement will not be required.

Date

Lauren A Cabral LTC, LG CDR, 834th Trans BN (SDDC) Military Ocean Terminal Concord

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ac	acres
ADNWR	Antioch Dunes National Wildlife Refuge
AR	Army Regulation
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Water Quality Control Plan for the San Francisco Basin
Bay Plan	San Francisco Bay Plan
BCDC	San Francisco Bay Conservation and Development Commission
BMP	best management practice
CAA	Clean Air Act
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDF	confined disposal facility
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
BRAC	Base Realignment and Closure
CEQA	California Environmental Quality Act
CEQAnet	online environmental database of the State Clearinghouse
CESA	California Endangered Species Act
СМА	Critical Maneuvering Area
72 COLREGS	International Regulations for Preventing Collision at Sea
CRHR	California Register of Historical Resources
CSCC	California State Coastal Conservancy
CSLC	California State Lands Commission
CRRP	Cullinan Ranch Restoration Project
CWA	Clean Water Act
CY	cubic yard
CZMA	Coastal Zone Management Act
dB	decibel
DDT	dichloro-diphenyl-trichloroethane
Delta	Sacramento-San Joaquin River Delta
DMMO	Dredged Material Management Office
DMMP	Dredged Material Management Plan
DMMS	Dredged Material Management Site
DMPS	Dredged Material Placement Site
DoD	United States Department of Defense
DoDD	Department of Defense Directive

DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act (Federal)
Estuary	San Francisco Bay/Delta Estuary
ESU	Evolutionarily Significant Unit
FMP	fisheries management plan
FR	Federal Register
FTA	Federal Transit Administration
FY	fiscal year
GHG	greenhouse gas
hp	horsepower
ICRMP	Integrated Cultural Resource Management Plan
INRMP	Integrated Natural Resource Management Plan
ITM	Inland Testing Manual
LTMS	Long-Term Management Strategy
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MALSF	Marine Aggregate Levy Sustainability Fund
MEC	Munitions and Explosives of Concern
mg/L	milligrams per liter
MLLW	mean lower low water
mm	millimeter
МОТСО	Military Ocean Terminal Concord
MPRSA	Marine, Protection, Research and Sanctuaries Act
MRS	Munitions Response Sites
MRS Water	Munitions Response Sites located on water
MRS Land	Munitions Response Sites located on land
MWRP	Montezuma Wetlands Restoration Project
NAVFAC	Naval Facilities Engineering Command
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration

NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Unit
NUAD	Non-suitable for unconfined aquatic disposal
NWSSBDC	Naval Weapons Station Seal Beach Detachment Concord
OESS	Ordnance Explosive Safety Specialist
OR&R	Office of Response and Restoration
ОТМ	Ocean Testing Manual
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
рН	measure of the acidity or basicity of an aqueous solution
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
RHA	River and Harbors Act
RMS	root mean square
RWQCB	Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SCC	State Coastal Commission
SDDC	U.S. Army Military Surface Deployment and Distribution Command
SF-9	Carquinez Strait placement site
SF-16	Suisun Bay placement site
SF-DODS	San Francisco Deep Ocean Disposal Site
SFEI	San Francisco Estuary Institute
SPL	sound pressure level
SRDWSC	Sacramento River Deep Water Ship Channel
SUAD	suitable for unconfined aquatic disposal
TSS	Total suspended solids
U.S. Army ERDC	United States Army Engineer Research and Development Center
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTM	Upland Testing Manual
UXO	Unexploded ordnance

WETA San Francisco Bay Area Water Emergency Transportation Authority

WQC

water quality certification

1. INTRODUCTION

On behalf of the Military Ocean Terminal Concord (MOTCO), the U.S. Army Corps of Engineers (USACE) has prepared this Environmental Assessment (EA) to address the environmental effects of the initial and maintenance dredging of the access channel from Suisun Bay Channel to MOTCO berthing areas at Wharves (Piers) 2, and 3, and the Barge Pier for Federal fiscal years 2025 through 2035. It will also address maintenance dredging, but not initial dredging, of the MOTCO Boat Ramp area. Analysis for the initial dredging of the Boat Ramp will be discussed as part of a supplemental NEPA document to the 2023 *Environmental Assessment for Construction, Operation, and Maintenance of a Loading/Unloading Ramp, Military Ocean Terminal Concord, Contra Costa County, California* covering construction of the Boat Ramp area. Associated placement of dredged materials will be covered both on a project basis and programmatically for the years 2025-2035 where appropriate. The navigation channel, wharf approaches, and proposed placement/disposal sites to be used are located in Contra Costa and Solano Counties.

This work is authorized under Army Regulation (AR) 600-20, para. 2-5b(1) and AR 600-20, para. 2-5b(3)(f)2 stating that the U.S. Army Military Surface Deployment and Distribution Command (SDDC) performs terminal management services (including dredging to maintain navigation channels necessary for transportation operations) under the authority of Department of Defense Directive (DoDD) 5158.04 and other appropriate authorities.

This EA is prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (Title 42 United States Code [USC] § 4321 et seq.) and Army's NEPA regulations (32 CFR Part 651) and policies. The SDDC at MOTCO is the NEPA lead agency for this EA. There are no cooperating agencies.

1.1. INSTALLATION DESCRIPTION

MOTCO is an SDDC trans-shipment facility located near Concord, California (CA), along Suisun Bay (Figure 1-1). In 1997, the Department of the Army (Army) 1302nd Major Port Command was relocated from Oakland Army Base to MOTCO and became the 834th Transportation Battalion (TRANS BN), and MOTCO properties were transferred from the Department of Navy to the Army in 2008. The mission of the 834th TRANS BN is to provide terminal and distribution services in support of deploying and redeploying forces in the California Area of Responsibility and, furthermore, to safely provide ammunition terminal services at MOTCO. Maintaining the authorized approach and berthing depth to all active wharves, piers, and the Boat Ramp area, collectively referred to here as MOTCO Dredging Areas, is important to MOTCO's continued operational capability.

A 1944 explosion at this location (the Port Chicago Naval Magazine explosion) detonated 3.5 million pounds of explosives, killed 320, injured 400, and caused an estimated \$12.5 million in property damage (in 1944 dollars). The blast registered 3.4 on the Richter scale and could be felt more than 450 miles away. The munitions explosion at the Port Chicago Naval Magazine is considered the worst home-front

disaster of World War II. The event changed how the Army does munitions handling and its location is now a National Monument.

An August 2007 report titled *The Final Preliminary Assessment, Military Munitions Response Program, NWS Seal Beach, Detachment, Concord* identified twelve Munitions Response Sites (MRS) at Detachment Concord, three of which are part of what is now MOTCO and nine on the Base Realignment and Closure (BRAC) property. There are two MRS sites resulting from the 1944 Port Chicago explosions and defined by a 12,000-foot radius of the former pier: Port Chicago Water Explosion Munition Response Site (MRS Water); 5,081 acres (ac), and the Port Chicago Terrestrial Explosion (MRS Land); 5,232 AC. Due to the site's history, the potential to encounter unexploded ordnance (UXO) during maintenance dredging, while small, remains.

1.2. DREDGE HISTORY

Maintaining deep-draft access is needed to support MOTCO's mission. The U.S. Navy dredged the wharves, access channels, and the South Seal Island Channel on average every two years from 1943 through 1981 (

Table 1-1). More than 1.8 million cubic yards (CY) was dredged over this time period averaging 87,000 CY per dredge event. After 1981, limited documentation exists and no NEPA records could be found describing Navy dredging during that time. The Army has not conducted any dredging since assuming control of the property in 2008.

Currently, dredging is necessary to remove sediment accumulation around the Wharves 2, 3, and the Barge Pier to reach authorized depths of 35 feet (FT) and 20 FT mean lower low water (MLLW), respectively. Dredged material from MOTCO was historically placed on upland levee sites and infrequently at the Carquinez Strait (SF-9) and Suisun Bay disposal sites (SF-16) (see Figure 1-2).

Year	Dredge Volume (CY)	Document
1943	620,000	
1944	298,000	
1945	70,500	
1950	82,300	
1951	48,500	
1953	37,000	
1957	108,700	
1959	20,900	1975 LTMS EIS ¹
1960	69,700	
1962	40,000	
1965	52,000	
1967	36,800	
1969	30,000	
1970	63,200	
1975	78,000	
1976-1981	171,035	USACE (1995, 2015)
1986	unknown	Not Found
1994	unknown	Not Found
TOTAL	1,826,635	
NOTES:		
Permits/LTMS/December-1975-Volume-1/		

Table 1-1. Historic MOTCO Dredge Events and Volumes Removed



Figure 1-1 The greater San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Regional Area) in the Vicinity of MOTCO.

Draft Environmental Assessment for Wharf Maintenance Dredging at MOTCO



Figure 1-2 MOTCO Dredging Project Area and Potential Material Placement Sites.

Draft Environmental Assessment for Wharf Maintenance Dredging at MOTCO



Figure 1-3 Proposed Action

Draft Environmental Assessment for Wharf Maintenance Dredging at MOTCO



1.3. MOTCO DREDGING BACKGROUND

The dredging process involves the excavation or redistribution of accumulated sediment from the MOTCO Dredging Areas. Typically, dredging projects in navigable waters require a Rivers and Harbor Act Section 10 permit from USACE. However, MOTCO qualifies for an exemption under 33 CFR § 322.2(c)(2), as it is a Congressionally authorized project focused on navigation, thus no permit is required. The Army is responsible (authorized under Army Regulation (AR) 600-20, para. 2-5b(3)(f)2) for terminal management services and maintaining the navigability of MOTCO Dredging Areas, Wharves 2, and 3, and the Barge Pier, to historic and/or authorized depths or lesser regulatory, safe permissible depths. Accumulation of the sediment that settles in these areas can impede navigability. Dredging removes or redistributes this sediment and returns the MOTCO access channels and berthing areas to the established depths necessary to provide safe, reliable, and efficient waterborne transportation systems (channels, harbors, and waterways) for the movement of ships and operations in support of the MOTCO mission.

Vessels enter into MOTCO via the federal navigation channels which are maintained by USACE and have been previously described in USACE's Final Composite Environmental Impact Statement for Maintenance Dredging of Existing Navigation Projects, San Francisco Bay Region in December 1975, and updated in the Long-Term Management Strategy (LTMS) for Placement of Dredged Material in the San Francisco Bay Region, Final Policy Environmental Impact Statement / Programmatic Environmental Impact Report (EIS/EIR) in 1998, 2015 Federal Navigation Channels EA/EIR, and 2024 Draft San Francisco Bay Regional Dredged Material Management Plan 2025-2044. Therefore, they will not be covered here.

1.4. SCOPE OF THE ANALYSIS

This EA includes an analysis of potential direct, indirect, and cumulative environmental effects associated with the Proposed Action and alternatives, to include the No-Action Alternative, described in Section 2 "DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES". The environmental resource areas carried forward for full analysis and presented in separate subsections in Section 3.0 include: air quality; geological and soil resources; hydrology and water quality; biological resources; cultural resources; and hazardous and toxic materials and waste. As described in Section 3.0, potential impacts to the following additional resource areas would be negligible or nonexistent and are therefore not carried forward for full analysis: forestry; land-use and agriculture; energy; noise; recreational resources; utilities; aesthetics and visual resources, transportation; regional growth; and socioeconomics. This EA also includes an evaluation of the short-and long-term effects to the environment and identifies mitigation measures that would effectively reduce or minimize potential impact.

Limits of the scope of the analysis are defined by the reasonably foreseeable direct, indirect, and cumulative impacts of the Proposed Action and evaluated alternatives. The action area for this analysis primarily includes the substrate, water column, and aquatic environs in the vicinity of the MOTCO Dredge Areas and surroundings, the area along to/from the route from the landside access point to the upland Dredge Material Placement Site (Placement Site), potential off-site dredge placement locations, staging

and UXO screening areas, and a programmatic discussion of MOTCO's future beneficial use plans.

For certain potential localized impacts, such as dredging-related turbidity, which can travel, the scope of analysis may extend into adjacent areas surrounding MOTCO. For other resources such as air quality, the action area extends to a larger region, including the extent of the San Francisco Bay air basin. Additionally, the scope of analysis incorporates evaluation of potential impacts associated with past, present, and reasonably foreseeable future projects that have or may occur within the vicinity of the action area. In this analysis, the temporal scope of the action includes: 1) an initial dredge of access channels and berthing areas of Wharf 2, and Wharf 3, 2) initial dredging of the Barge Pier to occur circa 2025-27 and 3) maintenance dredging in all areas occurring no more than biennial or as needed through 2028-35.

Initial dredge materials will be processed onshore prior to placement at an upland site. Actions will include transfer and handling, removal of munitions and other materials, and dewatering. Following authorization and permitting, future maintenance dredging sediment may be placed on and around the Seal Islands north and west of MOTCO's main wharves. Additional project level NEPA analysis will be completed, as appropriate, once modeling and testing are complete.

Placement of dredge sediments at locations external to MOTCO, such as Montezuma Wetlands Restoration Project (MWRP), Cullinan Ranch Restoration Project (CRRP), and the San Francisco Deep Ocean Disposal Site (SFDODS) placement sites (Figure 1-2) are excluded from the scope of analysis evaluated in this EA, as these sites are fully permitted to accept dredged material for wetland restoration, including complying with NEPA and all other applicable environmental compliance. Placement at these sites is not proposed at this time.

1.5. PURPOSE AND NEED

The purpose of the Proposed Action is to maintain the authorized access channels in and around the MOTCO Dredging Areas. Sediment accumulation in these areas has resulted in existing draft depths that are below the authorized depths, limiting ingress/egress and impacting safety of port operations.

Initial dredging is needed to re-establish the authorized depth and ongoing maintenance dredging is needed to sustain those depths and meet MOTCO's mission requirements. Without dredging, MOTCO will not be able to transit its access channels and turning basin or berth with fully loaded ships.

1.6. RELATIONSHIP TO OTHER PLANS

1.6.1. 2015 Federal Navigation Channels EA/EIR

The 2015 EA/EIR was a joint document between USACE and the Regional Water Quality Control Board (RWQCB) to assess a 10-year Programmatic maintenance dredging of all Federal navigation channels in the Bay-Delta region (USACE, 2015). The EA/EIR evaluated four alternatives and demonstrated compliance with the existing BOs from NMFS and USFWS, and SHPO NHPA consultations. The 2015 EA/EIR incorporated by reference the existing LTMS EIS/EIR. Vessels destined for and leaving MOTCO will transit through these federal channels. Therefore, relevant parts of the 2015 EA/EIR are incorporated by reference into this EA.

1.6.2. The Long-Term Management Strategy

The LTMS is a 50-year, interagency programmatic planning document for dredging and dredged material placement activities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. The LTMS Program comprises State and Federal regulatory agencies with primary authority to review and permit dredging and placement activities in the greater San Francisco Bay Area. Participating agencies include USACE, the USEPA, the RWQCB, the State Water Resources Control Board, the San Francisco BCDC, and the State Lands Commission. Implementation of the LTMS began in 2001 with the adoption of the LTMS Management Plan following State and Federal threatened and endangered species (listed) consultation and coordination with the NMFS and the USFWS.

The LTMS is primarily concerned with limiting and managing in-Bay dredged material placement. None of the proposed alternatives include in-Bay dredged material placement, thus there will be no impact to LTMS in-Bay placement limits.

1.6.3. San Francisco Bay Plan

The BCDC regulates dredging and dredged material placement in San Francisco Bay / Sacramento-San Joaquin Delta Estuary area. Under authority of the State McAteer-Petris Act of 1965, the BCDC prepared the San Francisco Bay Plan and in 1968 adopted regulations and policies regarding dredging and placement in San Francisco Bay. The San Francisco Bay Plan dredging policies were amended to adopt the LTMS findings, including reducing in-Bay placement, maximizing beneficial use, and an allocation strategy to reduce in-Bay placement. The BCDC is the State coastal management agency pursuant to the Federal CZMA for the San Francisco Bay segment of the California coastal zone. Under the Federal consistency provisions of CZMA, Federal projects need to be determined to be consistent with the State's coastal zone management program and policies to the maximum extent practicable (16 USC § 1456). MOTCO has determined that this activity qualifies as minor dredging, with no associated Bay fill activity. Therefore, MOTCO has determined that the proposed action will not have coastal effects and shall provide BCDC with a negative determination, pursuant to 15 CFR § 930.35 for concurrence.

1.7. REGULATORY AUTHORITIES

Key Federal and State laws applicable to the development of this EA, the proposed dredging and dredged material placement activities, and the protection of aquatic resources, are summarized below. This EA incorporates by reference the 2015 Federal Navigation Channels EA/EIR regarding Federal and California State Laws. Additional details on these laws, required permits or consultations as well as other laws governing the protection of environmental resources, are presented in the Regulatory Setting section for each environmental resource topic analyzed in Chapter 3.

As a Federal dredging project for navigation and national security, dredging and placement activities would not require a lease agreement from the California State

Lands Commission (CSLC) for use of public trust lands based on the navigational servitude provisions of the Submerged Lands Act.

Title	Law, Regulation, or Executive Order
Abandoned Shipwreck Act	43 USC §§ 2101–2106
American Indian Religious Freedom Act	42 USC § 21 et seq.
Archaeological Resources Protection Act	16 USC § 470aa et seq.
Bald and Golden Eagle Protection Act	16 USC § 668-668d
Clean Air Act (CAA)	42 USC § 7401
Clean Water Act (CWA)	33 USC § 1251
Coastal Zone Management Act (CZMA)	16 USC § 1451 et seq.
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)	42 USC § 9601 et seq.
Emergency Planning and Community Right-to- Know Act	42 USC § 11001-11050
Energy Independence and Security Act (EISA)	42 USC §§ 6291, 6293, and 6295, as amended
Endangered Species Act (ESA)	16 USC §§ 1531–1543
Magnuson-Stevens Fishery Conservation and Management Act	16 USC § 1801 et seq.
Marine Mammal Protection Act	16 USC §§ 1361-1421h
Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA)	16 USC § 1431 et seq. and 33 USC §1401 et seq
Master plans for major military installations, Resilience Component	10 U.S.C §2864(c)
Migratory Bird Treaty Act (MBTA), as amended	16 USC §§ 703-712
National Historic Preservation Act of 1966 (NHPA)	16 USC § 470 et seq., as amended
Native American Graves Protection and Repatriation Act	25 USC ch. 32 § 3001 et seq.
National Environmental Policy Act	42 USC §§ 4321-4347
Resource Conservation and Recovery Act (RCRA)	42 USC § 6901

Table 1-2. Federal, State, and Local Regulations, Laws, and Executive Orders

Rivers and Harbors Act (RHA)	RHA 33 Stat. 1147; 33 USC 419
Sikes Act	16 USC 670a (a)(3)
Safe Drinking Water Act	42 USC § 300f et seq.
National Pollutant Discharge Elimination System (NPDES)	40 CFR Part 122
Environmental Analysis of Army Actions	32 CFR 651
Determining Conformity of Federal Actions to State or Federal Implementation Plans	40 CFR 93
Toxic Substances Control Act	15 USC § 2601-2629
Protection and Enhancement of the Cultural Environment	EO 11593
Floodplain Management	EO 11988
Protection of Wetlands	EO 11990
Federal Compliance with Pollution Control Standards	EO 12088
Invasive Species	EO 13112
Consultation and Coordination with Indian Tribal Governments	EO 13175
Responsibilities of Federal Agencies to Protect Migratory Birds	EO 13186
Efficient Federal Operations	EO 13834
Environmental Protection and Enhancement	AR200-1

1.7.1. Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 regulates alteration of and prohibits unauthorized obstruction of navigable waters of the United States, unless specifically authorized by Congress or permitted by USACE. USACE regulation, 33 CFR § 322.2(c)(2), further clarifies that Congress must specifically consider the effects on navigable waters when issuing their authorization. Generally, non-USACE federal dredging actions require a Section 10 permit. However, MOTCO qualifies under 33 CFR § 322.2(c)(2) as a Congressionally authorized project (Military Construction Appropriations Act, 1997, Pub. L. No. 104-196, 110 Stat. 2385 (Sept. 16, 1996): Senate Report 104-287) that considered navigation and therefore is not required to obtain a Section 10 permit.

1.7.2. Regional Water Quality Control Plan/CWA 401

RWQCB is the State implementing agency responsible for CWA 401 permitting actions, and for developing a water quality Basin Plan. The Basin Plan is the primary document used by RWQCB for the regulation of in-Bay dredging. In 2008, the Basin Plan was amended to identify the LTMS strategy as the key process for addressing dredging operations in San Francisco Bay, achieving the LTMS goals, and adopted the guidelines contained in the 1998 USACE/USEPA Inland Testing Manual and local implementation procedures developed through the Dredged Material Management Office (DMMO) as the appropriate framework for evaluating the suitability of dredged material for placement at in-Bay sites, and providing revised permit conditions to reflect requirements of the USFWS and NMFS. A Section 401 permit is required when a project is an applicant for a federal permit or license. As neither an RHA Section 10 permit, nor a CWA Section 404 permit, is required for any of the considered alternatives, there is no requirement for a CWA Section 401 permit for initial dredging phase of the Proposed Action.

1.7.3. Clean Water Action Section 402

CWA Section 402 requires construction sites on an acre or greater of land, as well as municipal, industrial, and commercial facilities discharging wastewater or stormwater directly into surface waters to obtain permission under the National Pollutant Discharge Elimination System (NPDES) permit. CWA Section 402 prohibits discharge of any pollutant from any point source navigable waters unless authorized by the permit. The Proposed Action may decide to discharge to the local sanitation district under its existing NPDES permit (Permit #01181117-S) via a Special Discharge Permit (SPD), pending acceptable water quality parameter are met. In addition, the contractor will be responsible for obtaining a Construction Stormwater General Permit, which will require the contractor to obtain a SWPPP that will require best management practices (BMPs) to control stormwater runoff during construction.

1.7.4. Clean Water Act Section 404

San Francisco Bay (including the Sacramento-San Joaquin Delta Estuary), along with its tributary rivers, streams, adjacent wetlands, and the Pacific Ocean out to the 3-mile limit, are "waters of the United States" in CWA Section 404 jurisdiction. USACE, USEPA, and RWQCB regulate the placement of dredged material in San Francisco Bay pursuant to the CWA through the LTMS, DMMO, as described in Section 1.6.6. USACE implements Section 404 of the CWA, and USEPA has oversight authority. Discharge of dredged materials into waters of the United States is regulated under Section 404 of the CWA. USACE's regulations identify factors to be considered in evaluating the discharge of dredged material into waters of the United States, including navigation and the Federal standard; water quality; coastal zone consistency; wetlands; Federally threatened and endangered species; and fish and wildlife (35 CFR pt. 336.1[c]). USACE's evaluation of discharges (placement) of dredged material in Suisun Bay and compliance with Section 404 of the CWA, the MPRSA, and the CZMA is guided by the LTMS Program, and other plans and policies described in this section. None of the alternatives propose to place any dredged material in CWA Section 404 jurisdictional waters. Therefore, no CWA 404 analysis or permit is required.

1.8. DOCUMENTS INCORPORATED BY REFERENCE

Incorporation of previous analysis by reference is encouraged by NEPA. For NEPA, agencies shall incorporate material by reference when the effect will be to reduce bulk without impeding agency and public review of the project alternatives. The incorporated material shall be cited, and its content summarized. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment. Material based on proprietary data, which are themselves not available for review and comment, shall not be incorporated by reference.

This EA incorporates by reference information contained in the following documents:

- 1975 The Final Composite Environmental Statement for Maintenance Dredging of Existing Navigation Projects, San Francisco Bay Region was issued by the San Francisco District in 1975 (USACE 1975). This document analyzed the environmental impacts associated with the maintenance dredging of 20 Federal navigation projects in San Francisco Bay, including the South Seal Island Channel and Concord Naval Weapons Station as dependent on Suisun Bay Channel dredging.
- 1998 Final Policy Environmental Impact Statement/Programmatic Environmental Impact Report (EIS/EIR), Long Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region (LTMS 1998). The LTMS EIS/EIR was jointly published by the LTMS agencies to select the overall long-range approach to conduct necessary dredging and dredged material disposal in an environmentally sound and economically prudent manner, to maximize the beneficial use of dredged material, and to develop a coordinated permit review process for dredging projects. Three alternative, long-term approaches were evaluated in the LTMS EIS/EIR that would achieve the LTMS goals to various extents.
- 1998 LTMS California Department of Fish and Game Concurrence on Biological Opinions (CDFG, 1998). In this document, the California Department of Fish and Game (now the California Department of Fish and Wildlife [CDFW]) concurred with the USFWS and NMFS BOs on the LTMS Program.
- 1999 Record of Decision, LTMS for the Placement of Dredged Material in the San Francisco Bay Region (USACE et al., 1999). The Record of Decision identified, from the alternatives considered in the LTMS EIS/EIR, the alternative selected by USACE and the United States Environmental Protection Agency (USEPA) to guide dredged material placement decisions in the San Francisco Bay Region for a period of 50 years.
- 1999 LTMS U.S. Fish and Wildlife Service Biological Opinion (USFWS, 1999). This document transmits the United States Fish and Wildlife Service (USFWS) BO for the LTMS Program and its effects on Federally-listed species under USFWS' jurisdiction at the time the consultation was completed. The BO outlines criteria for inclusion of projects under the Programmatic consultation, implementing procedures, and minimization

measures. The BO was amended in 2004 to modify certain restrictions and minimization measures (USFWS, 2004).

- 2001 Final Long Term Management Strategy Management Plan for Placement of Dredged Materials in the San Francisco Bay Region (USACE et al., 2001). This document describes the detailed measures by which the LTMS agencies are implementing the EIS/EIR's long-term plan.
- 2004 Delta Smelt: Formal Programmatic Consultation with the U.S. Fish and Wildlife Service (USFWS, 2004). The USFWS issued a Programmatic BO on the issuance of Rivers and Harbors Act Section 10 permits and Clean Water Act (CWA) Section 404 permits for projects with relatively small effects on Delta Smelt and its critical habitat in the jurisdiction of USFWS' Sacramento Field Office. Since 2011 USACE has been required to consult on impacts to Delta Smelt during dredging of the Suisun Bay Channel and New York Slough because of documented captures (entrainment) during hopper dredge operation. Since 2011, USACE has received non-jeopardy opinions from USFWS to maintain Suisun Bay Channel with a hopper or clamshell dredge.
- 2009 Programmatic Essential Fish Habitat (EFH) Assessment for the Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (USACE and USEPA, 2009). Pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (16 USC § 1855[b]), USACE and USEPA submitted a Programmatic EFH Assessment to NMFS for the San Francisco Bay Region LTMS. This document provides an assessment of the potential effects to EFH from the ongoing dredging and dredged material placement activities of all Federal and non-Federal maintenance dredging projects in the San Francisco Bay Region.
- 2011 Agreement on Programmatic EFH Conservation Measures for Maintenance Dredging Conducted Under the LTMS Program (USACE and USEPA, 2011). This document identified a comprehensive suite of EFH conservation measures developed in coordination with NMFS and completed the Programmatic EFH consultation covering all maintenance dredging projects under the LTMS Program.
- 2015 Final Environmental Impact Statement for the Modernization and Repair of Piers 2 and 3, Military Ocean Terminal Concord, CA (U.S. Army 2015a). This document evaluated the demolition and reconstruction of Wharf (Pier) 2 and repair of Wharf 3 infrastructure. A supplemental EA was completed in 2017 focused on Pier 2 design updates.
- 2015 Maintenance Dredging of the Federal Navigation Channels in the San Francisco Bay Final EA-Finding of No Significant Impact (FNSI) and Environmental Impact Report (EIR) prepared jointly by USACE and the San Francisco Regional Water Quality Control Board (RWQCB) (referred to as
- 2015 Federal Navigation Channels EA/EIR (USACE 2015). This document analyzed the environmental impacts associated with Programmatic maintenance dredging of Federal navigation projects in the San Francisco Bay-Delta.

- 2015 LTMS National Marine Fisheries Service Biological Opinion (NMFS 2015). This document transmits the National Marine Fisheries Service (NMFS) Biological Opinion (BO) for the LTMS Program and its effects on Federally-listed species under NMFS' jurisdiction at the time the consultation was completed. The BO outlines implementing procedures and minimization measures.
- 2017 Final Supplemental Environmental Assessment for Pier 2 Modernization and Repair Design Changes at Military Ocean Terminal Concord, CA. (U.S. Army 2017a). This document provides additional information on affected environmental resources.
- 2017 Military Ocean Terminal Concord. Integrated Natural Resources Management Plan 2017-2022 (U.S. Army 2017b). This management plan describes habitats and species at MOTCO.
- 2020 Military Ocean Terminal Concord (U.S. Army) 2019 Maintenance Dredging Final Sampling and Analysis Report prepared by Pacific EcoRisk and DR Reed and Associates Inc (USACE 2020a). This document analyzed the chemical constituents of sediment sampled from the berthing approaches at MOTCO.
- 2020 San Francisco Bay to Stockton, California, Navigation Improvement Project Final Integrated General Reevaluation Report and Environmental Impact Statement (IGRR-EIS; USACE 2020b). This document provides a regional overview of environmental impacts of maintenance dredging in the area of Suisun Bay and MOTCO.
- 2024 Final Military Ocean Terminal Concord Integrated Natural Resources Management Plan 2023-2028. This document provides the annual and 5-year natural resources management at MOTCO.
- 2025 San Francisco Bay Federal Channels Operation and Maintenance Dredging and Sediment Placement Activities, Dredging Years 2025-2034 EA/EIR. This document analyzed the environmental impacts associated with Programmatic maintenance dredging of Federal navigation projects in the San Francisco Bay-Delta.

Relevant portions of all documents incorporated by reference into this EA are summarized throughout this EA where specifically noted.

In addition to complying with NEPA, MOTCO is responsible for documenting compliance with relevant regulatory permit requirements needed to implement the chosen alternative.

Table 1-3 lists agencies and their permit and authorizing responsibilities. Coordination with the issuing agencies is discussed below as appropriate.

Permits and Approvals	Agency
Section 7, Endangered Species Act	US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS)
Essential Fish Habitat consultation;	NMFS

Table 1-3 Environmental Compliance Requirements.

Sections 305(b)(1)(D) and 305(b) (2-4) of the	
Magnuson- Stevens Fishery Conservation and	
Management Act	
Coastal Zone Management Act Consistency	Bay Conservation and Development
Determination	Commission (BCDC)
Section 106. National Historic Preservation Act	State Historic Preservation Office (SHPO)

1.9. AGENCY AND PUBLIC INVOLVEMENT

The Army invites and strongly encourages public participation in the NEPA process. Consideration of the views and information of all interested parties promotes open communication and enables better decision-making. The Army specifically urges all agencies, organizations, and members of the public with a potential interest in the Proposed Action to participate in the decision-making process.

NEPA regulations require an early and open process for determining the scope of issues that should be addressed prior to implementation of a proposed action. This EA and Draft FNSI will be available to the public and applicable government agencies for review and comment during the 30-day period that commenced with the NOA published in the East Bay Times on May 6th, 2025. The EA and Draft FNSI can be viewed at the following Army website:

<u>https://www.sddc.army.mil/SitePages/Environmental%20Programs.aspx</u>. Public and agency comments submitted on the EA and Draft FNSI will be made part of the administrative record and will be considered in determining whether a FNSI is appropriate.

1.10. DECISON TO BE MADE

The decision to be made by the Commanding Officer of MOTCO is whether the Proposed Action qualifies for a Finding of No Significant Impact (FNSI) under NEPA, or whether an EIS must be prepared.

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This section provides criteria used to determine reasonable alternatives that would meet the purpose and need, resulting in the identification and description of the Proposed Action and Alternatives. In addition to the No Action Alternative, the Draft EA evaluates an Accelerated Alternative and an Extended Implementation (Proposed Action) Alternative. Other alternatives, methods, and locations considered but dismissed are summarized in Section 2.6.

2.1. CRITERIA FOR CONSIDERATION OF ALTERNATIVES

For an alternative to be considered viable and carried forward for analysis by the Army, it must satisfy the following screening criteria developed with the help of USACE and the Regional Water Board, along with those suggested by the public during the scoping process:

- The alternative must fulfill the purposes, needs, and objectives identified in Chapter 1.
- The alternative must avoid or minimize effects on human/environmental resources. For example, an alternative would be eliminated from further consideration if it would not meet the objectives of the LTMS for the San Francisco Bay/Sacramento-San Delta Estuary, or if the potential for entrainment or other harmful effects and adverse effects to Delta Smelt or Longfin Smelt, such as, for example with Hopper Dredging.
- Funding and Cost Effectiveness: The dredging methodologies in a particular alternative must be fiscally reasonable and within funding constraints.
- The alternative should interface seamlessly with other projects ongoing at MOTCO and MOTCO's Master plan.
- Timing: The alternative must satisfy the temporal scope of the action so that mission effectiveness is not compromised.
- The alternative must be feasible for MOTCO/USACE to implement.

2.2. ALTERNATIVE 1: ACCELERATED IMPLEMENTATION

2.2.1. Dredging

Under this alternative, MOTCO will implement initial dredging, utilizing a mechanical clamshell dredge, of areas of access channels, around Wharves 2 and 3, and the Barge Pier. The initial dredging will remove all material down to authorized depth of 35 FT (with +2 feet FT overdepth) MLLW in the access channels and around Wharves 2 and 3 circa 2025. Initial dredging for the Barge Pier will remove all materials to the authorized depth of 20 FT (with +2 FT overdepth) MLLW circa 2026. Separately, the 3.8-ac Boat Ramp Area (former Navy Tugboat Basin) will experience its initial dredging of the Barge Pier. Analysis for the initial dredging of the Boat Ramp will be discussed as part of a supplemental NEPA document to the 2023 *Environmental Assessment for Construction, Operation, and Maintenance of a Loading/Unloading Ramp, Military Ocean Terminal Concord, Contra Costa County, California* covering construction of the Boat Ramp area.

Following the initial dredging, maintenance dredging would be performed as needed, but no more than biennially, for all areas (including the boat ramp) through 2035. Maintenance dredging will be used to maintain these areas at the prescribed depths described above. Expected volumes of material to be removed are found in Table 2-1 below. Dredged material will be screened down to 3 inches (or further to 20 mm depending on contractor capabilities) for potential UXO while on the water.

If necessary, knockdown (bar) dredging may be used as an option for maintenance dredging up to 1,000 CY per event. This action may be taken to level shoals in the MOTCO Dredge Areas between clamshell dredging episodes. Knockdown dredging would be used when the amount of shoaling is limited and when it would be more efficient than mobilizing dredging equipment and transporting the material to a placement site.

Structure	Hydrographic Survey Date	Year	Depth w/Overdepth	Initial Vol(CY)	Area (AC)
Barge Pier	11-JAN-24	2026	- <u>2</u> 0' + 2'	64,626	3.8
Boat Ramp	11-JAN-24	2027	- <u>1</u> 0' + 2'	(Separate Action)	1.2
Wharf 2	11-JAN-24	2025	-35' + 2'	89,815	28.4
Wharf 3	11-JAN-24	2025	-35'+ 2'	4,146	1.2
Initial 2025 Dredge Volume of Wharves 2 and 3			93,961	29.6	
Maintenance Dredge Volume (all areas)			71,103		

Table 2-1. Alternative 1 Depths and Anticipated Dredge Material Volume by Structure.

Dredging is anticipated to occur between August 1 and November 30 unless expanded environmental work windows are approved through the appropriate consultation(s) for a given dredge event or a specific year. Dredging within the environmental work windows reduces the potential adverse impacts of the Proposed Action on sensitive life stages of Federally-listed threatened and endangered species such as salmonids, Green Sturgeon, Delta Smelt and Longfin Smelt. Implementation would start during the appropriate dredging window in the calendar year 2025 identified in the NMFS-USFWS ESA compliance and would extend through calendar year 2035.

The maximum anticipated volume of material proposed for the initial dredging of access channels and Wharves 2 and 3 in 2025 is approximately 93,961 CY. If the dredging is continuous (24 hours a day) and the maximum daily rate of approximately 3,000 CY (including screening for UXO to 3 inches) is achieved, the project could be completed in 27 full days. However, dredging typically does not occur 24 hours per day; rather, the effective work time (actual digging of shoaled material) is often 12 to 16 hours per day, resulting in a daily rate of 1,000-2,000 CY. This is less than the 3,100 and 6,600 CY daily rate detailed in Appendix A because of the need to screen for UXO. Additionally, crew changes, relocation of the dredge, and other activities (e.g. breakdowns) limit the amount of dredging that occurs. Therefore, completing the Proposed Action's first year

dredging could require anywhere from 30 to 90 days. The initial dredging event for the Barge Pier in 2026 and future maintenance dredging events are anticipated to be completed in shorter time periods due to lesser volumes of material removal.

A full description of dredging methods and equipment, and material placement sites outside MOTCO is found in the 2015 Federal Navigation Channels EA/EIR. Relevant portions of which are summarized in Appendix A of this EA.

2.2.2. Dredge Material Management and Dewatering

The dredge material will be first processed at the temporary Management Site near Pier 2. The construction of the 15-acre Management Site and preparation of the 47.8 acre Borrow Site (Figure 1-3) will include vegetation clearing, grubbing, and grading. BMPs for the Management Site will include 7-foot berms (using material hauled from the Borrow Site in Figure 1-3) and be lined to prevent interaction with the groundwater. Silt fencing will be installed to retain sediment onsite, with silt curtains and/or silt fencing at plumbing connections to contain sediment leakage and protect habitat. If a pipeline is utilized to move dredge materials to the Management Site, the pumping route shall be surveyed prior to installation, and plumbing inspected prior to dredging. The plumbing shall be routinely monitored for sediment and turbidity leakage during pumping. If leakage is detected, then pumping shall be halted until the leak is repaired and sediment removed from the habitat.

Once screened down to 3 inches, the dredged material will be pumped via pipeline or hauled with trucks to the Management Site (Figure 1-3) where the material will be dewatered and may be further screened down to 20mm, if needed. Once screened to 20mm and certified free of explosive hazards, materials can be transported off site. Water decanted at the Management Site will be captured, filtered, and tested to determine if it can be placed in the MOTCO sanitary sewer system per a Special Discharge Permit under the existing Industrial Wastewater Discharge Permit. If the water is not suitable for the MOTCO sanitary sewer, the water will be allowed to evaporate within the Management Site.

The material would then be transported via truck to the Placement Site, or in future years, transported to an approved BU site from either the Management Site or Placement Site.

Material moving between the Management Site and the Placement Site shall be loaded onto trucks (~16 CY capacity) and transported using existing roads. Each round trip is approximate 7 miles or 3.5 miles, depending on the route taken. Trucks shall be cleaned immediately prior to entry onto the installation and upon leaving the installation to prevent the transfer of invasive species.

2.2.3. Dredge Material Placement

Prior to the development of a beneficial use site, the MOTCO upland Placement Site (64 AC) will receive the initial dredge material (Figure 1-3). See Section 2.4.1 'MOTCO Upland Dredge Material Placement Site (Placement Site)' for more details. MOTCO is currently in the process of designing multiple beneficial use projects, including Seal

Islands, which will undergo site specific NEPA. Once modeling, designs, and permitting are completed, the intention is to beneficially use dredged material to the maximum extent authorities allow with appropriate sediment and water management measures. Planning to support beneficial use is on-going and will be implemented when modeling, testing, and permitting is complete (See Section 2.4.2 'MOTCO Beneficial Use Area Development' for more details). Off-site beneficial use areas will be considered after material has been screened to remove UXO. Any transport associated with transferring the material to a future beneficial use site will require separate NEPA analysis as appropriate.

2.2.4. Borrow Site

The Borrow Site (Figure 1-3) is located south of Port Chicago Highway in the upland Los Medanos Hills (USACE 2024). The top one foot of material would need to be cleared of UXO prior to use. The site is vegetated with non-native grass and shrubs that will need to be grubbed and stripped prior to use. Borrow material would be transported to the project site via developed roads. The site will be stabilized with a native seed mix following use.

2.2.5. Staging Areas

Staging areas are used to store and transfer construction materials and equipment, primarily to support the construction of the Management Site. Several staging areas will be necessary, utilizing existing parking lots and developed areas only. Haul routes would be via existing roads. Staging areas that may be used include, but are not limited to (Figure 2-1):

- Wharf 4 Parking lot
- Parking lot south of Shaner Road


Figure 2-1. Possible Staging Areas

2.2.6. Unexploded Ordnance Handling and Screening

The presence of unexploded ordnance in the MOTCO Dredge Areas resulting from the Port Chicago Naval Magazine Explosion and other sources requires implementation of procedures for safe handling of munitions. The clamshell dredge, shall be shielded and sized to provide enough distance to protect the operator, and shielding will be provided for deck hands and the UXO contractor for protection from the 5-inch Mk35, designated as the Munition with the Greatest Fragmentation Distance (MGFD) per the approved Explosive Safety Submission (ESS) as allowed by the Department of Defense Explosive Safety Regulation. All other unprotected personnel must be outside the designated exclusion zone. The UXO contractor will be onsite during this portion of the work. All personnel on the dredge must be essential to the dredging mission. They will be behind blast shielding every time a clamshell exits the water, and the debris will be placed on an adjacent dredge scow.

Initial static screening of the dredge material may be implemented by dumping sediment through a grizzly sifter to remove any munitions 3 inches or larger on the scow. All debris caught during the screening process will be inspected for UXOs. If a suspected UXO item is found, the UXO contractor will contact the USACE Ordnance Explosive Safety Specialist (OESS) to confirm the presence and positive identification of a UXO. If the UXO is determined to be acceptable to move in accordance with approved work/safety plans, the contractor will move the UXO to the designated MOTCO consolidated ordnance storage location. At the end of the project, all consolidated UXOs will be moved to the approved demolition area as per the MOTCO UXO Disposal Standard Operating Procedures (USACE 2013c). If the UXO is unacceptable to move, it will be demilitarized in place on the barge. All Munitions Debris (MD) from

with approved work/safety plans and declared as Material Documented as Safe (MDAS) and sent to an approved recycler tracked on a DoD Form 1348-1. Cultural materials 3 inches or larger that are not UXO or MD related will be reviewed and processed by the Cultural Resources Monitor in accordance with the Cultural Resources Treatment and Discoveries Plan (CRTDP).

MOTCO's dredge placement is currently limited to the installation's Placement Site unless the material can be screened and certified as free of explosive hazards, and has MOTCO Command approval to be placed in MOTCO's Beneficial Reuse site or an offsite location once approved. As discussed above, an initial on-barge screening will remove UXO 3" or larger in size. Before dredge material can be slated for off-site beneficial use or disposal, the material will need to be further screened to 20mm to remove any remaining UXO. Material will be certified free of explosive hazards. Depending on the selected Alternative and contractor capabilities, the secondary screening down to 20mm may be conducted on the barge, within the Management Site, or at the MOTCO upland Placement Site.

Material handling requirements after UXO 3-inch and greater have been screened during dredge operations will be based on safety distances and handling of the 40mm Mk II projectile, which is the largest expected munition to pass through the initial screening process. The 40 mm Mk II DDESB Fragmentation Data Form will be used for establishing exclusion zones, equipment armoring protections, and distance requirements. If material is to be screened with analog magnetometer equipment the material will be spread in one foot lifts. If the material is to go through a trommel, caged screened, or similar industry methods it will filter out all material over 3/4 inch to reject 20 mm projectiles. The contractor will follow QC screening program to ensure MEC removal. The material that has been swept or screened will be 10% QA'd by a USACE OESS. The swept or screen material will be turned over to MOTCO/USACE on a DD form 1348-1 as being free of explosive hazards.

If screening takes place at the Management Site or Placement Site, the smaller debris down to 20mm will be removed to exclude small munitions, cultural artifacts, and debris from dredge materials by UXO technicians after thin-layer spreading of the dredge. An UXO contractor will examine the screened debris to remove any UXO's from other materials excluded by the screens and follow the 2013 MOTCO Explosive Safety Submission (ESS) and 2020 ESS amendment. Contractor will need to submit a work plan, standard operating procedures, emergency management plan, and a quality control plan for dredging support. A final clearance letter for the materials remaining on MOTCO will be required from the UXO contractor prior to demobilization. The contractor will submit all paperwork to USACE. The UXO contractor will sort items into munitions, possible cultural artifacts, or debris for appropriate processing and disposal. The UXO team, in partnership with the lead cultural resource monitor, will follow procedures for identifying and protecting potentially significant cultural resources outlined in the Cultural Resources Treatment and Discoveries Plan (U.S. Army 2016). Any UXO's found will need to be demilitarized using DDESB TP16 protective measures. OESS will provide up to 100% oversight during dredging and demilitarization, and 10% QA magnetometer inspections on processed material, and then will be on site a minimum of one day per week to maintain operational safety during onshore material handling.

2.2.7. Debris Relocation

A number of large objects ranging in size from 10 to 85 FT were identified using sidescan sonar in 2023. These are remnants from the 1944 Port Chicago Disaster and may have historical value. In 2024 these objects were moved to a designated debris relocation area outside of the area previously dredged by the Navy to avoid interfering with dredging and contaminating dredge materials. Moving the debris to relocation areas serves to isolate debris away from water currents and ships and allows them to be undisturbed by future dredging actions. The relocation area is within the MRS water zone to maintain proximity to the historic location of the explosion. Several smaller pieces of debris have been identified within the dredge area. Prior to dredging those areas, if necessary, these pieces of debris will be relocated. The work is expected to take 2-3 weeks and may be done outside the August 1 to November 30 window for dredging to occur. If the objects are relocated within the water, they will remain within the MRS. If they are removed from the water, the project will follow the monitoring, discovery, and treatment procedures detailed in the *Cultural Resources Treatment and Discoveries Plan* (U.S. Army 2016).

2.3. ALTERNATIVE 2: EXTENDED IMPLEMENTATION (PROPOSED ACTION)

Under Alternative 2 MOTCO plans to extend the period of time for the initial dredging and consequently later implement maintenance dredging as well. MOTCO will implement the proposed initial and maintenance dredging of the MOTCO Dredge Areas in the same locations using the same means and methods employed in Alternative 1. However, Alternative 2 assumes a more fiscally constrained environment where initial dredging must be done across more than two funding cycles. Initial dredging of part of the access channels for Wharves 2 and 3 would be done circa 2025 and the dredging in the vicinity of the Barge Pier will be shifted to 2026 or later. While the actions and impacts are expected to be similar, the amounts of material removed in a given year are expected to change, resulting in a difference in the distribution of material over time.

Under Alternative 2, the screening and transport of dredge material may occur over multiple funding cycles. There is potential for the transportation to and screening at the Placement Site to occur at date in 2026 or later. Dredge material is approved to stay at the Placement Site permanently and would not be relocated without being screened to 20mm. In addition, time and space permitting, dredge material could be temporarily stockpiled at the Management Site and then delivered directly to a beneficial used site (after being screened down to 20mm).

			Proposed Dredge Parameters				
Structure	Hydrographic Survey Date	Year	Depth w/Overdepth	Initial Vol(CY)	Area (AC)		
Barge Pier	11-JAN-24	2027	- <u>2</u> 0' + 2'	64,626	4.6		
Boat Ramp	11-JAN-24	2027	- <u>2</u> 0' + 2'	(Separate Action)	1.2		
Wharf 2	11-JAN-24	2025	-35' + 2'	89,815	31.3		
Wharf 3	11-JAN-24	2025	-35'+ 2'	4,146	1.1		
Proposed 2025 Wharves 2 and 3 Dredge Volume				93,961	32.4		
Post-2025 Dredging				75,319			

Table 2-2. Alternative 2 Dredge Parameters

2.4. LOCATION AND DESCRIPTION OF DREDGE PLACEMENT AREAS

Placement locations authorized and available to use for MOTCO dredge sediments and current and future beneficial use opportunities are detailed below.

2.4.1. MOTCO Upland Dredge Material Placement Site (Placement Site)

MOTCO has designated an upland Placement Site which has been reviewed by USACE Regulatory and has been determined to meet the definition of an upland area prior to receiving dredge material. The Placement Site is a disturbed upland area 64 acres in size located a ½ mile southeast of Wharf 3.

At the completion of each dredging episode, the Placement Site shall be contoured with a gradual slope for drainage and hydroseeded with an approved seed mixture to stabilize the site for grazing between dredging episodes (see Section 3.2.2 regarding existing land use of the Placement Site). Trucks shall be cleaned immediately prior to entry onto the installation and upon leaving the installation to prevent the transfer of invasive species.

2.4.2. MOTCO Beneficial Use Area Development

Beneficial use of dredged material is a sustainable practice that involves using dredged sediment for productive purposes instead of disposing of it. This approach offers several environmental and economic advantages. It is estimated that there has been a loss of 90% of historical tidal marsh in San Francisco Bay. Several islands owned and controlled by MOTCO and within the MRS could benefit from an influx of sediment to nourish existing marshes or create/expand marsh habitat.

The East and West Seal Islands are 0.15 miles north of the MOTCO shoreline. Together they are approximately 21 AC in size and composed primarily of freshwater emergent marsh. Areas on and adjacent to the Seal Islands are being evaluated as beneficial use areas. In addition, benthic toxicity and bioaccumulation sampling would be conducted prior to any in water placement at Seal Island. This EA provides a programmatic analysis of the effects of implementing actions that are still in the conceptual development phase. Although the development of this area is not static or pre-determined, the Army has planned and prepared this EA to address the proposed action as currently understood. As design and modeling for beneficial use progresses, supplemental NEPA will be necessary to analyze the effects of using these areas and to determine how dredging actions will be altered to accommodate these new placement locations going forward.

In the most favorable environmental scenario, the East and West Seal Islands could be ready to receive material as early as 2026. Conceptual designs comprise marsh and mudflat creation in the coves of Seal Islands. Drawing on proposed actions elsewhere in the Bay, a beach berm fronted by large woody debris is being considered to protect the new marsh from erosion (San Francisco Estuary Institute 2020).

In addition, there is long-term potential for beneficial use to be expanded to include MOTCO's Roe and Ryer Islands if and when the Seal Islands reach their capacity to receive dredge material. Roe Island is approximately 218 AC and Ryer Island is approximately 855 AC. They are composed primarily of freshwater emergent marsh.

2.4.3. Existing Beneficial use Areas

Montezuma Wetlands Restoration Project (MWRP)

Montezuma Wetlands Restoration Project (MWRP) is a privately-owned restoration project located on the eastern edge of Suisun Marsh north of the confluence of the Sacramento and San Joaquin Rivers near the town of Collinsville, in Solano County. The site can accept both cover and foundation material. Foundation material is allowed only in the deepest portions of the site and must be covered with at least 3 feet of clean cover material. Additional screening of dredge spoil material down to 20mm would be necessary for material from MOTCO to be used at this site. The increased transport distance makes use of the MWRP site a more expensive option to pursue. A more detailed description of the MWRP project is found in Appendix A-2.

Cullinan Ranch Restoration Project

The Cullinan Ranch Restoration Project is located along the northern shoreline of San Pablo Bay near the City of Vallejo in Solano and Napa Counties. The site consists of diked bay lands that was used for agriculture until the late 1980s. The USFWS is currently restoring over 1,500 AC of the site to tidal wetlands consistent with the USFWS' recovery plan for salt marsh harvest mouse and California (Ridgway's) clapper rail. In addition, it is believed that the restored marsh would provide suitable habitat for sensitive fish species, as well as providing food and nutrients for aquatic species in the adjacent Napa River Estuary and San Pablo Bay. As of December 2017, approximately 800,000 CY had been placed at Cullinan Ranch, leaving a remaining capacity of approximately 2 million CY.

Additional screening of dredge spoil material down to 20mm would be necessary for material from MOTCO to be used at the Cullinan Ranch Restoration Project site. The increased transport distance makes use of this site a more expensive option to pursue. Impacts to Federally-listed species and critical habitat are fully described in the San Pablo Bay National Wildlife Refuge Comprehensive Conservation Plan (USFWS 2010,

2011). A more detailed description of the Cullinan Ranch project is found in Appendix A-2.

2.4.4. San Francisco Deep Ocean Disposal Site (SFDODS)

This site could be considered if the levels of sediment contaminants were unsuitable for placement on MOTCO, or unable to be placed in-Bay for reasons unrelated to suitability (i.e. LTMS in-Bay limits). However, the transport distance to the SFDODS (48 nautical miles west of the Golden Gate Bridge) likely makes this site the most expensive for dredge material disposal.

2.5. NO ACTION ALTERNATIVE

Under NEPA, an action agency is required to consider the effects of the action alternative in relation to taking No Action. The No Action Alternative defines the "without project condition" and provides a benchmark enabling decision makers to compare the magnitude of the potential environmental effects caused by the Proposed Action and other alternative actions. The No Action Alternative is not required to be reasonable, nor does it need to meet the purpose and need described earlier. In this case, the No Action Alternative would involve no dredging. If MOTCO continues to forego dredging, sediment and over depth would continue to accumulate in the MOTCO Dredging Areas. MOTCO operations and mission would continue to be adversely impacted and degraded, eventually to the point of mission non-sustainability.

2.6. ALTERNATIVES ELIMINATED FROM CONSIDERATION

2.6.1. Alternative 3: Ad Hoc Dredging, Resume Maintenance Dredging on an As-Needed Basis

Under this scenario, Army would resume maintenance dredging when operators deem necessary to continue full scale mission operations. This as-needed approach would essentially let operators determine the timing and extent of the dredging to be conducted on an ad hoc or emergency basis or alternatively in conjunction with individually-permitted, projects, such as the Waterborne Security Barrier (WSB) or Boat Ramp. Because of the significant gap in time since the area was last dredged, it is not possible to simply resume maintenance dredging. In addition, due to the potential for complex sampling and permitting requirements as well as the need to fully describe cumulative impacts from dredging and other in-water activities, going forward, it is more prudent and efficient to consider MOTCO's dredging as a single program. Thus, this alternative was eliminated.

2.6.2. Established Placement and Beneficial use Sites Not Authorized or Suitable to Receive MOTCO Dredge Material

Antioch Dunes Placement Site

The ADNWR placement site specifies use of clean sand sources for habitat restoration for maintaining sand dunes and habitat for two plants and one insect. The high silt content at MOTCO precludes placement at ADNWR.

SF-9 Carquinez Strait and SF-16 Suisun Bay Placement Sites

MOTCO is not authorized to use these sites due to their in-bay location. In addition, the percentage of sand in MOTCO's sediment samples is below the threshold for placement at the SF-16 site.

2.6.3. Alternative Means and Methods

Use of Hydraulic / Hopper Dredging

As described in the 2015 Federal Navigation Channel EA/EIR Section 3.6.2, Delta Smelt and Longfin Smelt have potential to occur in the Suisun Bay dredge areas during certain seasons. Smelt are not strong swimmers and are presumed susceptible to entrainment in the flow fields created around drag heads of trailing suction dredges. There is also a potential for entrainment during water intake for flushing of hopper dredges. The USFWS Biological Opinion (2019) for maintenance dredging at MOTCO authorized the use of a mechanical (i.e. clamshell) dredge operation only for maintenance dredging. Hydraulic and hopper dredging were eliminated from consideration for the foreseeable future to avoid entrainment and adverse effects to Delta smelt and longfin smelt.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The MOTCO Integrated Natural Resources Management Plan (INRMP; U.S. Army, 2024) provides an overview of habitat, flora and fauna found on the installation. Appropriate Conservation Measures from the INRMP, including surveys for Federallylisted wildlife and plants will continue to be implemented as required by the INRMP. The geographic scope of the San Francisco Bay to Stockton, California, Navigation Improvement Project IGRR-EIS (USACE 2020b) includes the Suisun Bay and MOTCO area.

3.1. SCOPE OF ENVIRONMENTAL ANALYSIS

This chapter describes the affected environment and the environmental impacts associated with the alternatives, as well as mitigation and best practices, where applicable, to reduce potential impacts. The affected environment sections provide an environmental baseline of each resource category, describing the conditions in the study area at the time this document was prepared. The environmental conditions described in the affected environment sections constitute the baseline conditions against which impacts are assessed. Maintenance dredging occurred in this area from 1943-1994 (Table 1-1) as it was regularly dredged and maintained by the Navy. Accordingly, the previous Navy maintenance dredging practices and the environmental impacts of these practices, are part of the baseline conditions to which the impacts of the action alternatives are compared.

The environmental consequences discussion provides an analysis of the potential adverse and beneficial environmental impacts that could result from implementing the action alternatives compared to the No Action Alternative. Impacts from dredging, transport of dredged materials, and placement of dredged materials are evaluated.

3.2. ENVIRONMENTAL RESOURCES NOT APPLICABLE OR EVALUATED IN DETAIL

Certain environmental resources are not present in the dredging or dredge disposal areas and are eliminated from further analysis in this EA. There is no anticipated modification on the proposed MOTCO Maintenance Dredging Program over the 10-year life of the project (2025 to 2035), with dredging occurring biennially between August 1 and November 30. Any modification to dredge material handling and placement considered beyond what is discussed in this EA may require additional environmental analysis and would require approval by the Commander at MOTCO and approval of any applicable permits. Dredging outside of the annual fish window is not included in this analysis and may trigger additional NEPA actions, including evaluation of the environmental effects, identification of mitigation measures, and the opportunity for public review and comment.

3.2.1. Forestry

Forestry resources are not present in the MOTCO dredging project areas, and therefore would not be impacted by dredging and placement activities.

3.2.2. Land Use-Agriculture

The Proposed Action is not expected to produce any adverse effect to land use or agriculture. There is no work or staging of equipment or materials on agricultural land at MOTCO. The Borrow and Placement Sites are disturbed upland habitat with non-native grass and other vegetation. The Placement Site was a former Navy dredge materials placement site that has been revegetated and managed for grazing (USACE 2024). All maintenance dredging for access to the wharves and Boat Ramp area is in-water work that would not remove terrestrial vegetation. Use of the Borrow Site for materials to construct the berms at the Management Site would not contribute to changes in land uses, nor produce a permanent conversion of prime and unique farmlands to other land uses. Likewise, land use would not change at the Placement Site. There is no further discussion on land use or prime and unique farmlands with a determination of no effect on these resources.

3.2.3. Energy

Although dredging and placement activities do require consumption of nonrenewable energy resources, the project alternatives would not require substantially more or less energy than historic maintenance dredging operations at MOTCO. Therefore, energy impacts are considered negligible, and this resource is not evaluated further in this EA.

3.2.4. Noise

MOTCO Wharves, Barge Pier, and The Boat Ramp area are not near sensitive receptors (e.g., residences, schools, and hospitals), and do not exceed the Federal Transportation Authority's noise assessment thresholds (FTA 2006) to evaluate potential dredging noise impacts. Commercial and recreational ship traffic is an ambient noise source on the Federal navigation channels, near Wharves 2, 3, Barge Pier, and the Boat Ramp area. The proposed dredging operations would not increase noise levels above the ambient level of noise associated with traffic in the Suisun Bay in the vicinity of the dredging project. Therefore, implementation of the project alternatives would have no adverse impacts on the human noise environment, and this resource is not evaluated further in this EA. Noise impacts on biological resources are discussed in Section 3.6, Biological Resources.

3.2.5. Recreational Resources

MOTCO dredging would not involve the construction of recreation facilities, would not create demand for new recreational facilities, and would not result in increased use and deterioration of existing recreational facilities. Recreational vessels may travel through the adjacent Federal navigation channel; however, the dredging is not anticipated to affect the use of the channel to pass through the Suisun Bay. Waters immediately adjacent to MOTCO are off-limits to civilian activities, including all forms of recreation. Impacts would not extend into the adjacent Point Edith. Therefore, the project alternatives would not adversely impact recreational resources, and this resource is not evaluated further in this EA.

3.2.6. Aesthetics and Visual Resources

There would be no long-term adverse effect to aesthetic and visual resources. Therefore, this resource is not evaluated further in this EA.

3.2.7. Utilities and Infrastructure

Evaluation of effects on utilities and infrastructure includes analysis of whether the proposed dredging and dredged material disposal would result in the relocation or loss of utilities. The initial and maintenance dredging of the approach channel and berthing areas at MOTCO's Wharves 2, 3, Barge Pier and Boat Ramp area would not displace any existing electrical or water utilities. The direct, indirect, and cumulative effects of dredging would not directly or indirectly affect the electrical and water utilities associated with MOTCO's Wharves 2, 3, Barge Pier and Boat Ramp area. In addition, the dredging is not anticipated to affect any utilities located beneath Suisun Bay, as the depth of dredging would be within the authorized depth and over dredge depth for dredging activities, which have been ongoing. The MOTCO materials Placement Site does not have any utilities underneath the area. Nor would the use of existing, approved dredged material disposal sites disturb existing utilities. However, the Proposed Action may involve using MOTCO's sewer system via an existing NPDES permit and Special Use Permit to discharge treated dredge water. There would be no impact to sewer facilities, and potential effects to water quality from this discharge is analyzed in the Hydrology and Water Quality chapter. Therefore, there is no further discussion on utilities and infrastructure in this EA.

3.2.8. Transportation, Circulation, and Navigation

The Traffic and Transportation discussion in Section 3.10 of the 2015 Federal Navigation Channels EA/EIR generally characterizes the regulatory setting, existing conditions, and the affected environment for this resource.

There would not be any effects to road traffic or transportation on public roads outside the installation. The direct effects to traffic and circulation found within the MOTCO installation are short-term and limited to construction of the Management Site and truck hauling of dredge material within MOTCO. There is no further discussion on traffic and transportation.

MOTCO dredging would have no effect on navigation in the adjacent Suisun Bay Channel. Dredge materials will be pumped to the Management Site near Wharf 2 (Figure 1-3) for ordnance processing, dewatering, and loading onto trucks. The transport route from the processing site to the placement site is up to 7 miles. An estimated 6,000 truck trips (~16 CY capacity) would be required to transport 93,961of CY for the initial dredging event.

3.2.9. Regional Growth

The proposed dredging and dredged material placement activities would not result in any new residences or infrastructure that could facilitate growth in the local area. Maintenance dredging, transport, and placement would not require the expansion of water or energy conveyance, nor would the project alternatives require the construction of new roads. The project alternatives would not remove any existing obstacles to growth. Therefore, the project alternatives would have no impact on regional growth, and this topic is not further evaluated in this EA.

3.2.10. Socioeconomics

The project represents a continuation of MOTCO's historic activities, for which there are no known socioeconomic impacts. The project area is on the northern portion of the base adjacent to Suisun Bay; there are no residences or at-risk communities nearby. Therefore, the project alternatives would not adversely impact socioeconomics, and would not result in disproportionately high and adverse impacts to at-risk populations.

3.2.11. Coastal Inundation

Section (2.3.2) from the San Francisco Bay to Stockton, California, Navigation Improvement Project IGRR-EIS (USACE 2020b) is incorporated by reference. At a local level, the navigation channel and surrounding area may be at greater risk of changing weather patterns, such as the current drought affecting water resources, or the increasing intensity of rainfalls that can cause localized flooding. These effects are regional in nature and the environmental settings, in turn, are the same throughout the study area.

3.3. RESOURCES COVERED IN DETAIL

The resources discussed in the sections that follow are:

- Geology, Soils, and Sediment Quality
- Hydrology and Water Quality
- Air Quality
- Biological Resources
- Cultural and Paleontological Resources
- Hazards and Hazardous Materials

For each resource section, the analysis is presented as follows:

- 1.0 Under "Regulatory Setting," the Federal, State, and local regulatory framework applicable to implementation of the project alternatives is described.
- 2.0 Under "Environmental Setting," the existing environmental conditions in the study area are described. The region of influence varies by resource and is defined, where appropriate, for each resource.
- 3.0 Under "Methodology and Thresholds of Significance," the significance criteria for each resource topic and thresholds used to assess the severity of the environmental impact are explained.
- 4.0 Under "Effects," direct, indirect, and cumulative impacts are analyzed, and a full description is provided of the mitigation measures that are recommended or required to reduce project impacts for that resource area.
- 5.0 Under "Cumulative Impacts," the total direct and indirect impacts, as well as the effects of other actions that have occurred, are currently occurring, and are reasonably foreseeable in the future, are described.

Direct impacts are the primary effects that are caused by the alternative and occur at the same time and place. Indirect impacts are secondary effects that are reasonably foreseeable and caused by the alternative but occur at a different time or place. Cumulative impacts result from the incremental impact of the Proposed Action Alternatives when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (see below for further discussion of cumulative impacts).

3.3.1. Methodology and Thresholds for Significance

Significance criteria for each resource topic were used to assess the severity of the environmental impacts of the Proposed Action Alternatives. NEPA does not have specific impact thresholds that are used to assess the significance of impacts on a given resource topic. When assessing whether a Proposed Action would significantly affect the quality of the human environment, environmental impacts should be evaluated in terms of context, intensity, and duration (32 CFR § 651.39(b)). Context refers to the geographic area (spatial extent) of impact, which varies with the physical setting of the activity and the nature of the resource being analyzed. Intensity refers to the severity of the impact; evaluation of the intensity of an impact considers the sensitivity of the resource, as well as other factors. The duration of the impact is described as short-term or long-term.

In the resource sections, discussion of impacts is organized according to the impact type. Under each impact type title, impacts are analyzed for each alternative, and a determination of the level of the impact is presented. Alternative 1 and Alternative 2 (Proposed Action) differ only in the implementation time, thus the impacts discussion is combined under most resource effects sections to avoid redundancy.

Impacts analyzed are classified as beneficial, negligible, less than significant, or significant, which are defined as follows:

- A beneficial impact would generally be regarded as an improvement over current condition;
- A negligible impact would cause a slight, adverse change in the environment but one that generally would not be noticeable;
- A less than significant impact would cause an adverse change in the environment that would likely be noticeable, but does not meet or exceed the defined significance criteria; and
- A significant impact would cause a substantial, adverse change in the environment that would exceed the defined significance criteria.

Avoidance or mitigation measures are identified to reduce the project's impacts, where feasible.

3.3.2. Cumulative Effects

"Cumulative impacts" refers to two or more individual effects that, when combined, could be more considerable. Potentially significant cumulative impacts can result from individually minor, but collectively significant impacts taking place over time. The discussion of cumulative impacts provides an analysis of cumulative impacts of the project, taken together with other past, present, and reasonably foreseeable future projects, producing related impacts. The goal of this analysis is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant; and second, to determine whether the project itself would cause a "cumulatively considerable" incremental contribution to any such cumulatively significant impacts. In other words, the required analysis first creates a broad context in which to assess the project's incremental contribution to anticipated cumulative impacts, viewed on a geographic scale beyond the project site itself; and then determines whether the project's incremental contribution to any significant cumulative impacts from all projects is itself significant.

The geographic scope of cumulative effects analysis for this project under the LTMS is defined as the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. The effects of this dredging project are similar to other past, present, and reasonably foreseeable dredging projects throughout the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, as analyzed in the LTMS (USACE 2015). The cumulative effects of this project would not have significant effects to waters in the immediate area, that is Suisun Bay, or the greater San Francisco Bay area. This project utilizes measures which would minimize adverse environmental effects, including sediment analyses to identify appropriate placement sites, minimizing the effects of contaminants on sediment and water quality and mechanical dredging and work windows to minimize adverse effects on fish species. The mitigation measures and BMPs discussed below (Sections 3.4-3.8) will minimize the adverse effects of maintenance dredging at MOTCO. Overall, the maintenance dredging would result in little, if any, incremental contribution to cumulative effects.

Table 3-1 Past, present, and reasonably foreseeable future projects considered in the cumulative effects analysis.

This list includes projects that are likely to result in impacts similar to those of the project alternatives. The list of projects generally includes those in close proximity to the Federal channels and placement site (i.e., those that could result in overlapping impacts, such as navigation and air quality), or other projects along the San Francisco Bay/Sacramento-San Joaquin Delta Estuary that could result in overlapping impacts to resources such as biological resources and water quality. Cumulative effects are addressed at the end of each resource section.

Cumulative Scenario – Present and Reasonably Foreseeable Projects							
Project Number	Project Name/ Location	Status/ Anticipated Timeline	Project Summary	Source			
1	Non-Federal Maintenance Dredging in San Francisco Bay	Ongoing	More than 100 marinas, ports, and berthing slips are maintenance dredged in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. Most of the non-Federal maintenance projects are along the shorelines and in the tributaries of the Estuary.	USACE and USEPA, 2009			
2	San Francisco Bay and Delta Sand Mining Project	10-year leases to continue mining sand (until 2022)	The CSLC action is a 10-year General Lease through December 31, 2022. Hanson Marine Operations proposed new, 10-year mineral extraction leases to enable the continuation of dredge mining of construction-grade sand from certain delineated areas of Central San Francisco Bay, Suisun Bay, and the western Sacramento-San Joaquin River Delta Estuary area. In 2023 the California State Land Commission posted a notice that they are preparing a Supplemental EIR.	CSLC, 2012; CEQAnet, 2013; CSLC 2023			
3	Sacramento Deep Water Ship Channel	On hold; Planning phase could occur within 10-year planning horizon	USACE is the project sponsor for the Sacramento River Deep Water Ship Channel (SRDWSC), a 43-mile-long channel in Contra Costa, Solano, Sacramento, and Yolo Counties that serves the marine terminal facilities at the Port of West Sacramento. The 30-foot-deep SRDWSC joins the 35-foot-deep John F. Baldwin Ship Channel, allowing access to the San Francisco Bay Area harbors and the Pacific Ocean. The project involves resuming construction of the 35-foot-deep channel, as authorized in 1986. Study work has been on hold since 2014, pending resumption/start of adequate forecasted commodities and increased economic demand for the project.	USACE, 2013b; USACE, 2020c.			
4	San Francisco Bay to Port of Stockton John F. Baldwin Ship Channel Phase III Navigation Improvement Project	On hold; Planning phase	USACE is the project sponsor for deepening the John F. Baldwin channel to 45 feet MLLW and the Stockton Deep Water Channel to 40 feet MLLW for draft navigation. In 2020, USACE posted a notice of study termination and withdrawal of notice of intent to prepare an Environmental Impact Statement. This project did not receive any funding in FY20 or FY21, but is still eligible for future funding.	USACE, 2012b; USACE 2021			
5	Stockton Deep Water Ship Channel Operations and Maintenance	Ongoing	Maintenance dredging of the Stockton portion of the channel to 35 feet MLLW by USACE Sacramento District.	USACE, 2012b; USACE 2024			
6	Suisun Marsh Restoration Plan	Planning phase	The United States Department of the Interior is the project sponsor for tidal restoration targets of 5,000 to 7,000 acres and 44,000 to 46,000 acres of managed wetlands during the 30-year implementation period.	U.S. Department of the Interior, USFWS, and CDFW, 2011			
7	MOTCO Wharf 2 Modernization/Wharf 3 Repairs	Ongoing	MOTCO project to modernize Wharf 2 and repair Wharf 3. Wharf was completed in May 2021. Repair of Wharf 2 east trestle completed in 2024. Installation of cranes on Wharf 2 anticipated 2QFY27.	SDDC pers. comm. 2025			
8	MOTCO Wharf 4 and Lighter Berth Removal	Planning Phase	MOTCO project to remove the existing Wharf 4 and remove unused lighter berths FY28+.	MOTCO pers. comm. 2019/20			
9	MOTCO Boat Ramp	Planning/Design Phase	MOTCO project to construct Boat Ramp in former Navy Tug Basin in FY27.	SDDC pers. comm. 2025			
11	Federal Navigation Channel Dredging	Ongoing	USACE annual dredging of the Federal navigation channels in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary area.	USACE 2015; USACE 2025			
12	MOTCO Modernize Rail Infrastructure	Ongoing and Design	MOTCO project to repair the industrial lead connection to the Union Pacific Line, construct railcar inspection stations, expand Class Yard 1, demolish and repair railroad tracks and rail barricaded sidings area, and construct new rail along Waterfront Road.	MOTCO pers. Comm. 2025 (U.S. Army pers, Comm 2025a).			
13	Cargo Staging Area	Acquisition Phase	MOTCO project to construct eleven new cargo staging areas adjacent to the eight existing areas to meet mission requirements.	U.S. Army, 2025b			
14	MOTCO Waterside Security Barrier	Design Phase	Construct floating fence barrier with buoys and concrete anchors. Construction planned for FY27.	USACE pers. comm. 2025			
15	MOTCO Floodwall	Design Phase	Construct flood control wall along MOTCO's northern shore. Construction planned for FY29.	USACE pers. comm. 2025			
Notes: CDFW = California Departme CEQA = California Environme CSCC = California State Coa CSLC = California State Land EIR = Environmental Impact	ent of Fish and Wildlife ental Quality Act Istal Conservancy ds Commission Report	MLLW = mean lowe SRDWSC = Sacran WETA = San Franc USACE = United St USCG = United Sta USFWS = United Sta	r low water nento River Deep Water Ship Channel isco Bay Area Water Emergency Transportation Authority ates Army Corps of Engineers tes Coast Guard tates Fish and Wildlife Service	1			

3.4. GEOLOGY, SOILS, AND SEDIMENT QUALITY

This section evaluates the project alternatives' potential effects related to erosion and sediment quality. Sediment-related impacts on water quality (e.g., turbidity, contaminant suspension) from dredging and placement activities are discussed in Section 3.5, Hydrology and Water Quality. Potential impacts associated with sediment quality impacts on fisheries and other aquatic species are addressed in Section 3.6, Biological Resources. There is no change to the existing geology, soils, and seismicity relevant to the discussion of this area of the affected aquatic environment of the Suisun Bay.

3.4.1. Regulatory Setting

The Geology, Soils, and Sediment Quality in Section 3.3 of the 2015 Federal Navigation Channels EA/EIR generally characterizes the regulatory setting for this resource since the nearby existing sediment quality conditions are similar in the approach channel and berthing areas compared to the adjacent area of the Suisun Bay Channel. When required, coordination with the DMMO would occur prior to initiation of dredging activities, and permits may be required prior to initiation of dredging.

The DMMO is a joint program of USACE, USEPA, the Regional Water Board, BCDC, and California State Lands Commission. Participating agencies include the California Department of Fish and Wildlife, National Marine Fisheries Service, and the U.S. Fish and Wildlife Service. The purpose of the DMMO is to cooperatively review sediment quality sampling plans, analyze the results of sediment quality sampling, and make suitability determinations for material proposed for placement in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

When required, applicants submit results from recent sediment testing, based on an approved sediment Sampling and Analysis Plan (SAP). DMMO would review sampling results and make a determination about where the materials can be disposed in their jurisdiction. Although the DMMO provides initial review of permit applications, applicants must eventually obtain separate approval from the appropriate DMMO member agencies (e.g., CWA Section 401 WQC from the Regional Water Board); each agency issues permit conditions and specific requirements about how the project is to be performed.

However, initial dredging phase of the Proposed Action Alternatives does not trigger the need for a CWA Section 401 Certification, RHA Section 10 or CWA 404 permit. Future phases will likely require CWA permits for use of additional placements sites such as Seal Island.

3.4.1.1. Sediment Sampling and Testing

The Inland Testing Manual (ITM, USACE and USEPA 1998), Ocean Testing Manual (OTM, USACE and USEPA 1991), and the Upland Testing Manual (UTM, USACE 2003) specify the sampling and testing requirements for dredged material based upon the potential placement site. Some upland sites may have additional requirements beyond those specified in the three manuals.

The DMMO is a forum used by project proponents and the regulatory agencies to ensure sampling and testing programs meet water quality standards and that dredged material is placed in sites that are appropriate for the type and quality of the material to be dredged.

The SAP describes the process for compositing, analyzing and reviewing sediment results for Federal maintenance dredging projects (see example USACE 2014b). The SAP for MOTCO dredging describes how material should be collected, shipped, stored, handled, and tested for certain physical, chemical, and biological analyses. The SAP in 2019 for sampling the area adjacent to the wharves and Barge Pier was updated to include the Boat Ramp area. Additional sediment sampling required for the Boat Ramp area shall be conducted prior to the initial dredging event according to the 2025 SAP.

In accordance with the ITM, when the material to be dredged is greater than 80 percent sand and is in a high-energy environment, it is assumed to be clean and exempt from further testing. Sediment directly in front of MOTCO Wharves (Piers) 2, and 3, and the Barge Pier is <80% sand. The sediment was previously tested in 2014 in accordance with a DMMO reviewed Sediment SAP (USACE 2014c). MOTCO submitted a Pre-dredge Sediment Sampling and Analysis Plan (U.S. Army 2019a) to the DMMO for sampling in October 2019 to provide current sediment data for identifying appropriate placement or disposal sites. A comparison of DMMO criteria and bioaccumulation tissue concentration results indicate that bioaccumulation of polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides and metals is not anticipated (USACE 2014c, 2020).

Dredged materials from Suisun Bay Channel have historically been comprised predominantly of sand with low levels of metals and butyltins and very low or nondetectable levels of PAHs, pesticides, and PCBs, which excludes these dredged materials from further chemical and biological analyses. Dredged materials would be handled as one composited volume for placement and would meet the Bay Bioaccumulation Trigger values at the beneficial use site.

Confirmatory grain size analysis for the Suisun Bay Channel is conducted on a 5-year cycle. The last planned episode was 2019. USACE sampled sediment in the MOTCO project area using an approved SAP (U.S. Army 2019a) and results reported in the Sediment Analysis Report (USACE 2020a).

3.4.2. Environmental Setting

Composited sediment samples (U.S. Army 2019a) were collected for chemical analyses and grain-size testing of MOTCO by USACE (2020). The preliminary report shows fine sediments (silt and clay) ranging from 32.5 to 93.5 percent in the dredging permit area (USACE 2020a).

3.4.3. Methodology and Thresholds of Significance

The Proposed Action Alternatives, neither proposes construction of new structures nor introduce elements that would increase potential risks related to rupture of a known earthquake fault; seismic shaking; or seismic-related ground failure, including liquefaction; or landsides.

Similarly, because channels would be dredged to previously maintained depths, both project alternatives carried forward would not involve activities that would cause geologic units or soils to become unstable, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse. This determination excludes minor

erosion of the channel sides from sloughing that may occur after the channels are dredged.

Placement of dredged material at MOTCO and removal of soil from the borrow area is not expected to result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse because the placement of dredged material at these sites is managed and monitored to avoid such impacts. Because the project alternatives would have no potential impacts related to seismic risks or unstable geologic resources, these topics are not further addressed in this section. In addition, it is not anticipated that soil compression at the management site would result in any significant changes in the local soil characteristics of the placement site.

Likewise, the MOTCO Dredging project is not expected to result in adverse impact on minerals (USACE 2015).

Therefore, the analysis here considers whether the Proposed Action would:

- Result in substantial soil erosion, or
- Substantially degrade sediment quality (i.e., substantially increase sediment contaminant concentrations above ambient conditions).

3.4.3.1. Exposure to Constituents of Concern and Bioaccumulation

Sediment sampling was conducted and analyzed for MOTCO Wharf renovation (USACE 2014c). These analyses indicate there are unlikely to be constituents of concern in the sediments to be dredged. USACE conducted confirmatory sediment sampling and analysis during fall 2019 to the depths proposed for this project, plus the required overdepth, prior to dredging. The testing (U.S. Army 2020) confirmed that the sediments are chemically suitable for placement at Montezuma Wetlands, SF-9, SF-DODS, and Cullinan Ranch. Materials processing and placement at MOTCO provides for safe removal of UXO. Therefore, the material is appropriate for placement at the Management Site and Placement Site. Once established, Seal Island would have its own sediment quality criteria. As that has not yet been established, no determination of suitability can be made for that site at this time.

3.4.4. Effects

No Action Alternative

Under the No Action Alternative, dredging would not occur. There would be no temporary effects or cumulative impacts to the geology, soil, and sediments at MOTCO under the No Action Alternative.

3.4.4.1. Potential for Dredging, Transport, and Placement Activities to Result in Substantial Soil Erosion

Proposed Action Alternatives

Under the Proposed Action Alternatives, dredging would remove sediment that has accumulated since the prior dredging event (circa 1994). Although the Proposed Action Alternatives may result in minimal erosion from sloughing along the wharves due to the disturbance of sediments, historic patterns of erosion and sediment accumulation would

not be expected to change. Transport of dredged materials would not disturb sediments, and therefore would not result in any erosion effects.

The potential for erosion effects due to placement activities would be minimal. Dredging would occur in the water and some sloughing of the perimeter edges along the wharves may occur, but the area should stabilize shortly following dredging operations. The Placement Site will be managed to allow for natural growth through seeding and spreading at an angle to allow for gradual drainage. The placement of dredge material at the MOTCO Management Site is not anticipated to result in any substantial soil erosion as the required sediment and erosion controls for that area would be implemented and berms would be constructed around the site to ensure runoff doesn't occur, as required by any plans or permits for those sites. In addition, the contractor would be required to obtain a storm water pollution prevention plan (SWPPP), which will require BMPs to prevent erosion. Potential erosion control measures include grading the slope of placed materials and hydroseeding for vegetation to stabilize the site. Berm barriers and coffer dams may also be used to retain placed materials on a site during stabilization. Placement at MOTCO's Management Site and Placement Site should be predominantly non-dispersive. Dredge material placement at the Management Site will be temporary. Materials will also be closely managed and monitored. The lined and bermed Management Site would be constructed so as to not allow runoff from the site and any potential leaching into the groundwater table (i.e., dredged materials largely remain at the placement location during dewatering). It is not anticipated that the dredge materials will be dispersive (i.e., dredged materials disperse from the management site during the dewatering at the Management Site). Similarly, depositing dredge materials at the Placement Site is not anticipated to cause erosion either over time. Neither the initial nor the proposed long-term maintenance dredging included in the Proposed Action Alternatives is anticipated to result in substantial soil erosion.

UXOs found during dredging will be inspected by UXO Technicians through the multistage screening process. Due to the original explosion some of the found UXOs will most likely be determined to be Munitions Debris as the explosives were either consumed or if the munition casing that were breached or cracked, those contents have likely been dispersed by decades of the Suisun Bay currents.

<u>Effects Determination</u>: Under the Proposed Action Alternatives, erosion effects from dredging would be less than significant. The mechanical dredging would have no effect on erosion as the dredged materials would be removed from the water and any remaining sediments at the intended depths would disperse in the currents. The transport and placement of dredged material at MOTCO could result in beneficial reuse of soil resources at a later date.

3.4.4.2. Potential for Dredging, Transport, and Placement Activities to Substantially Degrade Sediment Quality

Proposed Action Alternatives

Based on historic sediment testing data from the Federal navigation channels in Suisun Bay (USACE 2015) and the Proposed Action area (U.S. Army 2020c), dredged material has been determined suitable for placement, and proposed potential alternate placement sites have been identified. The initial and proposed long-term maintenance dredging is not anticipated to result in negative changes to sediment quality based on historical data from testing earlier from the Federal navigation channels in Suisun Bay (USACE 2015) and the Proposed Action area (U.S. Army 2020. Those tests indicated materials were suitable for placement in the Bay and so the anticipation is that the dredge materials from the Proposed Action Alternatives will be of similar acceptable quality.

The placement of dredge material at the MOTCO Placement Site is not anticipated to result in any substantial negative effects to sediment quality. The results from the sediment analysis report are consistent with the ambient analyte levels in the surrounding San Francisco Bay/Sacramento-San Joaquin Delta Estuary area. Several analytes were slightly above threshold levels but were biologically unavailable as determined by the bioaccumulations test. The dredged material, and sediment will be handled together prior to placement. The composited dredge materials would be below the Bay Bioaccumulation Trigger values at the Placement site.

<u>Effects Determination</u>: Under the Proposed Action and Alternative 1, short and long-term effects to sediment quality would be negligible. That is, an impact that would cause a slight, adverse change in the environment, but one that is generally anticipated to be negligible impact, that is it may cause a slight, adverse change in the environment, but one that generally would not be noticeable (U.S. Army 2020c). The effects of dredging and material transport on sediment quality are anticipated to be negligible because the constituents are near or below ambient levels found throughout area. Placement of dredge materials based on chemical analysis would ensure the effects on sediment quality are beneficial or not significant.

3.4.5. Cumulative Impacts

3.4.5.1. Potential for Dredging, Transport, and Placement Activities to Result in Cumulative Impacts on Sediments and Soils

Proposed Action Alternatives

The proposed initial and long-term maintenance dredging included in both alternatives is not anticipated to result in cumulative impacts to soil erosion in the berthing areas at MOTCO. The cumulative effect of dredging has lowered the bed in the vicinity of MOTCO, reducing the differences in depth between the berthing areas and the surrounding area. Continued long-term maintenance dredging should produce a stable slope around the berthing areas.

<u>Effects Determination</u>: The Proposed Action Alternatives would not result in cumulative impacts on sediments and soils. The cumulative impacts of dredging on sediments and soils are anticipated to be negligible over the long-term. Transport and placement of dredge materials would have beneficial cumulative impacts if used at beneficial reuse sites in the future following additional NEPA review.

3.4.5.2. Impact: Potential to Result in Cumulative Impacts to Sediment Quality

Proposed Action Alternatives

The proposed long-term maintenance dredging in the Proposed Action Alternatives is not anticipated to result in cumulative impacts to sediment quality. Dredging would not change

sediment quality, because settling of sediments, similar to those found in earlier testing would be anticipated to occur within the footprint following dredging.

Regarding the Management Site and Placement Site, recurring monitoring of sediment chemical composition required by DMMO will ensure timely identification of changes in sediment quality. The material transported to the Placement Site would meet the appropriate criteria for placement at that site, so changes in sediment quality are not anticipated. Significant changes to sediment quality would result in DMMO changing the approved placement site to avoid adverse cumulative impacts.

<u>Effects Determination</u>: The Proposed Action Alternatives would not contribute to significant cumulative sediment quality impacts. The cumulative impacts of dredging and material transport on sediment quality are anticipated to be negligible because of periodic monitoring of the constituents to verify chemical composition are consistent with ambient levels in the area. Chemical analysis of dredge materials would ensure the cumulative impacts on sediment quality at placement sites is either beneficial or not significant.

3.5. HYDROLOGY AND WATER QUALITY

This section describes the existing hydrologic and water quality regulatory and environmental setting of San Francisco Bay/Sacramento-San Joaquin Delta Estuary and the offshore ocean environment and analyzes the potential impacts of the project alternatives on water resources. The materials processing area shall have silt fencing around the perimeter to retain sediment during dewatering. Water may be recycled for pumping sediment from scows and filtered for infiltration into local groundwater. Existing conditions and potential impacts associated with water quality impacts on fisheries and other aquatic species are addressed in Section 3.6, Biological Resources.

3.5.1. Regulatory Setting

The Hydrology and Water Quality in Section 3.4 of the 2015 Federal Navigation Channels EA/EIR generally characterizes the regulatory setting for this resource since the nearby existing water quality conditions are the same in the approach channel and berthing areas compared to the adjacent area of the Suisun Bay Channel. When or if required in the future, coordination with the DMMO would occur, and permits from USACE (CWA 404, RHA), RWQCB (CWA 401) may be required as may a consistency determination through BCDC.

3.5.2. Environmental Setting

The Hydrology and Water Quality discussion in Section 3.4 of the 2015 Federal Navigation Channels EA/EIR generally characterizes the affected environment and management for this resource since there is no difference in the water quality of the approach channel leading to MOTCO's wharves and Boat Ramp location compared to the existing water quality condition for the nearby Suisun Bay Channel. The wharves, Barge Pier and Boat Ramp location are in close proximity to the existing water quality identified for the Suisun Bay Channel. For the area identified as the approach channel and berthing areas to be dredged, this MOTCO Dredging EA discloses the short-term and long-term, direct, indirect, and cumulative effects associated with maintenance dredging over a 10-year period (2025 to 2035) between August 1 and November 30.

3.5.3. Methodology and Thresholds of Significance

This EA uses the same methodology, thresholds or no impact findings as described in the 2015 Federal Navigation Channel EA/EIR Section 3.4.3.

No Action Alternative

Under the No Action Alternative, dredging would not occur. There would be no temporary effects or cumulative impacts to hydrology and water quality at MOTCO under the No Action Alternative.

3.5.3.1. Turbidity, Suspended Sediment and Chemical Constituents

The Proposed Action could produce increased suspended sediments and turbidity in the action area from clamshell dredging operations and placement of spoils at the disposal site. Background turbidity in the estuary is naturally high, with total suspended solids (TSS) levels varying from 10 mg/L to more than 100 mg/L (Robinson and Greenfield 2011). However, sediment plumes would be generated from excess sediment and other material entrained (e.g. air bubbles) being discharged back into the water during dredging. Plumes typically have an increased suspended sediment concentration, and thus elevated turbidity. The degree of sediment re-suspension depends on the material, size and composition of the sediment being re-suspended. Plume size, concentration, and duration of the plume depend on environmental and operational specific factors. During dredging, sediments may become suspended because of the clamshell bucket's impact to the bottom, material washing from the top and side of the bucket as it passes through the water column, sediment spillage as it breaks the water surface, spillage of material during scow loading, and intentional overflow in an attempt to increase the scow's effective load which is only permissible for material that is 80 percent or more sand.

Turbidity plumes were measured during clamshell dredging in the Oakland Harbor and Richmond Inner Harbor, located in Central San Francisco Bay, and Redwood City Harbor, located in the South San Francisco Bay (USACE 2015). Sediment in these channels ranges from very fine silt to sandy-silt. The purpose of the turbidity monitoring was to determine if dredging and/or overflowing of scows exceeded the turbidity requirements in the project's water quality certification. The water quality certification requires that increased turbidity be less than 50 NTU or no greater than 10 percent if the baseline NTU is greater than 50 at the point of compliance (i.e., 500 feet downstream of dredging). Ambient turbidity was measured 200 feet up current from dredging, in areas that were not affected by the turbidity plume. The turbidity plumes were measured at 200 feet down current from the dredge (referred to as the early warning location) and 500 feet down current from the dredge (referred to as the point of compliance). For each location, turbidity was measured near the surface (approximately 2 feet below the surface), middepth, and near the bottom (approximately 2 feet above the bed). Turbidity was measured when the scow was overflowing (decanting) and when the scow was not overflowing, and also represented the range of tides in the region. Measurements were taken every 10 minutes at each location. Exceedances of the water quality turbidity standards occurred periodically for all channels, with most exceedances occurring in the Richmond Inner Harbor, where sediment is very fine-grained.

Dredging is anticipated to produce temporary, localized turbidity plumes that will be carried and dissipated by current flowing through the area. The plume would have no long-term effect on water quality. Placement of dredge material on the Management Site (Figure 1-3) likewise would not affect turbidity. In addition, the Management Site would be lined and a berm would be constructed so as to not allow runoff from the site and any potential leaching into the groundwater table. Sediment would be completed based upon the requirements in Delta Diablo's Special Discharge Permit (SDP). Upon verification of water quality sampling results meeting the standards required by Delta Diablo's SDP, water would be released into the Delta Diablo sewer system under MOTCO's existing NPDES permit (Permit #01181117-S) and the SDP. Although the Proposed Action does not need to obtain CWA permits (401 and 404), the Proposed Action would be implemented using the same or similar minimization measures required by such permits. In addition, the contractor would be required to obtain a SWPPP which would ensure construction activities do not impact water quality during storm events through the use of BMPs.

3.5.4. Effects

No Action Alternative

Under the No Action Alternative, dredging would not occur. There would be no temporary effects or cumulative impacts to hydrology and water quality at MOTCO under the No Action Alternative.

Proposed Action Alternatives

The Hydrology and Water Quality discussion in Section 3.4 of the 2015 Federal Navigation Channels EA/EIR characterizes the potential effects to (1) degrade water quality through the alteration of temperature, salinity, pH, and dissolved oxygen, (2) substantially degrade water quality because of increased turbidity, and (3) result in cumulative impacts to hydrology and water quality. While MOTCO's maintenance dredging and placement / disposal action(s) have the potential to substantially degrade water quality because of mobilization of sediments or release of hazardous materials, various measures will be taken to mitigate that potential. Processing dredge material at the temporary Management Site and transfer to the Placement Site minimizes adverse effects on water quality. However, the chances of the release of hazardous materials are minimal or remote given the time since the triggering event in 1944 and the numerous dredging events that have occurred since that time. In addition, the contractor would implement BMPs as required by the Construction Stormwater General Permit that would require a SWPPP. BMPs would help contain any stormwater runoff from the Proposed Action. In addition, the contractor would be required to implement a Spill Prevention Control and Countermeasure Plan (SPPCP) in the event that a spill were to occur. These measures will help ensure water quality is not substantially degraded from sediment or in the event a hazardous spill occurs during construction.

3.5.4.1. Potential to Substantially Degrade Water Quality through Alteration of Water Temperature, Salinity, pH, and Dissolved Oxygen

Proposed Action Alternatives

Studies have shown placement of dredged material from clamshell-bucket dredges into the water column does not cause substantial short- or long-term changes in salinity, temperature, or pH (USACE 2015). Changes in these parameters were localized and short in duration; ambient concentrations of these parameters were usually regained within 10 minutes following material release. Localized minor and temporary dissolved oxygen level reductions (1 to 2 parts per million) may occur during dredging, including barring and knockdown practices, and placement; however, the ambient conditions are shortly regained following settlement of the suspended sediment (USACE 1976).

The movement of vessels for transport of dredged materials would not be expected to affect water temperature, salinity, pH, or dissolved oxygen. In addition, placement of material at the Management Site would not result in any increases in these physical parameters as the water must meet stringent requirements prior to discharging to the sewer system under MOTCO's existing NPDES permit and SPD permit.

Effects Determination: Under the Proposed Action Alternatives, the effects to water quality temperature, salinity, pH, and dissolved oxygen would be short-term and less than significant. The effects of dredging on water temperature, salinity, and pH are anticipated to be temporary and negligible. The effect of dredging on dissolved oxygen would be localized and will vary based on H₂S¹ content of the sediments. Depression of dissolved oxygen levels in open water would not have an adverse effect on organisms in the immediate area.

The effect of material transport and placement on water temperature, salinity, or pH are anticipated to be localized, temporary and negligible.

3.5.4.2. Potential to Substantially Degrade Water Quality Because of **Increased Turbidity**

Proposed Action Alternatives

Under the Proposed Action Alternatives, dredging would cause a local re-suspension of sediments, and a temporary decrease in water clarity. Fine sediments (clay and silt) remain suspended in the water column longer than coarser sediments (sand); therefore, turbidity returns to ambient levels more quickly during dredging of sandy materials. Increased turbidity effects from dredging are short term, minor, and greatly diminish with distance from the activity.

Sediments may become suspended in the water column because of the clamshell bucket's impact to the channel bottom, material washing from the top and side of the bucket as it passes through the water column, sediment spillage as it breaks the water surface, spillage of material during scow loading, and intentional overflow in an attempt to increase the scow's effective load (permissible only for material that is 80 percent or more sand). The spatial extent of turbidity plumes during mechanical dredging operations may result in distinct plumes above background TSS concentrations for distances up to 400 meters from the source (USACE 2015). Generally, mechanical dredges result in greater suspended sediment during dredging activities than hydraulic dredges, and therefore

¹ H₂S or hydrogen sulfide can have harmful effects on aquatic ecosystems as it can decrease dissolved oxygen levels in the water column. HYDROLOGY AND WATER QUALITY 44 May 2025

result in greater increases in turbidity. Short-term increases in turbidity generated by knockdown and barring operations are typically concentrated in the lower portion of the water column in the local area of disturbance (USACE 2015).

Because sediment re-suspension from dredging vessel movement would be limited, the movement of vessels for transport of dredged materials would not be expected to increase turbidity above ambient ranges generated by natural hydrologic processes, weather, and existing vessel traffic.

Some degree of increased turbidity will occur with placement of dredged material in any of the in-water placement environments, and at any placement volume. Water quality effects from ocean or in-Bay placement could be associated with plumes from the initial placement event; or in some cases, from subsequent re-suspension (from dispersive sites). In most cases, such effects would be limited to the area of the plume following placement and would be temporary and localized. The USACE studies show turbidity plumes at placement sites last only 20 minutes, and plume duration is even less during placement of sandy material because the coarse sediments settle out of the water column more quickly than fine sediments (USACE 1976a; 2015). Therefore, effects on turbidity from placement of dredged material would be minor and temporary.

There will be no in Bay placement of dredged materials. The plan calls for the placement of dredge materials at the Management Site and Placement Site. Since there is no in Bay placement of dredge materials, there will be no adverse impacts.

In the future, placement of dredged materials at habitat restoration beneficial reuse projects (particularly wetland restoration) could result in a net benefit to water quality by increasing sediment retention, filtration of pollutants, and shoreline stabilization over the long-term. There will be additional NEPA analysis should such placement occur.

<u>Effects Determination</u>: The effects of the Proposed Action Alternatives to water quality due to short-term increases in turbidity would be less than significant. Dredging will produce temporary localized turbidity around the dredge barge. Mitigation measures should include avoid overflowing the scow to increase the effective load.

Placement of dredged materials at terrestrial habitat restoration beneficial reuse projects in the future would not result in temporary increases in turbidity at placement sites. But additional NEPA analysis will occur prior to such beneficial reuse projects. It is anticipated that the long-term effects of appropriate material placement would be beneficial on water quality.

3.5.4.3. Potential to Substantially Degrade Water Quality Because of Mobilization of Contaminated Sediments or Release of Hazardous Materials

Proposed Action Alternatives

Dredging of contaminated sediments does present the potential for release of contaminants to the water column. However, most contaminants are tightly bound in the sediments and are not easily released during short-term re-suspension. When or if required, sediments are tested prior to dredging, and the results are reviewed by the DMMO prior to dredging and placement, including evaluation of the potential for water quality effects (refer to Section 1.6.6 for details on the DMMO and testing requirements). Sediment testing results for previous maintenance dredging episodes indicate that dredged materials from the Federal navigation channels have been suitable for in-Bay placement (suitable for unconfined aquatic disposal, SUAD). The sediment testing results for the MOTCO Wharves Modernization (USACE, 2014) and MOTCO Dredging (Appendix C) are SUAD.

The Proposed Action would place dredge materials at the Management Site that would be bermed and lined to prevent runoff and groundwater seepage. The relatively high silt content of the sediment has eliminated aquatic disposal of dredge materials from consideration. Therefore, dredging and placement activities would not be expected to increase contaminant concentrations in the water column above baseline conditions, or result in violation of a water quality standard. Even though there will be no aquatic disposal, the suitability of sediment from past tests for such disposal serve as indicators of a potential long-term beneficial impact if the sediment is eventually returned to the Bay as part of future beneficial reuse projects. At a minimum, the impact should be negligible since the impact would cause a slight, adverse change in the environment, but one that generally would not be noticeable.

Should a beneficial use placement site become available to receive MOTCO material, coordination with DMMO may be required. MOTCO will comply with all requirements of the Delta Diablo NPDES permit, including water quality testing, prior to discharging water into that system. Dredging operation vessels would be operated in compliance with all applicable regulations related to the prevention of water pollution by fuel, harmful substances, and garbage, as well as from accidental discharges. During transport, the dredged material would be secured, with precautions in place to minimize any risk of spills. Therefore, the potential for the release of hazardous substances from vessel operations during dredging, transport, and placement activities would be minimal.

<u>Effects Determination</u>: Under the Proposed Action Alternatives, effects on water quality as a result of potential mobilization of contaminated sediments or hazardous materials release would be less than significant. The effects of dredging and material transport on mobilization or release of contaminated sediments are anticipated to be negligible because the chemical constituents are near or below ambient levels found through area.

3.5.5. Cumulative Impacts

3.5.5.1. Impact: Potential to Result in Cumulative Impacts to Hydrology or Water Quality

Proposed Action Alternatives

Both Proposed Action Alternatives would result in minor, short-term water quality impacts during dredging and placement activities due to short-term turbidity increases or the potential for releases of contaminants from sediments or vessel into the water. Cumulative water quality impacts could include increases in turbidity; disturbance and release of contaminated sediments; or accidental release of hazardous materials such as diesel fuel from vessels. As stated above, the Proposed Action's potential impacts on water quality due to mobilization of contaminated sediments and release of hazardous materials would be minimal. Although maintenance dredging and placement activities could overlap with

other projects that would disturb sediments and result in increased turbidity, impacts would be isolated and short-term, and would not be substantial in the greater geographic context of the project area. Additionally, other projects involving dredging and construction in the marine environment would be subject to permitting/regulatory approval processes similar to those for the Proposed Action and would be required to implement similar measures to minimize water quality impacts.

<u>Effects Determination:</u> Neither Proposed Action Alternatives would contribute to significant cumulative water quality impacts. The cumulative impacts of dredging and material transport on hydrology and water quality are anticipated to be negligible because of periodic monitoring of the constituents to verify chemical composition are consistent with ambient levels in the area. Additionally, MOTCO would implement BMPs and comply with water quality protection measures. Chemical analysis of dredge materials and dredge water would ensure the cumulative impacts on water quality at placement sites is either negligible or less than significant.

3.6. AIR QUALITY

3.6.1. Regulatory Setting

The Air Quality in Section 3.2 of the 2015 Federal Navigation Channels EA/EIR generally characterizes the regulatory setting for this resource because it is the same Bay Area Air Quality Management District (BAAQMD) and since the nearby existing air quality conditions are the same in the approach channel and berthing areas compared to the adjacent area of the Suisun Bay Channel. The San Francisco Bay to Stockton, California, Navigation Improvement Project IGRR-EIS generally characterizes Greenhouse Gas (GHG) emissions.

Title 40 of the CFR § 93.153(c)(2)(ix) states that "Maintenance dredging, and debris disposal where no new depths are required, applicable permits are secured, and disposal will be at an approved disposal site" is exempt from conformity analyses. In accordance with 40 CFR § 51.853(c)(2)(ix), MOTCO has determined the dredging portion of the Proposed Action is exempt from the requirement to prepare a conformity determination under the Clean Air Act because the project consists of maintenance dredging with no new depths are required. Therefore, the following air quality analysis will only discuss the air impacts after the dredge material is placed on land. Future air quality analyses will be needed for new placement sites.

3.6.2. Environmental Setting

National Standards

The United States Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for specific pollutants determined to be of concern with respect to the health and welfare of the general public. Ambient air quality standards are classified as either "primary" (designed to protect public health with an adequate margin for safety) or "secondary" (designed to protect the public welfare from adverse effects, including those related to soils, water, crops, and vegetation). The major pollutants of concern, or criteria pollutants, are carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, particulate matter less than 10 microns in diameter (PM₁₀), particulate

matter less than 2.5 microns in diameter (PM_{2.5}), and lead.

Areas that do not meet these NAAQS standards are designated as nonattainment areas; areas that meet both primary and secondary standards are designated as attainment areas. A maintenance area is a geographic area that was formerly in nonattainment but is currently under a maintenance plan. The Federal Conformity Final Rule (40 CFR Parts 51 and 93) specifies criteria and requirements for conformity determinations of federal projects. The Federal Conformity Rule was first promulgated in 1993 by the USEPA, following the passage of Amendments to the CAA in 1990. The rule mandates that a conformity analysis be performed when a federal action generates air pollutants in a region that has been designated as a nonattainment or maintenance area for one or more NAAQS.

In addition to the ambient air quality standards for criteria pollutants, national standards exist for hazardous air pollutants (HAPs). The National Emission Standards for Hazardous Air Pollutants regulate 188 HAPs based on available control technologies (40 CFR Parts 61 and 63). HAPs include compounds such as benzene, which is found in gasoline. The majority of HAPs are volatile organic compounds (VOCs).

California Standards

States must develop a State Implementation Plan (SIP) for ensuring that they achieve and maintain NAAQS. States may also establish their own ambient air quality standards. The California Health and Safety Code, Section 39606, authorizes the California Air Resources Board (CARB) to set ambient air pollution standards in consideration of public health, safety, and welfare. CARB makes area designations for 10 NAAQS pollutants: ozone, suspended particulate matter (PM10 and PM2.5), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility-reducing particles. CARB reviews the area designations each year and updates them as appropriate, based on the three most recent complete and validated calendar years of air quality data. The state of California has also established an ambient air quality standard for vinyl chloride.

California is divided into 15 Air Basins, or Districts, based on meteorological and geographic conditions and, where possible, jurisdictional boundaries such as county lines. The Bay Area Air Quality Management District (BAAQMD) is the agency tasked with managing air quality in the region. BAAQMD has jurisdiction over the approximately 5,600-square-mile Bay Area, encompassing all or portions of nine counties, including Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, as well as the western portion of Solano County and the southern portion of Sonoma County. MOTCO is in Contra Costa County, within the jurisdiction of the BAAQMD. The portion of the BAAQMD that includes MOTCO has been designated as a federal attainment area for carbon monoxide, sulfur dioxide, and lead; and a nonattainment area for ozone and PM2.5 (Table 3-1). It has also been designated as a state nonattainment area for ozone, PM10, and PM2.5.

		California Sta	andards ¹	National Standards ²		
Pollutant	Averaging Time	Concentration	Status	Concentration	Status	
Ozone	8-hour	0.070 ppm	N	0.070 ppm	N	
	1-hour	0.09 ppm	N		—	
Carbon monoxide	8-hour	9.0 ppm	A	9 ppm	A	
	1-hour	20 ppm	A	35 ppm	A	
Nitrogen dioxide	1-hour	0.18 ppm	A	0.100 ppm ⁶	U/A ³	
	Annual arithmetic mean	0.030 ppm		0.053 ppm	A	
Sulfur Dioxide	24-hour	0.04 ppm	A	0.14 ppm	U/A ³	
	1-hour	0.25 ppm	A	0.075 ppm	U/A ³	
	Annual arithmetic mean	_	_	0.030 ppm	—	
Particulate Matter (PM10)	Annual arithmetic mean	20 µg/m³	N	_	—	
	24-hour	50 μg/m³	N	150 µg/m³	U	
Particulate Matter (PM _{2.5})	Annual arithmetic mean	12 µg/m³	N	12 µg/m³	U/A	
	24-hour		_	35 µg/m³ 4,5	N	
Sulfates	24-hour	25 μg/m³	A		—	
Lead ⁶	30-day average	1.5 μg/m³	_	_	A	
	Calendar quarter		_	1.5 μg/m³	A	
	Rolling 3-month average		_	0.15 µg/m³	—	
Hydrogen Sulfide	1-hour	0.03 ppm	U	_	—	
Vinyl Chloride	24-hour	0.010 ppm	No information available	_	_	
Visibility Reducing Particles	8-hour (10:00 to 18:00 Pacific Standard Time)	See footnote 7	U		_	

Table 3-2. Ambient Air Quality Standards at MOTCO

Source: BAAQMD 2017

Notes:

Attainment statuses:

- A = Attainment, N = Nonattainment, U = Unclassified, No Standard or Not Designated
- ¹ California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter (PM₁₀), and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for lead and the PM₁₀ annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average.
- ² National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates, and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less.

The 24-hour PM₁₀ standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour PM_{2.5} standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM10 is met if the 3-year average falls below the standard at every site. The annual PM2.5 standard is met if the 3-year average of annual averages spatially averaged across officially designed clusters of sites falls below the standard.

- ³ Source: BAAQMD 2018.
- ⁴ On January 9, 2013, USEPA issued a final rule to determine that the Bay Area attains the 24-hour PM_{2.5} national standard. This USEPA rule suspends key SIP requirements as long as monitoring data continue to show that the Bay Area attains the standard. Despite this USEPA action, the Bay Area will continue to be designated as being in nonattainment for the national 24-hour PM_{2.5} standard until such time as the Air District submits a redesignation request and a maintenance plan to USEPA, and USEPA approves the proposed redesignation.
- ⁵ Source: USEPA 2021
- ⁶ CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined.
- ⁷ Statewide visibility-reducing particles standard: particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

CARB = California Air Resources Board µg/m³ = micrograms per cubic meter MOTCO = Military Ocean Terminal Concord

PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns ppb = parts per billion

ppm = parts per million

SIP = State Implementation Plan

USEPA = United States Environmental Protection Agency

The most recent BAAQMD ozone plan prepared in response to federal air quality planning requirements is the 2005 Ozone Strategy. To fulfill federal air quality planning requirements for PM2.5, the BAAQMD adopted the PM2.5 2012 emissions inventory in November 2012. The inventory was submitted to CARB for inclusion in the California SIP.

Conformity Requirements

A conformity analysis is a process used to determine whether a federal action meets the requirements of the General Conformity Rule. The General Conformity Rule prohibits any federal action that does not conform to the applicable air quality attainment plan or SIP, and applies to areas designated as nonattainment or maintenance from NAAQS. It requires the responsible federal agency to evaluate the nature of a proposed action and associated air pollutant emissions and calculate emissions that may result from the implementation of the proposed action. If the emissions exceed established limits, known as *de minimis* thresholds, the project proponent is required to perform a conformity determination and implement appropriate mitigation measures to reduce air emissions (construction and operation) are less than *de minimis* thresholds. In accordance with the air conformity requirements, the applicable *de minimis* thresholds are presented in Table 3-3.

Table 3-3. General Conformity de minimis Thresholds (tons/year)

	VOCs	CO ¹	NOx	SO ₂ ²	PM 10	PM _{2.5}
Applicable <i>de minimis</i> Thresholds	100	100	100	100	NA	100
Source: 40						

CFR Section

93.153 Notes:

¹ CO is included because the BAAQMD is a maintenance area for CO.

² SO₂ is included as a potential precursor for PM_{2.5} formation.

BAAQMD = Bay Area Air Quality Management District CO = carbon monoxide

NO_X = oxides of nitrogen

 $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter PM_{10} = particulate matter less than 10 microns in diameter SO_2 = sulfur dioxide

VOC = volatile organic compound

3.6.3. Effects

No Action Alternative

Under the No Action Alternative, demolition, repairs, construction, modernization, and maintenance associated with projects under the Proposed Action would not take place. No additional emissions from these activities would occur. Operational air emissions

would remain the same as current levels. No additional impacts on air quality would occur.

Proposed Action

Construction emissions to construct the Management Site and transport dredge material within MOTCO are described as short-term or temporary in duration but have the potential to adversely affect air quality. Project construction would require the use of off-road equipment, material delivery trucks, and construction worker vehicles. Construction equipment that may be used includes impact or vibratory hammers, dump trucks, a skip loader, a crane, a backhoe, air and electric power tools, compressors, and generators, as well as water-based equipment (a small work barge).

Emissions from construction activities would include temporary emissions of VOCs, carbon monoxide, oxides of nitrogen (NOX), sulfur dioxide, PM10, and PM2.5 from off-road heavy-duty diesel-powered construction equipment, on-road vehicular traffic, and fugitive dust emissions generated during construction. Emissions of VOCs and NOX are associated primarily with exhaust from construction equipment. Fugitive dust emissions are associated primarily with site preparation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, vehicle miles traveled, and other factors.

Construction emissions were modeled using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.29, which is the most current version of the BAAQMDrecommended model for estimating construction and operational emissions from land use development projects. CalEEMod includes assumptions for construction parameters, such as construction equipment, haul trucks, and worker trips, The equipment used in this estimate includes 4 haul trucks and a wheel loader with mileage of haul trucks being 1.3 miles from the dredging area to the waste management site. The equipment used in this estimate includes 4 haul trucks and a wheel loader with mileage of haul trucks being 4.5 miles one way utilizing Tier 4 equipment for the hauling from the management site to the placement site. The equipment used in this estimate includes 4 haul trucks and a wheel loader, excavator, scraper and a roller with mileage of haul trucks being default of 20 miles. These parameters were used to model the Proposed Action's construction-related emissions in the absence of project-specific information. Annual construction-related emissions would be less than the thresholds of the *de minimis* levels (Table 3-4), therefore the project is exempt from the conformity rule.

	ROG\VOCs ¹	СО	NOx	SO ₂	PM ₁₀	PM _{2.5}
2025 Hauling Emissions Wharf 2 to Management site	.025	1.33	.170	.003	.004	.006
2025 Emissions to Construct Management Site	.070	1.85	1.01	.006	.115	.041

	/ /	、
Table 3-4. Construction-Related Criteria Pollutant Emissions	(tons/	vear)
	(j j

2025 Hauling Emissions Management	0.028	1.37	.305	0.0029	.03	.012
to Placement Site						
Total	.123	4.55	1.49	.012	.149	.059
de Minimis Levels	100	100	100	100	100	100
Exceeds Thresholds?	No	No	No	No	No	No

Notes:

¹ Both VOC and ROGs are precursors to ozone; therefore, they are summed in the CalEEMod report under the header ROG.

² Annual emissions shown for particulate matter include total emissions (exhaust and fugitive dust) for comparison with the

de minimis levels

³ For NEPA analysis purposes, the *de minimis* level for PM₁₀ maintenance areas is used to demonstrate project compliance with the Clean Air Act.

CalEEMod = California Emissions Estimator Model CO = carbon monoxide

NEPA = National Environmental Policy Act

NO_X = oxides of nitrogen

 PM_{10} = particulate matter with aerodynamic diameter less than 10 microns $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns ROG = reactive organic gas

SO₂ = sulfur dioxide

VOC = volatile organic compound

Maintenance dredging requirements are anticipated to be minimal and infrequent. Emissions from hauling dredge material to the Placement Site will be less than the first year which includes the construction of the Management Site.

Air quality BMPs would include the following recommendations:

- A time restriction of 5 minutes would be placed on unnecessary heavy equipment idle time, and unscheduled inspections would be incorporated to verify compliance with the restriction.
- Equipment engines would be maintained and tuned to perform at CARB and/or USEPA certification levels, preventing tampering; unscheduled inspections would be conducted to ensure these measures are followed.
- New equipment would be leased, where practicable, that meets the most stringent of applicable federal or California standards.
- The best available emissions control technology will be committed to where practical and reasonable. Tier 4 engines will be used as much as is feasible. For equipment that does not meet Tier 4 standards, CARB- and USEPA-verified controls such as particulate traps and oxidation catalysts will be used to reduce emissions of diesel particulate matter and other pollutants.
- Equipment powered with liquid propane gas, batteries, or direct plug-in will be implemented, as feasible.
- Fugitive dust will be controlled, where appropriate, by covering soil piles, installing wind fencing, and limiting equipment and haul truck speeds to 15 miles per hour on site.

Alternative 2: Extended Implementation (Proposed Action)

Under Alternative 2, MOTCO plans to extend the period of time for the initial dredging and consequently later implement maintenance dredging as well. This alternative would have all the same construction elements as Alternative 1, but would occur over a longer timeline. As a result, emissions associated with Alternative 2 activities would result in the same total emissions as Alternative 1. Therefore, the emissions as a result of Alternative 2 would be below de minimis thresholds for all constituents and would not be considered significant.

3.6.3.1. Potential violation of any air quality standard or contribute substantially to an existing or projected air quality violation.

Implementation of the alternatives would result in very low total emissions (Table 3-4) and would not contribute to an existing or projected air quality violation.

<u>Effects Determination</u>: The Proposed Action would have no impact on air quality violations since none is anticipated.

3.6.3.2. Potential conflict with or Obstruction of Implementation of an Applicable Air Quality Plan.

<u>Effects Determination</u>: The Proposed Action would not conflict with or obstruct any applicable Air Quality Plan.

3.6.3.3. Potential for exposure of Sensitive Receptors to Substantial Pollutant Concentrations.

The project area is on the northern portion of the base adjacent to Suisun Bay; there are no residences or sensitive receptors nearby.

<u>Effects Determination</u>: The Proposed Action would have no impacts on sensitive receptors.

3.6.3.4. Potential to Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Under all the alternatives, construction of the Management Site and the placement of dredged material would result in less-than-significant odor impacts due to the distances involved and regulatory controls.

<u>Effects Determination</u>: The Proposed Action would have less than significant odor impacts.

3.6.4. Cumulative Impacts

3.6.4.1. Result in Cumulative Impacts on Regional Air Quality

The reasonably foreseeable actions in Table 3-1 include several projects that would involve dredging and dredged material placement that could result in the same type of

air emissions as the Proposed Action. However, Proposed Action would not add to cumulative air emissions, and as a result would not have a negative impact on air quality.

<u>Effects Determination</u>: The Proposed Action would have a less than significant contribution to cumulatively considerable impacts on regional air quality. The Proposed Action would not directly or indirectly exceed applicable Federal or state GHG standards resulting in significant increase to cumulative GHG emission. The cumulative impacts of dredging on GHG levels are anticipated to be negligible.

3.7. BIOLOGICAL RESOURCES

The complete list of Federal and state-listed species was evaluated during the wharves' modernization EIS (U.S. Army 2015a) and the Integrated Natural Resources Management Program (INRMP; USACE 2024). Federally-listed fish species with suitable habitat in the project vicinity include Delta Smelt, Longfin Smelt, Green Sturgeon, Central Valley Steelhead, Sacramento River winter-run and spring-run Chinook Salmon, and may seasonally occur in the project area. Potentially suitable habitat exists on MOTCO for Federally-listed wildlife including California (Ridgway's) clapper rail (CCR; *Rallus obsoletus obsoletus*), the California Tiger Salamander (*Ambystoma californiense*) and the California Red-legged Frog (*Rana draytonii*), that could inhabit the marsh areas found along the shorelines of MOTCO and the Seal Islands. Known habitat exists on MOTCO for the federally endangered Salt Marsh Harvest Mouse (*Reihrodontomys raveiventris*). Surveys indicate these Federally-listed species do not occur in the project area (Eco and Associates, Inc. 2020, 2021, 2022, 2023), and there would be no effects from dredging or placement of materials on the species or their habitat.

Subsequent to the completion of the LTMS EIS/EIR, USACE implemented monitoring to determine whether dredging operations were resulting in take of Federally-listed fish species. Hopper dredging equipment is not currently used for maintenance dredging in Suisun Bay, to avoid potential entrainment of Federally-listed Delta Smelt and Longfin Smelt. To minimize the potential for future effects to Federally-listed fish species, the Proposed Action would fully address aspects of MOTCO's maintenance dredging and dredged materials placement program that could result in injury or mortality of these species. Further discussion of potential impacts and minimization measures are included in Sections 3.7.2.1 and in the Initial Biological Assessment (2019), and Supplemental Biological Assessments (2021 and 2025).

This section incorporates by reference information contained in Section 3.6 of the Maintenance Dredging of the Federal Navigation Channels in the San Francisco Bay (USACE 2015), Section 3.5 of the Modernization and Repair of Piers 2 and 3 (U.S. Army 2015a), and section 3.4 of the 2017 Pier 2 Modernization and Repair Design Changes (U.S. Army 2017a). This section describes the existing regulatory and environmental setting in the study area for biological resources. Existing species, including Federally-listed species and habitats, including designated critical habitat, are described. The potential impacts of the project alternatives on these resources are analyzed.

3.7.1. Regulatory Setting

The Biological Resources discussion in Section 3.6 of the 2015 Federal Navigation Channels EA/EIR provides a general overview that characterizes the regulatory setting for fish and wildlife resources, including those habitats found at nearby Seal Islands and MOTCO. The INRMP (USACE 2024) provides environmental management strategies for special status species and habitat at MOTCO.

3.7.2. Environmental Setting

The Biological Resources discussion in Section 3.6 of the 2015 Federal Navigation Channels EA/EIR generally characterizes the affected environment for habitat types, fish, and wildlife, and Federally-listed species found within the dredging project at MOTCO. For the purposes of this analysis, the project's study area in Suisun Bay encompasses the in-water areas in Contra Costa and Solano Counties, and land-based resources on the Seal Islands and MOTCO. MOTCO also encompasses several other islands (Roe, Ryer, Freeman, Snag and Middle Ground) north of the Suisun Bay Channel (Historic Properties in Section 3.8.2). These Islands are not part of the landbased effects analysis because there are no proposed dredging or disposal actions within proximity to them.

Vegetation surveys for wharf modernization have documented submerged aquatic vegetation (SAV) in shallower water landward of the wharves (U.S. Army 2015b, 2018b). It is unlikely for SAV to occur in the deeper water of the berthing areas and approaches. The Proposed Action to conduct maintenance dredging is limited to this portion of the Suisun Bay in the deeper approach area leading from the Suisun Bay Channel southward to the Wharves 2, 3, Barge Pier, and Boat Ramp, and disposal of sediments is limited to approved areas. Some shoreline vegetation will be removed to re-establish the basin for the Boat Ramp.

There are negligible to less than significant anticipated effects on the fauna, benthic communities, fish, birds, marine mammals and aquatic plants in the MOTCO dredging permit area. A discussion of Federally-listed species for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, which includes Suisun Bay terrestrial and fish species, is provided below under Federally-listed Species.

3.7.2.1. Federally-listed Species and Critical Habitat

This EA evaluates dredging effects on several Federally-listed fish species. Fish species of concern include Delta Smelt, Longfin Smelt, Green Sturgeon, and several salmonids (listed below). Other Federally-listed species that may potentially occur near the dredging area are the California (Ridgway's) clapper rail, Salt Marsh Harvest Mouse, the California Tiger Salamander, and the California Red-legged Frog (USACE 2024; Eco and Associates, Inc. 2021). MOTCO consulted with USFWS and NMFS starting in 2019 (DOA 2019a,b; 2021a,b). The respective Biological Opinions (USFWS 2020, 2021, 2025; NMFS 2020, 2021) analyzed the effects of the Proposed Action on these species and their critical habitat.

The USFWS provided a list for species of concern on February 28, 2025 (USFWS 2025). No terrestrial species were identified with critical habitat in the project area. None of the Federally-listed terrestrial species have been detected near the dredging area,

management or placement sites (USACE 2024; Eco and Associates, Inc. 2021). This project would follow the (BMPs and reasonable and prudent measures (RPMs) of the Long Term Management Strategy (LTMS) for the Placement of Dredge Material in the San Francisco Bay Region (2015a, b), and Conservation Measures in the Final Military Ocean Terminal Concord Integrated Natural Resources Management Plan (USACE 2024).

Salt Marsh Harvest Mouse

The Salt Marsh Harvest Mouse (Mouse; *Reithrodontomys raviventris*) was included in the USFWS ESA Section 7 Consultation re-initiation on October 22, 2021 (USACE 2021). Conservation Measures for the Mouse are described in the BA (USACE 2021), BO (USFWS 2021) and Integrated Natural Resources Management Plan (USACE 2024). Updated minimization measures are included in the 2025 re-initiation of the Supplemental Biological Assessment (DOA 2025). Based on the results from the 2022 Salt Marsh Harvest Mouse Survey (Eco and Associates and WRA 2023), suitable habitat for the mouse will be avoided during the site selection process.

Delta Smelt

The USFWS ESA Section 7 Consultation was initiated on October 15, 2019, for Delta Smelt. The status of Delta Smelt (*Hypomesus transpacificus*) in the project area is summarized in the Biological Assessment to USFWS (U.S. Army 2019a, Appendix A). Critical habitat for this species includes Suisun Bay. The record low abundance of Delta Smelt in recent years has increased concern regarding the effects of dredging activities on the species. Hopper dredging has been reduced in Delta Smelt habitat to minimize entrainment. The USFWS BO dated December 30, 2019, concurred that the Proposed Action may affect, and is likely to adversely affect Delta Smelt, and may affect, but is not likely to adversely affect designated critical habitat for Delta Smelt.

Longfin Smelt

The USFWS ESA Section 7 Consultation was initiated on March 2, 2025, for Longfin Smelt. The status of Longfin Smelt (*Spirinchus thaleichthys*) in the project area is analyzed in the Biological Assessment (DOA 2025). MOTCO is exempt from Longfin Smelt critical habitat (USFWS 2025). The USFWS is reviewing the Biological Assessment.

National Marine Fisheries Service – ESA Consultation

The NMFS ESA Consultation was initiated on October 15, 2019, for Central Valley spring-run Chinook Salmon, Sacramento River winter-run Chinook Salmon, Central Valley Steelhead, Central California Coast Steelhead, and the Southern DPS of North American Green Sturgeon (DOA 2019b, 2021b). The consultation included evaluation of Essential Fish Habitat for Coastal Pelagic species (northern anchovy and the pacific sardine), Pacific Groundfish (brown rockfish, flatfish, sharks), and the Pacific Coast (Chinook) Salmon. The NMFS letter dated April 10, 2020, concurred with the Army that the proposed action is not likely to adversely affect the subject Federally-listed species and designated critical habitats.

Green Sturgeon
The Green Sturgeon (*Acipenser medirostris*) migrate through Suisun Bay between freshwater, estuarine, and nearshore marine habitats. Critical habitat for this species includes the project area. The status of Green Sturgeon in the project area has been consulted on with NMFS (DOA 2019b, 2021b; NMFS 2020, 2021).

Salmonids

Four Federally-listed salmonid populations migrate through Suisun Bay including Central California Coast Steelhead (*O. mykiss*), Central Valley Steelhead (*O. mykiss*), Sacramento River winter-run Chinook (*O. tshawytscha*), and Central Valley spring-run Chinook (*O. tshawytscha*). Critical habitat for these species includes the project area. The status of these salmonids in the project area are summarized in the Biological Assessment to NMFS (DOA 2019b, 2021b; NMFS 2020, 2021).

3.7.2.2. Essential Fish Habitat

Suisun Bay is classified as EFH under the Magnuson-Stevens Act. The project area serves as habitat for species of commercially important fish and sharks that are Federally-managed under three fishery management plans (FMP): the Coastal Pelagic FMP, Pacific Groundfish FMP, and the Pacific Coast Salmonid FMP.

The Coastal Pelagic FMP is designed to protect habitat for the northern anchovy and the pacific sardine in the project area.

The Pacific Groundfish FMP is designed to protect habitat in the project area for brown rockfish, flatfish, and some sharks. This includes both rocky and soft substrates.

The Pacific Salmon FMP is designed to protect habitat for commercially important Chinook Salmon in the project area.

3.7.2.3. Wetland Resources

The INRMP Wetland Management Compliance Strategies (Section 4.4.1; USACE 2024) provide measures to protect wetland habitats. The Borrow, Management and Placement site boundaries are designed to avoid special status species habitat and nearby wetlands that have been identified during comprehensive wetland inventories at MOTCO (Vollmar 2021). The project is not located within a floodplain and there is no impact to a floodplain.

3.7.3. Methodology and Thresholds of Significance

This EA uses the same methodology, thresholds and no impact findings as described in the 2015 Federal Navigation Channel EA/EIR Section 3.5.3 (USACE 2015).

3.7.3.1. Turbidity

Exposure to excessive suspended sediment concentrations could lead to physiological stresses such as clogged gills, eroded gill and epithelial tissues, impaired foraging activity and feeding success, and altered movement and migration patterns of juvenile and adult fish (USACE 2015). Exposure of fish to elevated suspended sediment concentrations could result in behavioral avoidance and exclusion from otherwise suitable habitat, disrupt movement and migration patterns, reduce feeding rates and growth, result in sublethal and lethal physiological stress, habitat degradation, or

delayed hatching; and, under severe circumstances, could result in mortality (USACE 2015). The response of fish to suspended sediments varies among species and life stages as a function of suspended particle size, particle shape, water velocities, suspended sediment concentrations, water temperature, depressed dissolved oxygen concentrations, contaminants, and exposure duration (USACE 2015). Short-duration exposure to elevated suspended sediment concentration associated could result in sublethal effects; however, potential exposure and dosage of suspended sediment concentrations drops exponentially from the source of the plume.

3.7.3.2. Noise

Underwater sound pressure waves can harass and harm fish species (Reyff 2003, Abbott and Bing-Sawyer 2002, Caltrans 2001, Stotz and Colby 2001). As the pressure wave passes through a fish, the swim bladder is rapidly squeezed due to the high pressure, and then rapidly expanded as the under-pressure component of the wave passes through the fish. The scientific knowledge of the effects of dredge generated noise and sound waves on fishes is limited and varies depending on the species. Severe noise effects on fish can include rupture of the swim bladder, internal hemorrhage, neurological stress, and auditory damage. Studies on the effects of noise on anadromous Pacific coast fishes are primarily related to pile driving activities. The Fisheries Hydroacoustic Working Group has established interim criteria for noise impacts from pile driving on fishes (FHWG 2008). A peak sound pressure level of 206 dB is considered injurious to fishes. An accumulated sound pressure level of 187 dB for fishes that are more than 2 grams, and 183 dB for fishes below that weight are considered to cause injury. Although there is no formal agreement on a "behavioral" threshold, the NMFS uses 150 dB-root mean square as the threshold for adverse behavioral effects (NMFS 2009).

The effect of sound on fish and other species also depends on the ambient sound levels. The Suisun Bay Channel has a high level of deep draft and shallow draft vessel traffic. These vessels access ports and harbors along the Carquinez Strait and Contra Costa County waterfront and continue to the Delta. At certain times, locations, and distances from the dredge plant, dredging activities may not be perceptible relative to the ambient noise conditions.

Clamshell dredges produce a repetitive sequence of sounds generated by winches, bucket impact with the substrate, closing and opening of the bucket, and sounds associated with dumping the dredged material into a scow. The sounds are repeated with each bucket load and are stopped when dredging ceases. The most intense sounds are produced during the bucket's impact with the substrate; however, depending on the substrate being dredged, the sound intensity differs. Typically, softer material generates softer sounds and harder, more compact substrate generates louder sounds. Peak sound pressures levels measured during mechanical dredging have been recorded at 124 decibels (dB) from 490 feet (150 meters) away (Dickerson et al. 2001). Noise generated from clamshell dredging is typically lower than sounds levels that adversely affect marine species and is expected to be below specified threshold levels. However, noise from the bucket hitting the bottom or from the dredge plant could elicit avoidance behavior by Delta Smelt.

3.7.4. Effects

No Action Alternative

Under the No Action Alternative, dredging would not occur. There would be no effects to underwater noise, water turbidity and water quality (no toxicity). There would be no effects from disturbance to benthic, avian roosting, avian foraging, or essential fish habitat. The No Action Alternative would not result in entrainment of Federally-listed marine fish species, Delta Smelt, Longfin Smelt, or interfere with movement of fish or wildlife through Suisun Bay, nor support the spread of invasive species. There would be no placement of dredge materials at the MWRP, and no effects to Federally-listed wildlife on MOTCO. The would be no cumulative impacts to biological resources at MOTCO under the No Action Alternative.

Proposed Action Alternatives

Initial and maintenance dredging would disturb bottom sediments, which would temporarily increase turbidity, disturb benthic habitat and associated communities of organisms living in or on the mud bottom, and generate underwater noise. This disturbance could result in the temporary loss or reduction of habitat suitable for foraging by sensitive fish species such as Steelhead, Chinook Salmon, Green Sturgeon, Delta Smelt, and Longfin Smelt. In addition, entrainment of fish in dredging equipment could occur. The behavior of marine mammals, such as harbor seals and sea lions, is not likely to be affected by dredging activities. Dredged material placement also would result in temporary increases in turbidity, which could result in similar effects on habitat, benthic habitat, and wildlife behavior.

Because sediment re-suspension from dredging vessel movement would be limited, the movement of vessels for transport of dredged material would not be expected to increase turbidity above ambient ranges generated by natural hydrologic processes, weather, and existing vessel traffic. Vessel traffic for transport of dredged material would be similar to that which has occurred during the Corp's past maintenance dredging operations, would occur in areas with frequent vessel movement, and would be negligible considering the existing volume of vessel movement in the study area. Therefore, the transport of dredged material is expected to result in less than significant effects to biological resources (USACE 2015).

3.7.4.1. Potential Adverse Effects of Increased Turbidity Resulting from Maintenance Dredging and Dredged Material Placement on Federally-listed Fish Species, Critical Habitat, and Commercially Valuable Marine Species

Proposed Action Alternatives

Under the Proposed Action Alternatives, there would be increased turbidity as a result of dredging and placement, frequency of dredging, volumes dredged, and placement site(s). MOTCO would implement standard practices intended to minimize increases in turbidity from dredging and placement activities. Dredging and placement would be implemented during the work windows for the LTMS program. Dredging would result in localized and temporary increases in turbidity at both the dredge locations and placement sites. As described above, this is expected to have less than significant effects on Federally-listed species, their critical habitat, or EFH.

<u>Effects Determination:</u> Under the Proposed Action alternatives, the effects on Federally-listed species (Delta Smelt, Green Sturgeon, Steelhead, and Chinook Salmon), critical habitat, and commercially valuable marine species from localized and temporary increases in turbidity would be less than significant.

Dredging turbidity would be localized within the Proposed Action area, allowing fish species to avoid the area of the plume. Mitigation measures should include avoid overflowing the scow to increase the effective load. Transport turbidity is a function of scow overflow that would be dispersed by water currents. Turbidity would be localized at the reuse placement sites and would be mitigated using silt barriers as appropriate.

3.7.4.2. Potential Adverse Effects of Maintenance Dredging Resulting from the Disturbance of Benthic Habitat on Federally-listed Fish Species, Critical Habitat, and Commercially Valuable Marine Species

Proposed Action Alternatives

Dredging would directly affect benthic communities through physical disruption and direct removal of benthic organisms, resulting in the potential loss of most, if not all, organisms in the dredged area. Similarly, organisms in or immediately adjacent to the placement sites may also be lost because of smothering or burial from sediments during dredged material placement.

Critical habitat for Steelhead, Chinook Salmon, Delta Smelt, and Green Sturgeon overlaps with some of the estuarine portions of the project areas. Critical habitat for the Longfin Smelt (*S. thaleichthys*) was proposed January 15, 2025 (USFWS 2025). MOTCO (753 acres) is exempted from the proposed critical habitat under the Integrated Natural Resources Management Plan (INRMP; USACE, 2024). Benthic habitat can be an important part of critical habitat for some species by providing foraging areas, especially for Steelhead, Chinook Salmon, and Green Sturgeon. Because Delta Smelt feed in the water column, benthic habitat is less important habitat. The loss of benthic invertebrates during dredging activities may decrease the forage value of critical habitat at the dredge location.

The Proposed Action may affect two primary constituent elements of Delta Smelt critical habitat: rearing habitat and adult migration. Rearing habitat includes shallow water river and tributary habitat including Suisun Bay. Protection of this habitat is most important from February through the summer. The entire action area is within the rearing habitat primary constituent element. With the exception of August, the work window (August 1 through November 30) is mostly protective of the Delta Smelt rearing life stage. However, rearing Delta Smelt may be affected by the Proposed Action. With respect to adult migration, adults must be provided unrestricted access to suitable spawning habitat from December through July. Spawning areas include areas of the Sacramento and San Joaquin Rivers and tributaries, Cache Slough, Montezuma Slough, and tributaries. Although spawning habitat is not found in the action area, adult Delta Smelt

begin migrating from the action area to spawning grounds in September and October. The Proposed Action may affect adults migrating from the action area to spawning grounds during this timeframe; however, the affected area would be limited to the immediate dredging or placement zone and would not substantially limit the available habitat or movement of fish.

Following sediment-disturbing activities such as dredging or the placement of dredged materials, disturbed areas are usually recolonized quickly by benthic organisms (USACE 2015). The species that recolonize first are usually characterized by rapid growth and reproduction rates. Marine benthic invertebrates often colonize disturbed sedimentary habitats via pelagic larvae that settle from the water column. Crustaceans, such as amphipods that are abundant in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, brood young to much more advanced stages than pelagic larvae, releasing what are essentially miniature adults into the sediment, and can rapidly colonize adjacent disturbed areas. Recovery may be slower in deep water; therefore, there is potential for some loss of habitat and forage to organisms that use deep water areas.

Studies have indicated that even relatively large areas disturbed by dredging activities are usually recolonized by benthic invertebrates within 1 month to 1 year, with original levels of biomass and abundance developing within a few months to between 1 and 3 years (USACE 2015).

Under the Proposed Action, MOTCO would implement initial and maintenance dredging, dredged material placement, the frequency of dredging, volumes dredged, and Placement Site would be the similar to previous episodes. Regardless of the dredging methods used, similar amounts of benthic habitat would be disturbed by dredging and dredged material placement. As described above, the potential effects of benthic habitat disturbance would be short term and localized.

<u>Effects Determination</u>: Under the Proposed Action Alternatives, the effect on Federally listed species (Delta Smelt, Longfin Smelt, Green Sturgeon, Steelhead, and Chinook Salmon), critical habitat, and commercially valuable marine species from localized and temporary disturbances of benthic habitat would be less than significant. Dredged areas would be re-colonized by benthic organisms within 1-12 months from surrounding habitat. In the future, if used, underwater areas at placements sites may re-colonize with benthic organisms within 1-12 months. Material placement may create wetlands and other features that would be colonized by other organisms.

3.7.4.3. Potential Adverse Effects of Underwater Noise Generated During Maintenance Dredging on Federally-listed Fish and Marine Mammals

Proposed Action Alternatives

Mechanical dredges produce a complex combination of repetitive sounds that may be intense enough to cause adverse effects on fish and marine mammals. Clamshell dredges have a repetitive sequence of sounds generated by the winches, bucket impact with the substrate, closing and opening the bucket, and sounds associated with dumping the dredged material into the scow. The most intense sound effects are 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 2015).

The scientific knowledge of the effects of dredge-generated noise and sound waves on fishes is limited and varies depending on the species. Effects may include behavioral changes, neurological stress, and temporary shifts in hearing thresholds. Studies on the effects of noise on anadromous Pacific coast fishes are primarily related to pile-driving activities. The interagency Fisheries Hydraulic Working Group has established interim criteria for noise impacts from pile driving on fishes. A peak SPL of 206 dB is considered injurious to fishes. Accumulated SPLs of 187 dB for fishes that are greater than 2 grams, and 183 dB for fishes below that weight, are considered to cause temporary shifts in hearing, resulting in temporarily decreased fitness (i.e., reduced foraging success, reduced ability to detect and avoid predators). The NMFS uses 150 dB as the threshold for adverse behavioral effects.

For marine mammals, NMFS criteria define exposure to underwater noises from impulse sounds at or above 160 dB RMS and continuous sounds at or above 120 dB as constituting harassment to marine mammals. NMFS has also determined that noises with SPLs above 180 dB RMS can cause injury to cetaceans (whales, dolphins, and porpoises), and SPLs above 190 dB RMS can cause injury to pinnipeds (seals and sea lions).

Injury to fish from peak noise (e.g., rupture of swim bladder) is not expected to occur, but behavioral effects (e.g., changes in feeding behavior, fleeing, startle responses) could occur. All fish, listed or otherwise, would experience the same effects. In comparison, commercial shipping vessels can produce continuous noise in the range of 180 to 189 dB (USACE 2015). Although dredging could produce underwater noise that is considered to be harassment for marine mammals, it is comparable to that produced by commercial shipping vessels, which are common in the study area. Marine mammals are highly mobile and would likely avoid areas of noise and disturbance from dredging operations.

Underwater noise produced during dredging may have temporary adverse effects on fish and marine mammals but would not be expected to cause injury to fish and marine mammals. These effects include fleeing, the cessation of feeding, or other behavioral changes. Additionally, fish exposed to underwater noise above the NMFS sound exposure level thresholds may experience temporary hearing threshold shifts. All dredging activities would take place in the Federal navigation channels, which receive regular boat traffic, and therefore have high background levels of underwater noise.

<u>Effects Determination</u>: Under the Proposed Action Alternatives, temporary adverse effects to Federally-listed fish and marine mammals from underwater noise would be less than significant.

Dredging noise (~124 dB) is lower than the NMFS threshold for adverse behavioral effects. Noise emanating from scows during material transport would not exceed other shipping traffic noise, having a less than significant effect. Material placement noise has

a lower intensity than dredging below the NMFS threshold for adverse behavioral effects.

3.7.4.4. Potential Adverse Effects from Entrainment on Federally-listed or Commercially and Recreationally Important Marine Species, Not Including Delta Smelt and Longfin Smelt

Proposed Action Alternatives

Mechanical dredging has a lower potential for fish entrainment during spawning and outmigration of younger fish (Green Sturgeon, Steelhead, and Chinook Salmon) life stages. Only clamshell and/or knockdown dredging would be implemented as described in the Proposed Action.

<u>Effects Determination</u>: With implementation of clamshell dredging during the LTMS work windows and other standard practices intended to reduce the potential for entrainment, effects to Federally-listed and commercially important species resulting from entrainment would be less than significant under the Proposed Action Alternatives. Material transport and placement would not result in entrainment of Federally-listed and commercially important species.

3.7.4.5. Potential Substantial Adverse Effects and Cumulative Impacts to Delta Smelt and Longfin Smelt from Entrainment

Proposed Action Alternatives

Only mechanical dredging would occur at MOTCO. Dredging would be as described in the Proposed Action (e.g. clamshell and/or knockdown only)

<u>Effects Determination</u>: The potential for entrainment of Delta Smelt and Longfin Smelt would be nearly eliminated using clamshell dredging during the LTMS August 1 through November 30 work window (Proposed Action). Project and cumulative impacts would be less than significant. Material transport and placement would not result in entrainment of Delta Smelt or Longfin Smelt.

3.7.4.6. Potential Adverse Effects of Dredge Material management and placement to Salt Marsh Harvest Mouse Habitat

Proposed Action Alternatives

The dredge material management and placement sites shall be located outside of existing wetland and salt marsh habitat to minimize adverse effects to potential Mouse habitat. Conservation measures will be implemented as necessary to minimize adverse effects to adjacent wetland habitat and prevent mice from accessing the site during construction of the management and placement areas. Potential minimization measures have been developed and are included in the 2025 Supplemental Biological Assessment (DOA 2025).

<u>Effects Determination</u>: The potential for loss of wetland and salt marsh harvest mouse habitat would be avoided during the site selection process. Project and cumulative impacts would be less than significant.

3.7.4.7. Dredging and Placement Activities Could Result in the Disturbance of Essential Fish Habitat and "Special Aquatic Sites," Including Submerged Aquatic Vegetation (SAV) Beds and Mudflats

Proposed Action Alternatives

All portions of the project area in Suisun Bay are designated as EFH under one or more FMPs. The Programmatic EFH agreement completed in 2011 includes several conservation measures that enhance the environmental protectiveness of the LTMS Program. No further EFH consultation is required for MOTCO maintenance dredging performed in accordance with the provisions established through the formal Programmatic Federal EFH consultations for the LTMS.

SAV beds and mudflats are considered special aquatic sites and are subject to jurisdiction under Section 404 of the CWA, and the San Francisco BCDC jurisdiction under Section 66605 of the McAteer-Petris Act. Additionally, eelgrass beds and estuarine areas such as San Francisco Bay/Sacramento-San Joaquin Delta Estuary are considered "habitat areas of particular concern" with regard to EFH designations.

Mudflats serve as important foraging areas for shorebirds species and provide shallow water habitat for juvenile fish. No loss of mudflat acreage would occur as a result of maintenance dredging and placement activities. Sensitive habitats (such as marshes and mud flats) that occur in the vicinity of the project area would not be disturbed.

Limited SAV, including eelgrass, in Suisun Bay near the project area serves as a nursery ground and shelter for juvenile fish, among other functions. Eelgrass has been identified as EFH for various life stages of fish species managed by FMPs under the Magnuson-Stevens Act, as established by NMFS. Eelgrass was observed within the wharves in 2015 (U.S. Army 2015b), but was not observed in subsequent submerged aquatic vegetation surveys (U.S. Army 2016, 2018a, 2018b, 2021).

Eelgrass may be indirectly affected by turbidity and increased sedimentation in areas adjacent to, or down current from, dredging operations. Turbidity plumes from dredging operations may temporarily reduce light penetration in waters adjacent to the plumes. Sediment near areas of dredging may settle on eelgrass or other SAV blades and affect the viability of the eelgrass or other SAV in beds adjacent to dredging operations. Eelgrass and other SAV beds are easily affected by changes in water quality and turbidity because their growth and survival are a direct function of light penetration in the water column. However, as discussed under Section 3.5.12.1, turbidity effects from dredging are expected to be localized and short-term.

<u>Effects Determination</u>: The Proposed Action Alternatives effect on EFH or special aquatic sites, including eelgrass beds and mudflats, would be less than significant. Turbidity plumes from dredging would be temporary, localized around the dredge barge, and mostly in water deeper than 20'. Mitigation measures should include avoid overflowing the scow to increase the effective load. Transport of dredge material would have a negligible effect on SAV. Placement of dredge material would rely on the site BMPs to minimize effects to SAV.

3.7.4.8. Interference with the Movement of Resident or Migratory Fish or Wildlife Species During Dredging and Placement Activities

Proposed Action Alternatives

The noise and in-water disturbance associated with dredging and placement activities could cause fish and wildlife species to temporarily avoid the immediate dredging or placement area when work is being conducted. Placement activities can cause temporary displacement of fish from the vicinity of the placement site, especially during high-frequency placement activity (whether due to cumulative water quality effects or due to the physical disturbance of placement). Fish tend to exhibit avoidance behavior for about 2 to 3 hours after dredged material placement, and fish community densities generally return to pre-disposal levels after about 3 hours (USACE 2015). The affected area would be limited to the immediate dredging or placement zone and would not substantially limit the available habitat or movement of fish, seabirds, or marine mammals.

<u>Effects Determination</u>: The Proposed Action Alternatives, effects on the movement or migration of fish or wildlife species would be less than significant. Fish and wildlife would likely move around active dredging operations because of noise and turbidity but would be able to return to or move through the area within hours of cessation of operations. Mitigation includes dredging during the LTMS August 1 through November 30 work window to minimize effects to fish and wildlife. Transport of dredge material would be similar to other shipping and have a negligible effect on fish and wildlife. Placement of dredge material would rely on the site BMPs to minimize effects to fish and wildlife.

3.7.4.9. Dredging and Placement Activities Could Disturb Roosting and Foraging by Avian Species

Proposed Action Alternatives

Suisun Bay is an important stopover for many species of migratory waterfowl in the Pacific Flyway. The wharf dredging is in areas where human activity is consistent and ongoing. The Barge Pier dredge area is approximately 700+ feet from the Seal Islands, and Wharves 2 and 3 are in excess of 300 feet from the shoreline landward of the wharves. Birds in these areas are accustomed to human activity and noise, including that from vessel traffic. Dredging, materials transport and placement may temporarily disturb foraging and resting behaviors, decrease time available for foraging, and increase energetic costs as a result of increased flight times and startling responses. Birds that might be found in or near MOTCO wharves or placement sites are highly mobile and can avoid the open water project activity. Any effect on food availability and foraging success as a result of increased turbidity in the water column and burial of the benthic community caused from placement will be short-term and localized. Additionally, it is expected that waterbirds and shorebirds would be able find other forage resources nearby. Therefore, birds are not expected to be adversely affected by dredging and placement activities.

<u>Effects Determination</u>: The Proposed Action Alternatives would result in short-term adverse effects, the effects on avian roosting and foraging would be less than significant. Dredging during the LTMS August 1 through November 30 work window would reduce effects to roosting and foraging birds during the breeding season and rearing of their offspring.

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3.7.4.10. Contaminated Sediments Could Become Re-suspended During Dredging and Placement Activities, and Could Be Toxic to Aquatic Organisms, Including Plankton, Benthos, Fish, Birds, and Marine Mammals

Proposed Action Alternatives

Dredging can disturb aquatic habitats by re-suspending bottom sediments, thereby recirculating toxic metals, hydrocarbons, pesticides, pathogens, and nutrients into the water column. Any toxic metals and organics, pathogens, and viruses, absorbed or adsorbed to fine-grained particulates in the sediment may become biologically available to organisms either in the water column or through food chain processes. However, most contaminants are tightly bound in the sediments, and are not easily released during short-term re-suspension. Most available studies suggest that there is no significant transfer of metal concentrations into the dissolved phase during dredging, even though release of total metals associated with the suspended matter may be large (Jabusch et al., 2008). Organic contaminants such as pesticides, polychlorinated biphenyls, and polyaromatic hydrocarbons are generally not very soluble in water, and direct toxicity by exposure to dissolved concentrations in the water column is not very likely (Jabusch et al., 2008).

When or if required, sediments are tested prior to dredging, and the results are reviewed by the DMMO prior to dredging and placement in their jurisdiction, including evaluation of the potential for affect to aquatic organisms. Previous sediment testing results for maintenance dredging episodes indicate that, in general, dredged materials from the subject Federal navigation channels have been suitable for unconfined aquatic disposal. Over time, some isolated areas in or adjacent to the channels have been identified as containing sediment that is non-suitable for unconfined aquatic disposal (NUAD). If future testing identifies NUAD material that must be dredged, MOTCO would place all NUAD material at upland sites, and in some cases MWRP, as determined during DMMO review. MOTCO would implement sediment bioaccumulation testing, as detailed in the Agreement on Programmatic EFH Conservation Measures for Maintenance Dredging Conducted Under the LTMS Program (USACE and USEPA, 2011), when required. Therefore, dredging and placement activities would not be expected to increase contaminant concentrations in the environment above baseline conditions.

The results of 2019 MOTCO sediment testing (Appendix C) indicate the materials are SUAD based on composition and bioaccumulation tests.

<u>Effects Determination</u>: The Proposed Action Alternatives effect on water quality as a result of potential mobilization of contaminated sediments or hazardous materials release would be less than significant. The effects of dredging on mobilization or release of contaminated sediments are anticipated to be less than significant because the constituents are near or below ambient levels found throughout the area. Identification of hazardous materials in sediment would result in changes in handling techniques to avoid release.

Mitigation measures should include avoid overflowing the scow to increase the effective load. Transport of dredge materials in scows would have negligible effects. Sediment

BIOLOGICAL RESOURCES May 2025 testing provides a BMP process (mitigation) to minimize adverse effects of material placement. Chemical analysis of sediments prior to dredging would ensure transfer to appropriate placement sites for contaminated sediments.

3.7.4.11. Dredging and Placement Could Substantially Increase the Spread of Invasive Nonnative Species

Proposed Action Alternatives

Under the Proposed Action Alternatives, dredging vessels would come from areas outside of the study area. There is the potential that nonnative species could be introduced to the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. Larval forms of nonnative species can be carried in the ballast water of vessels, and if ballast water is released in San Francisco Bay/Sacramento-San Joaquin Delta Estuary, larvae can be introduced into the Bay ecosystem. The United States Coast Guard has mandatory regulations in effect that require ships carrying ballast water to have a ballast water management and reporting program in place and, without jeopardizing the safety of the crew, exchange ballast water with mid-ocean water or use an approved form of ballast water treatment, prior to releasing any ballast water in a port in the United States. Dredge equipment would comply with these regulations, as applicable.

Beneficial reuse, if used in the future, and MOTCO site operators are responsible for managing the placement of dredged materials at the Management and Placement sites in accordance with conditions of their permits and other regulatory approval, which include measures to minimize the spread of invasive nonnative species.

Therefore, project activities would not be expected to substantially increase the spread of invasive nonnative species.

<u>Effects Determination</u>: The Proposed Action Alternatives has little potential to substantially increase the spread of invasive, nonnative species would be less than significant. The BMP for all dredging related equipment is they shall be cleaned and inspected prior to and following deployment. Clean equipment reduces the risk releasing invasive species during dredging, material transport, and placement.

3.7.5. Cumulative Impacts

3.7.5.1. Impact: Potential to Result in Cumulative Impacts on Biological Resources

Proposed Action Alternatives

Under the Proposed Action alternatives, maintenance dredging and placement of dredged materials would have adverse effects on biological resources, including temporary impacts to foraging and species health due to temporary increases in turbidity; disturbance of benthic habitat; temporary loss or reduction of habitat suitable for sensitive fish species; alteration of behavior of marine mammals and birds; and potential exposure to contaminants in resuspended sediments. Other dredging projects also involve activities that could result in similar impacts. These activities could cumulatively impact biological resources by impacting water quality and habitat. MOTCO would comply to the extent practicable with regulations, requirements, and conditions in permits approvals from NMFS, USFWS, and BCDC for dredging, which

would minimize and/or avoid adverse impacts associated with dredging. Additionally, other projects involving dredging and construction in the marine environment would be subject to permitting/regulatory approval processes similar to those for the Proposed Action, and would be required to implement similar measures to minimize water quality and biological impacts.

<u>Effects Determination</u>: The Proposed Action alternatives would not contribute to significant cumulative impacts on biological resources. BMP and mitigation measures would reduce adverse effects during dredging, material transport, and placement.

3.8. CULTURAL RESOURCES

"Cultural resources" describes several different types of properties: prehistoric and historic archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of importance to Native American Tribes (traditional cultural properties and sacred sites). This analysis considers the potential effects of project implementation to cultural resources within the proposed MOTCO Dredge Areas, Management Site and pipeline route, upland Placement Site, Borrow Site, and haul routes. The cultural resources identification efforts for the proposed action were undertaken by USACE on behalf of the Army in three iterations in 2020, 2021, and 2025 (USACE 2020; USACE 2021; USACE 2025).

3.8.1. Regulatory Setting

National Historic Preservation Act of 1966, as amended, 16 USC § 470, et seq.

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of a proposed undertaking on properties that have been determined to be eligible for listing or are listed in the National Register of Historic Places (National Register). Cultural resources that may be determined eligible for National Register listing include buildings, structures, objects, archaeological sites, districts, or traditional cultural properties.

For purposes of complying with Section 106 of the NHPA, 54 USC § 306108, a Federal agency will make a determination of the area of potential effects (APE) for the project or undertaking. The APE is defined as "the geographic areas or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." Additionally, the APE "is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." 36 CFR § 800.16(d).

Eligibility for listing historic properties in the National Register requires a property to possess both historic significance and integrity. Historic significance is judged by applying the National Register criteria, identified as Criteria A through D. The National Register guidelines state that a historic property's "quality of significance in American history, architecture, archeology, engineering, and culture" must be determined by meeting at least one of the four main criteria. Properties may be significant at the local, state, or national level. The NRHP criteria are:

Criterion A: That are associated with events that have made a significant contribution to the broad patterns of our history; or

Criterion B: associated with the lives of persons significant in our past; or

Criterion C: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

Criterion D: That have yielded, or may be likely to yield, information important in prehistory or history.

Meeting one or more of the above significance criteria for eligibility is not enough to determine a resource as eligible for listing in the National Register. In order to meet eligibility, a resource must have also retained historic integrity of those features necessary to convey its significance (U.S. Department of the Interior 1997). There are seven aspects of integrity: Location, Design, Setting, Materials, Workmanship, Feeling, and Association. Not all aspects of integrity may be relevant to a particular resource.

National Environmental Policy Act, 42 USC §§ 4321-4327

Under the NEPA, 42 USC §§ 4321-4327, Federal agencies are required to consider potential environmental impacts—including those to cultural resources—and appropriate mitigation measures for projects with Federal involvement. This document has been prepared in compliance with NEPA regulations.

Submerged Lands Act

The Submerged Lands Act established state jurisdiction over offshore lands within 3 miles of shore (or 3 marine leagues for Texas and the Gulf Coast of Florida). The act did reaffirm the Federal claim to the Outer Continental Shelf, which consists of those submerged lands seaward of state jurisdiction. However, the act limited states' claims to the submerged lands inside the landward boundary of the Outer Continental Shelf. Several Federal courts rejected, for various reasons, state positions on historic preservation laws that pertained to shipwrecks within this 3-mile zone. Judicial conclusions from cases involving the Submerged Lands Act were inconsistent, yet shipwrecks in state waters were still at risk from damage and destruction. These circumstances provided the momentum for the passage of the Abandoned Shipwreck Act, which largely superseded the Submerged Lands Act. In compliance with this act, the CSLC will receive a copy of this EA and will have the opportunity to comment on its potential impacts to submerged lands. However, because the Federal navigation maintenance addressed in this EA is congressionally authorized, dredging and placement activities would not require a lease agreement from the CSLC for use of public trust lands based on the navigational servitude provisions of the Submerged Lands Act.

Abandoned Shipwreck Act, USC §§ 2101–2106, et seq.

The Abandoned Shipwreck Act is a Federal legislative act protecting shipwrecks found in state waters. The Abandoned Shipwreck Act also states that the laws of salvage and finds do not apply to abandoned shipwrecks protected by the act. Under the Abandoned Shipwreck Act, the United States asserts title to abandoned shipwrecks in state waters that are either:

- Embedded in state-submerged lands;
- Embedded in the coralline formations protected by a state on submerged lands; or
- Resting on state-submerged lands and are either included in or determined eligible for the NRHP.

The Abandoned Shipwreck Act also has a provision for the simultaneous transfer, by the Federal government, of title for those abandoned shipwrecks to the state(s) in whose waters the wrecks are located.

3.8.2. Cultural Setting

For a detailed discussion of the cultural setting, see the *Cultural Resources Inventory and Evaluation Report* prepared to identify historic properties within the APE for the proposed action (USACE 2025). The following is a brief overview of the key precontact and historic-era setting.

3.8.2.1. Precontact Setting

The earliest documented archaeological materials in Contra Costa County are deposits dated from between 9,870 and 6,000 years before present (BP). Documented assemblages include handstone/milling-slab groundstone, cobble core tools, and a wide-stemmed projectile point. The earliest large shell mound sites along the San Francisco Bay were occupied between around 4,500 and 2,500 BP. Permanently occupied villages were developed between 2,500 and 1,300 BP. Well-developed bone and shell industries developed during this time period. Around 1,700 BP, during the Upper Archaic period, there appears to have been an intrusive into the area by the Meganos Aspect, a complex defined by a distinctly different burial pattern lacking the structure and complexity of that used by people living in the area previously. During the Emergent period, between 1,300 and 200 BP, the bow and arrow was introduced, and complexity of the material culture became more pronounced.

3.8.2.2. Historic Context

The American takeover of California in 1846, combined with the Gold Rush, dramatically accelerated the pace of settlement in California. The rate and character of settlement, however, differed considerably from one part of the state to the next. Contra Costa County, for example, was settled chiefly for agriculture, although the area was influenced by mining activities at Mt. Diablo and military uses in nearby Solano County. Various settlers laid claim to land that was in the public domain, scattered throughout what is now MOTCO, through the Homestead Act, Swamp and Overflow land, and other legal devices. In the late 1870s, parties began to build wharves and warehouses along Suisun Bay in an area called Seal Bluff, in the area that would later be called Bay Point and still later Port Chicago. The Seal Bluff wharves were used chiefly to ship wheat and other grains grown in the area. In January 1942, the Navy acquired 640 acres of land in what is now the Tidal Area and commenced a rapid construction of docks, barricaded railroad sidings, as well as residential and administrative buildings. In 1944 and 1945, the Navy expanded the facility by acquiring the Inland Area, which included more than 5,000 acres. It was here that the Navy built the bulk of its munitions magazines as well as a small air facility. During the same period, the Navy further expanded the Tidal Area in order to construct new housing and recreational and administrative structures.

The most notable event of the war era occurred with the Port Chicago Disaster, on July 17, 1944, when two massive explosions ripped through the Tidal Area. Two ships, a pier, and most of the facilities in the Tidal Area were destroyed. A total of 320 people were killed and 390 injured. Most of those killed were enlisted African American men serving in segregated units who had been assigned the dangerous duty of loading explosives on waiting ships. The surviving personnel were subsequently relocated to Mare Island Naval Shipyard and ordered to load ships there. Their refusal to handle more explosives until safety precautions had been taken resulted in an incident that came to be known as the "Port Chicago Mutiny" because 50 men were charged and convicted of mutiny. The tragedy resulted in a major period of construction at the port, to repair damage and to provide a higher level of safety for the workers. The disaster and subsequent mutiny trials played an important role in the desegregation of the U.S. Armed Forces in 1948 and later Civil Rights movement.

Known then as U.S. Naval Magazine, Port Chicago, the installation continued to support war efforts during the Korean, Vietnam, and Gulf Wars. On October 1, 2008, properties were transferred from the U.S. Navy to the U.S. Army. The 834th Transportation Battalion at MOTCO continues operate as a munitions shipping facility. The proposed dredging will support the broader mission at MOTCO by improving access to the Wharves 2, 3, Barge Pier, and the Boat Ramp.

3.8.2.3. Historic Properties

In accordance with NHPA Section 106, the Army has undertaken efforts to identify historic properties within the APE for the proposed action. Historic property identification efforts have occurred over the course of several years. In 2020, USACE, on behalf of the Army, performed identification efforts for the in-water dredge areas around Wharves 2, 3, and 4, as well as the Barge Pier (USACE 2020). In 2021, the APE expanded to include landside areas where dredge materials would be temporarily managed as well as the approach to the Boat Ramp (USACE 2021). In 2025, the APE changed again to address new landside dredge material processing areas, the Borrow Site, pipeline, and haul routes. The project also no longer proposes dredging at Wharf 4 and excludes some of the landside areas studied in 2021 (USACE 2025). Based on these identification efforts, the Army has identified two historic properties within the proposed dredging project's APE: the Port Chicago Naval Magazine Explosion Site and the U.S. Naval Magazine Port Chicago Historic District (PC Historic District), both of which are associated with the 1944 Port Chicago explosion (Figure 3-1).

Located in Suisun Bay at the site of former Wharf 1, the Port Chicago Naval Magazine Explosion Site stretches from the shoreline into the bay, near Wharf 2. On March 20,

2014, the Navy determined this site eligible for listing on the National Register; SHPO concurred with this determination on May 22, 2014. The Port Chicago Naval Magazine Explosion Site was delineated in 2013 as the former locations of Wharf 1 and two ships, the E.A. Bryan and the Quinault Victory that were docked at the time of the explosion (Figure 3-1). The ships and the majority of the wharf were destroyed in the blast, but remnants of pilings from Wharf 1 are still extant and are contributing elements to the explosion site. The pilings, located approximately 800 feet from the shore, are located outside of the APE. The north end of the wharf and the location of the ships, however, is in the APE, and debris that is potentially associated with the explosion may be located within the APE. Additionally, the entirety of the proposed action is located within this blast radius (Figure 3-2). The Army has determined that debris within the blast radius, associated with the Port Chicago Naval Magazine Explosion Site, may be contributing elements to the characteristics that make the site eligible for listing in the National Register (U.S. Army, Cultural Resources Treatment and Discoveries Plan, 2016). The Port Chicago explosion marked one of the worst home front disasters of World War II. In addition to loss of life, the tragedy marked a turning point in the movement to desegregate the U.S. Armed Forces. Many of those who died in the Port Chicago explosion were enlisted African American men. unitions loaders received little training and were tasked with the dangerous job of transporting munitions from railroad cars to waiting cargo ships. Following the explosion, 256 enlisted African American sailors at Port Chicago refused their orders to continue to work under the same conditions, 50 of the enlisted men were dishonorably discharged, found guilty of mutiny and sentenced to hard labor. The court-martial of the "Port Chicago 50" was subject to public scrutiny, and under pressure from activists, including Thurgood Marshall of the NAACP, the Navy released most of the men in 1946 and reinstated them to active duty. Another 206 black sailors were charged and convicted with disobeying orders. The high-profile case would also play a role in the desegregation of the U.S. Armed Forces in 1948 and the Civil Rights movement. In 2024, 80 years after the explosion, the Secretary of the Navy exonerated all 256 black sailors .--

The Port Chicago Naval Magazine Explosion Site was determined eligible for listing in the National Register in 2013 under Criteria A and B (Montag, 2013). The Port Chicago Naval Magazine Explosion Site is eligible under Criterion A for its association The Port Chicago Disaster, which is widely acknowledged as a watershed moment in United States military history, and as an influence on the later Civil Rights movement. Additionally, safety practices in the military, and specifically the Navy, were altered after the explosion to ensure that a similar accident, the worst home-front disaster of World War II, did not occur again.

Under Criterion B, The Port Chicago Naval Magazine Explosion Site is eligible for its significant associations with the lives of the individuals who were part of the so-called Port Chicago 50 as well as the tragic deaths of 320 military and civilians. These individuals made significant contributions to the history of military desegregation efforts and the Civil Rights movement, as well helped ensure improved safety conditions for Navy ammunitions handling practices.

The period of significance has been identified as being from 1944, when the explosion occurred, to 1948, marking the signing of the executive order ending segregation of the

U.S. Armed Forces. The geographic scope of the site is limited to the area where Pier 1 and the *SS E.A. Bryan* and *SS Quinalt Victory* were at the time of the explosion. Although debris and munitions from the ships and pier may be located throughout the blast radius, the boundary of the site is limited to the known location of the pier and ships.

The Port Chicago Naval Magazine Explosion Site retains sufficient historic integrity to meet National Register eligibility requirements. The integrity of setting, feeling, and association around the former location of Wharf 1 and the *SS E.A. Bryan* and *SS Quinalt Victory* remains mostly intact. The integrity of location has been compromised by the explosion itself, and numerous dredging and training activities that may have disturbed any remnants of the ships or pier underwater. The integrity of workmanship, materials, and design of the ships and piers has also been compromised by their damage and destruction from the explosion. The remaining pilings, visible from the shore where Wharf 1 was originally located, are a physical reminder of an aspect of the workmanship, materials, and design of the pier, although their integrity is considered low. However, despite the compromised integrity of location, workmanship, materials, and design, these are not aspects that directly contribute to the characteristics that would qualify the Port Chicago Naval Magazine Explosion Site for inclusion in the National Register.

In March 2022, National Park Service (NPS) determined that the PC Historic District is eligible for listing on the National Register based on the National Register of Historic Places Registration Form prepared in 2021 by Erica Shultz and Stacey Farr of Architectural Resources Group. SHPO concurred with the determination in 2022. The 174-acre PC Historic District consists of 41 contributors, including 38 rail barricaded sidings (RBS), remnants of Pier 1 where the 1944 Port Chicago explosion occurred, and rail and road networks. Noncontributors include the Port Chicago Naval Magazine National Memorial (PCNMNM) and Building 174. The PC Historic District is eligible at the national level under Criterion A.

The U.S. Naval Magazine Port Chicago Historic District is eligible for listing in the National Register of Historic Places at the national level under Criterion A in the areas of Ethnic Heritage: Black and Military for the role it played in the desegregation of the U.S. Armed Forces following World War II. The property is significant for its association with the efforts to improve worker safety conditions and desegregate the U.S. Armed Forces. The property is also the final resting place of 320 people who were killed during the explosion, 202 of whom were African American ammunition loaders.

According to the NRHP Registration Form, the period of significance is between 1944 and 1945. It begins with the explosion on July 17, 1944, when African Americans made up a disproportionate number of men killed due to racially segregated and unsafe work assignments at the facility, and continues with the mutiny conviction of fifty men who refused to return to the work of loading ammunition. The period of significance ends in 1945, with completion of the rapid reconstruction of the facility, completed in part by men who survived the disaster, to its pre-explosion appearance and operations.

The PC Historic District retains its overall historic integrity to convey its significance and meet the National Register eligibility requirements. The contributors to the district have

not been moved, and the district retains integrity of location. The district retains integrity of setting due to the orientation toward and physical connection with Suisun Bay where the explosion occurred. The remnant of Pier 1 retains integrity of design, materials, and workmanship following the blast in 1944 and reconstruction of the military facility in 1945. The onshore contributors to the district have undergone some changes to their design and materials; however, despite these changes, the contributing elements mostly retain their integrity of design because they continue to reflect their historic configuration and spatial organization and clearly convey their historic function and use. Replacement features have mostly used in-kind materials and designs. The district also retains some original examples of workmanship, including poured and board-formed concrete at the magazines. The U.S. Naval Magazine Port Chicago Historic District retains integrity of feeling and association because the remnant pier, waterfront setting, and interconnected series of barricaded rail sidings, rail, and roads exude a strong sense of time and place of historic events.

It should also be noted that the PCNMNM, which is located outside the APE for the Proposed Action, is administratively listed in the National Register by virtue of its designation as a NPS unit. NPS has not addressed specific significance associations, integrity considerations, period of significance, contributing elements, or character-defining features.

3.8.2.4. Traditional Cultural Properties

As documented in the 2017-2022 update to the Integrated Cultural Resource Management Plan (ICRMP), no traditional cultural properties or sacred sites have been identified within the APE (Gulf South Research Corporation 2018). As the study of the APE progresses, however, the Army will consult with interested Native American tribes and individuals to identify any potentially overlooked cultural properties within the APE. The Native American Heritage Commission has provided the Army with contact information for the following Federally-recognized American Indian Tribes and individuals with potential interest in the proposed APE: the Confederated Villages of Lisian, Amah Mutsun Tribal Band of Mission San Juan Bautista, Chicken Ranch Rancheria of Me-Wuk Indians, Guideville Indian Rancheria, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, North Valley Yokuts Tribe, The Ohlone Indian Tribe, and Wilton Rancheria.

MOTCO is initiating consultation with Federally-recognized and potentially interested Native American Tribes to identify any potentially significant Tribal cultural sites or resources.

3.8.3. Methodology and Thresholds of Significance

3.8.3.1. Methodology

As noted above, the Army is required to consider potential environmental impacts to cultural resources and appropriate mitigation measures for projects with Federal involvement. Section 106 of the NHPA is used by federal agencies to assess effects on historic properties under NEPA and to mitigate for adverse effects under both laws. The NHPA is the primary Federal legislation governing the preservation and protection of

historic properties. A detailed discussion of the Section 106 NHPA compliance activities for the proposed action are included in the *Cultural Resources Inventory and Evaluation Report* (USACE 2025). As part of this effort, the Army, with technical assistance from USACE, developed the APE, identified historic properties within the APE, and assessed the effects to historic properties, in accordance with 36 CFR Part 800.

The APE was determined to include the navigation approaches for Wharves 2 and 3, Barge Pier and Boat Ramp area as well as the Management Site and pipeline from Wharf 2, Placement Site, haul routes, and Borrow Site (Figure 3-2). The project includes initial and maintenance mechanical dredging of the approaches to Wharves 2 and 3 and the Barge Pier as well as dredging of the navigation approaches to the Barge Pier and Wharves 2 and 3, and the Boat Ramp area in Suisun Bay would occur each year from 2025 to 2035 no more than biennially through 2035. All proposed dredging would be inwater. The MOTCO Dredging Project Area and potential dredge material Management Site and Placement Sites are depicted in Figure 3-2. It also depicts other salient features of the project area. The Management Site (15 acres) is proposed as a materials processing area for the transfer of dredge materials from scows onto land for additional screening, dewatering, and transport to the Placement Site (64 acres; Figure 1-3). The proposed ten-year dredging plan is a continuation of cyclical maintenance dating from the 1940s. Between 1943 and 1981, the navigation approaches and berthing areas around the wharves were dredged an average of every two years (Table 1-1).

The U.S. Navy and the Army and the have documented the 83-year history of the military base in a number of previous studies. The 2017-2022 update to the MOTCO ICRMP includes results from records and literature searches conducted through the California Historical Resource Information System and the Native American Heritage Commission. On December 16, 2019, and April 2, 2015, the Army sent letters to Federally-recognized and potentially interested Tribes to seek information on potentially significant Tribal resources within the APE and seek comment on the project.

Additional background research was conducted for this project within MOTCO's cultural resources and archival files as well USACE's documentation of MOTCO resources. These efforts identified six previously recorded resources in the APE, two of which are eligible for listing in the National Register. Additionally, USACE qualified archaeologists and historians performed site survey to document present cultural resources. USACE evaluated three newly recorded resources for eligibility for listing in the National Register, concluding that none of the resources meet the eligibility requirements. Following historic property identification efforts, USACE, on behalf of the Army, applied the Criteria of Adverse Effects in accordance with 36 CFR 800.5 to consider effects of the Proposed Action on historic properties.

On March 18, 2020, and June 14, 2021, the Army sent consultation letters to SHPO seeking comment on the project and concurrence on the Army's identification efforts. On April 2, 2025, the Army sent letters to SHPO, NPS, and the Friends of Port Chicago National Memorial (FoPCNM) to seek comment on features added to the proposed action.

3.8.3.2. Threshold of Significance

For purposes of Section 106 of the NHPA, an effect to a cultural resource could be considered significant if it rose to the level of an adverse effect, as defined in 36 CFR 800.5(a)(1). That said, a finding of adverse effect on a historic property does not necessarily require an EIS under NEPA (36 CFR 800.8[a][1]), denoting the differences between a significant impact to the environment under NEPA and adverse effect to historic properties under the Section 106 NHPA regulations. If adverse effect(s) to historic properties are identified in evaluating a Proposed Action, Section 106 contains processes for resolving adverse effects through avoidance, minimization or mitigation.

As noted above, 36 CFR 800.5 outlines the process in which Federal agencies are required to determine the effects of their undertakings on historic properties. Analysis of the potential impacts was based on evaluation of the changes to the existing historic properties that would result from implementation of the project. Specifically, the analysis assessed whether the project would have an adverse effect on historic properties, in accordance with 36 CFR 800.5(a)(1), which defines an adverse effect as occurring when "an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."

Application of the Criteria of Adverse Effects assesses how an undertaking will affect those features of a historic property that contribute to its eligibility for listing in the NRHP. Effects can be direct, indirect, and cumulative. Direct effects include physical destruction or damage, the introduction of visual, auditory, or vibration impacts as well as neglect to a historic property. Indirect effects are reasonably foreseeable effects caused by the undertaking that may occur at a future date or be farther removed in distance. Cumulative effects are the impacts of a project taken into account with known past or present projects, as well as foreseeable future, projects. Section 36 CFR 800.5(a)(2) lists seven examples of adverse effects.



Figure 3-1. Location of historic properties in APE and PCNMNM.



Figure 3-2. Port Chicago Blast Radius and APE

3.8.4. Effects

No Action Alternative

Under the No Action Alternative, dredging would not occur. In accordance with Section 106 of the NHPA, the PC Historic District, Port Chicago Naval Magazine Explosion Site and potential submerged or buried cultural resources at MOTCO would not be affected under the No Action Alternative.

Proposed Action Alternatives

Under the Proposed Action alternatives, the project has the potential to effect historic properties and thus requires consultation with the SHPO under Section 106 of the NHPA. The proposed alternative would build a seven-foot-tall berm for the Management Site and cause in-water and landside ground disturbance within the blast radius of the 1944 Port Chicago disaster.

Under the Proposed Actions, the APE includes two historic properties: The Port Chicago Naval Magazine Explosion Site and the PC Historic District. In addition, the Army has determined that debris within the 1944 Port Chicago disaster blast radius may contribute to the National Register eligibility of the Port Chicago Naval Magazine Explosion Site (U.S. Army, Cultural Resources Treatment and Discoveries Plan, 2016). The probability of finding intact remains within the APE, however, is low. Following the explosion, crews cleared the area of large debris so that the Naval base could continue operations. Furthermore, the berthing areas near the Barge Pier and Wharves 2, 3 and 4 were dredged an average of every two years between 1943 and 1981. However, it is possible that debris and human remains associated with the Port Chicago disaster could have entered into the previously dredged areas over time, via erosional processes.

In accordance with Section 106 of the NHPA and 36 CFR 800.5(a)(1), the Army applied the Criteria of Adverse Effects to the Port Chicago Naval Magazine Explosion Site and the PC Historic District (USACE 2020; USACE 2025).

Port Chicago Naval Magazine Explosion Site

As part of NHPA Section 106 review of the project in 2020 and 2021, the Army found, in accordance with 36 CFR 800.5(b), that the proposed dredging activities will result in No Adverse Effects to the Historic Properties as it related to the Port Chicago Naval Magazine Explosion Site because the project would implement the monitoring, discovery, and treatment protocols detailed in the *Cultural Resources Treatment and Discoveries Plan: Military Ocean terminal Concord (MOTCO) Pier 2 Modernization & Pier 3 Repair Projects* (CRTDP). With the use of these protocols, the Army would avoid causing an adverse effect to potentially collected or disturbed debris and human remains that may be associated with the Port Chicago Disaster during project activities. On April 23, 2020, SHPO concurred with the finding of No Adverse Effect to Historic Properties; SHPO reaffirmed that finding on July 23, 2021, when the Army continued consultation on the project to address design changes. Implementation of CRTDP would reduce this potential impact to less-than significant levels.

PC Historic District

In 2025, USACE prepared the *Cultural Resources Inventory and Evaluation Report* for the proposed action, and applied Criteria of Adverse Effects to the PC Historic District, which intersects a portion of the project (USACE 2025). The project proposes building a temporary Management Site that would include a berm measuring approximately seven feet tall. The berms will cross through a portion of the northeast corner of the PC Historic District, but it will not require alterations contributing or noncontributing elements to the historic district. While the project proposes making temporary alterations to the landscape within the boundaries of the historic district, the changes will not cause physical damage or destruction to the historic district. It will also not change the character of the property's use or of physical features within the property's setting that contribute to its historic significance. The location of the Management Site is not considered significant to the historic district.

Ultimately, the project will not have a direct adverse effect to historic properties because it will not result in physical destruction or damage, the introduction of visual, auditory, or vibration impacts as well as neglect to the PC Historic District. Moreover, the project will not cause adverse effects at a future date or farther removed in distance from the location of the project, and thus will not have an indirect adverse effect. In addition, the project does not cause adverse impacts when taken into account with known past or present projects, as well as foreseeable future, projects, and therefore will not cause cumulative adverse effects.

Additionally, the project will implement the CRTDP for landside areas of the project. In this way, USACE concluded that the project would avoid causing an adverse effect to the potential disturbance of any cultural materials or human remains that may be associated with the Port Chicago Disaster during project activities.

Based on the conclusions presented in the *Cultural Resources Inventory and Evaluation Report*, the Army found that the project would have No Adverse Effects to Historic Properties as it relates to the PC Historic District, with the implementation of the CRTDP. On April 2, 2025, the Army sent consultation letters to SHPO, NPS, FoPCNM, and Federally-recognized and potentially interested Tribes.

PCNMNM

The PCNMNM is not intersected by the project and is located outside the APE studied as part of NHPA Section 106 compliance. However, the site is within the vicinity of the Management Site and therefore the *Cultural Resources Inventory and Evaluation Report* assessed whether the project's activities would impact the viewsheds of the PCNMNM. At its nearest, the basin berms associated with the Management Site will be more than 1,000 feet away from the PCNMNM, and, given other visual obstructions between the memorial site and the Management Site, only a small portion of the berms will be visible. Moreover, the berm will rise to approximately seven feet above the surrounding grade, which at this distance will constitute a minimal addition to the viewshed. Ultimately, the temporary presence of the berm will not have a negative impact on the viewshed of the PCNMNM.

3.8.5. Cumulative Impacts

With the implementation of the CRTDP, the proposed action will not have a cumulative impact on cultural resources. The project will include monitoring for dredging and landside ground-disturbing activities and will include the application of specific inadvertent discovery and treatment procedures if cultural materials are encountered during such project activities. As such, implementation of the proposed action in conjunction with known or foreseeable related projects at MOTCO would not result in a significant cumulative impact to cultural resources.

3.9. HAZARDS AND HAZARDOUS MATERIALS

This section describes the existing conditions for hazards, including emergency planning, and hazardous materials in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary region, and evaluates the potential hazard and hazardous materials impacts related to human health. Potential hazardous materials impact on sediments is described in Section 3.3 of the 2015 Federal Navigation Channels EA/EIR. Potential hazardous materials impact on water quality are described in Section 3.4.4 of the 2015 Federal Navigation Channels EA/EIR and Section 3.4 of this EA. Hazards related to marine navigation are evaluated in Chapter 3.10 of the 2015 Federal Navigation Channels EA/EIR. Hazards related to Munitions and Explosives of Concern (MEC) and Unexploded Ordnance (UXO) are evaluated in Sections 3.13 and 4.13 of the 2015 Modernization and Repair of Piers 2 and 3 at MOTCO EIS.

3.9.1. Regulatory Setting

The Hazards and Hazardous Materials Section 3.6 of the 2015 Federal Navigation Channels EA/EIR, and Sections 3.13 and 4.13 of the 2015 Modernization and Repair of Piers 2 and 3 at MOTCO EIS, generally characterize the regulatory setting for Hazards and Hazardous Materials. UXO are not considered toxic or hazardous substances under CERCLA or RCRA, 40 C.F.R. 266.202.

3.9.2. Environmental Setting

The Hazards and Hazardous Materials Section 3.6 of the 2015 Federal Navigation Channels EA/EIR, and Sections 3.13 and 4.13 of the 2015 Modernization and Repair of Piers 2 and 3 at MOTCO EIS, generally characterize the existing conditions for Hazards and Hazardous Materials.

Following the 1944 explosion at the Port Chicago Naval Magazine Explosion Site, the USCG surveyed the blast area around Wharf 1, including marsh areas and nearby waters of Suisun Bay, by dragging bottom sediments and using divers to conduct surveys. Since that time, explosive ordnance disposal (EOD) area operations have addressed discoveries and potential risk of MEC items in the bay, marsh, and on the shoreline (U.S. Army 2011; NAVFAC 2003; USACE 2009a). There have been no recorded unexpected explosive incidents since the original explosion in 1944 (NAVFAC 2003). In addition to the emergency response actions immediately following the 1944 explosion, maintenance dredging has removed more than 1.8 million CY of sediment (see Table 1-1).

In 2003, an underwater geophysical survey was performed using an Mk26 (also known as the Foerster Ferex 4.021) magnetometer (NAVFAC 2003). The purpose of the geophysical survey was to identify and remove anomalies equal to or larger than a 5-inch projectile at a depth of 4 feet below the bay bottom. It is not expected that debris from the 1944 explosion would be buried more than several inches deep; a comparison of 1941 and 2012 NOAA bathymetric surveys confirms that most of the sediments in the area of the potential explosion debris field have either eroded or stayed at the same depth over the years [MOTCO 2013]. However, events such as tsunami, earthquake, and flood events can move MEC. Additionally they move to depressions, such as dredge channels. The Mk26 collected magnetic readings at 389 stations (3-foot intervals) along Wharf 2 and investigated 11 inboard piles using a Fisher Impulse detector.

Metallic anomalies were recorded at 254 stations, and a dive team, composed of former Navy EOD personnel, investigated each anomaly. No MEC was discovered in the 389 locations investigated within the upper 2.5 feet of sediment along the outboard face of Wharf 2 or around the base of the 11 piles identified for replacement. A Remedial Investigation Report (Parsons 2015) located 29 MEC objects. An additional 5 MEC objects found by divers moving large object debris in 2024.

The 2013 MOTCO Explosives Safety Submission (ESS) and 2020 ESS Amendment covers the munitions response action for ongoing construction activities within the Port Chicago Water Explosion Area (see Section 1.1). While the MOTCO wharf areas have been dredged repeatedly since 1944, continued reinstating maintenance dredging would require onsite MEC-UXO support.

3.9.3. Methodology and Thresholds of Significance

3.9.4. Effects

No Action Alternative

Under the No Action Alternative, dredging would not occur. There would be no potential for public or environmental exposure to hazardous materials under the No Action Alternative. There would be no temporary effects or cumulative impacts from the transport, use, and disposal of hazardous materials.

3.9.4.1. Potential Public or Environmental Exposure from the Transport, Use, and Disposal of Hazardous Materials

Proposed Action Alternatives

Under the Proposed Action alternatives, the DMMO would require sediment analysis and approval for dredging events where sediment would be placed in DMMO jurisdiction in the future, such as the Seal Islands. Requirements would include development of a sampling plan, sediment characterization, a sediment removal plan, and handling and disposal in accordance with applicable permit conditions. All Federal, State, and local regulations regarding the use, transport, and disposal of hazardous materials would be adhered to during project activities. Human health and safety impacts would be avoided through adherence to these procedures, conditions, and regulations. Although hazard sites exist in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, these releases or potential releases are considered not adverse because the proposed dredge and placement operations would not interfere with cleanup activities or involve fishing operations or waterborne recreation in contaminated areas. Therefore, the project alternatives would not pose a human health risk.

Dredged material is not usually transported by land because this method is more expensive and inefficient compared to in-water transport. However, for initial dredging, truck transport will be required and utilized for transport of dredged material on MOTCO property. The transport of dried sediment via truck is not expected to result in the emissions of hazardous materials that would pose a human health concern; in a dried state, the sediment would be easily contained and there would be no expected release of contaminants. Therefore, impacts from land transport would be negligible.

As a result of the 1944 Port Chicago disaster and historic Navy operations, presence of MEC-UXO in the dredging areas cannot be discounted. Dredging contractors would follow all scheduling, coordination, security, safety, permitting and other matters pertinent to work accomplished in accordance with Defense Explosive Safety Regulation (DESR) 6055.09, *DOD Ammunition and Explosives Safety Standards.* This includes the following documents, plans and procedures:

- MOTCO 2013 Explosives Safety Submission (ESS)
- Contractor's UXO Anomaly Avoidance Plan
- UXO Support During Construction Activities Plan
- Environmental Protection Plan
- Quality Control Plan
- Hazard Analysis
- Safety and Health Plan
- Explosives Safety and Health Requirements Manual
- Standard Operating Procedures for demolition.

The Work Plan shall be submitted in accordance with:

- Engineering Pamphlet 385-1-95, Safety and Requirements for Operations and Activities Involving Munitions and Explosives of Concern (2014).
- Defense Explosives Safety Regulation 6055.09 2024 Ed 1 Chg 1, *Department of Defense Explosives Safety Standards* (2024).
- Department of the Army Pamphlet 385-64, *Ammunition and Explosives Safety Standards* (2011).
- EM 385-1-97, Explosive Safety and Health Requirements Manual (2010).

<u>Effects Determination</u>: The Proposed Action Alternatives, impact from hazards and hazardous materials is anticipated to be negligible since the change in the environment generally would not be noticeable. With adherence to the ESS and additional required

plans and procedures, impacts associated with military munition response program sites are considered minor.

3.9.5. Cumulative Impacts

Because the project would not cause adverse impacts related to hazards and hazardous materials, it would not contribute to cumulative hazards and hazardous materials use impacts.

<u>Effects Determination</u>: The project would not contribute to cumulative hazards and hazardous materials impacts.

4. PUBLIC AND AGENCY INVOLVEMENT

The Draft Environmental Assessment would be circulated for 30 calendar days to interested Federal, State, and local agencies, organizations and the public (Appendix C). All comments received in the 30-day period would be considered and incorporated into the Final EA, as appropriate.

A Supplemental Biological Assessment was emailed to the USFWS on March 28, 2025. The USFWS BO is anticipated to be received by August 10, 2025.

The USACE San Francisco District Regulatory Division issued a public notice on November 12, 2019 (SPN-2018-00119) for MOTCO's application for a permit to mechanically dredge approximately 378,000 cubic yards of sediment over 10 years from Wharves 2, 3, Barge Pier, and Boat Ramp area of the MOTCO installation in Concord, Contra Costa County, California.

<u>https://www.spn.usace.army.mil/Missions/Regulatory/Public-Notices/</u>. However, it has since been determined that MOTCO's dredging mission qualifies for exemption from Rivers and Harbors Act Section 10 permitting.

In instances where dredged material is proposed for placement in DMMO jurisdiction, MOTCO will present the required documentation, such as a proposed dredging plan and sediment analysis plan, before the DMMO and regulatory permitting agencies for approval. DMMO is a joint program composed of USACE, USEPA, BCDC, RWQCB and the CSLC. Other participating agencies include the CDFW, NMFS and USFWS.

In accordance with 32 CFR Part 651.35, the draft Finding of No Significant Impact (FNSI) for this EA would be made available to the public for review and comment for 30 days prior to the initiation of the Proposed Action. A notification of the draft FNSI would be published in the East Bay Times. The draft FNSI would be distributed to agencies and tribes listed (Appendix C) and any other agencies, organizations, and individuals that have expressed an interest in the project. The draft FNSI would articulate the deadline for receipt of comments, availability of the EA for review, and steps required to obtain the EA. The draft EA would be available at the SDDC Homepage: https://www.sddc.army.mil/SitePages/Environmental%20Programs.aspx

5. SUMMARY OF IMPACTS AND OTHER REQUIRED ANALYSES

This chapter presents a summary of impacts and mitigation measures, and a comparison of the project alternatives. It also includes additional analysis required under NEPA.

5.1. COMPARISON OF THE ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

As stated in Section 3.2, the project would have no or negligible impacts on forestry, land-use for agriculture, energy, noise impacts on the human environment, recreational resources, aesthetic and visual resources, population and housing, socioeconomics, utilities and infrastructure, transportation and navigation, air quality, and regional growth. MOTCO dredging operations would not impact navigation in the Suisun Bay Channel.

For each resource topic evaluated in detail, Table 5-1 presents a summary of impacts for the action alternatives, mitigation measures, and the NEPA impact findings for each alternative after mitigation.

Impacts of the No Action Alternative are presented in Chapter 3.0 for comparison to those of the Proposed Action. Under the Proposed Action alternatives, dredging and placement activities would have minor adverse impacts on sediments. Although not expected, inadvertent discovery of archaeological or paleontological resources could result in adverse cultural resource impacts under alternatives; with implementation of the identified mitigation measures, these impacts would not be significant. Hazards in the form of MEC-UXO could be present but are considered minor with implementation of the ESS and additional required plans and procedures.

The Proposed Action Alternatives would have impacts on water quality, primarily from increased turbidity. Mechanical dredging generates more turbidity than hopper dredging over a longer period of time. The hydraulic and hopper dredging alternatives were eliminated from further consideration due to potential adverse effects to Delta Smelt and Longfin Smelt in the project area. Nonetheless, under the Proposed Action Alternatives, impacts to water quality would be short-term and minor. In addition, dredge material would be placed at the lined and bermed Management Site so as to not allow runoff from the site and any potential leaching into the groundwater table. Sediment would settle out prior to potentially² pumping to a FRAC tank for holding and water quality testing would be completed based upon the requirements in Delta Diablo's Special Discharge Permit (SDP). Upon verification of water quality sampling results meeting the standards required by Delta Diablo's SDP, water would be released into the Delta Diablo sewer system under MOTCO's existing NPDES permit (Permit #01181117-S) and the SDP.

² Use of a FRAC tank and pumping to the existing sewer system via the existing NPDES permit and SDP permit, may not be needed for initial dredging phase, as the Management Site would likely have enough capacity to handle all dredge material and water. However, future phases may need to discharge into the sewer and an SDP permit would be obtained along with meeting the permits water quality requirements. SUMMARY OF IMPACTS AND OTHER REQUIRED ANALYSES May 2025 86

The Proposed Action Alternatives would have air emissions that would be below *de minimis* thresholds for all constituents and would not be considered significant. Construction activities and dredge material hauling would include temporary emissions of VOCs, carbon monoxide, oxides of nitrogen (NOX), sulfur dioxide, PM10, and PM2.5 from off-road heavy-duty diesel-powered construction equipment, on-road vehicular traffic, and fugitive dust emissions generated during construction. Per Title 40 of the CFR § 93.153(c)(2)(ix), emissions from the maintenance dredging are exempt from conformity under the Clean Air Act.

The Proposed Action Alternatives would have minor adverse impacts on certain biological resources, including: temporary, localized turbidity-related impacts on aquatic species and habitat; temporary, localized disturbance of benthic habitat; temporary adverse effects on fish and marine mammals from underwater noise; temporary, localized interference with the movement or migration of fish and wildlife species (with the exception of entrainment risks discussed below); and temporary, localized impacts on avian foraging and roosting. Under the Proposed Action Alternatives, the potential for project activities to result in bio-toxicity impacts to aquatic organisms or increase the spread of invasive, nonnative species would be minimal. In summary, impacts to biological resources under the Proposed Action Alternatives would be less than significant.

Mechanical dredging has a lower potential for fish entrainment during spawning and outmigration of younger fish life stages. Only mechanical (clamshell and/or knockdown) dredging would be implemented as described in the Proposed Action. With implementation of clamshell dredging during the LTMS work windows and other standard practices intended to reduce the potential for entrainment, effects to Federally-listed and commercially important species resulting from entrainment would be less than significant. Under the Proposed Action Alternatives, project and cumulative impacts to Delta Smelt and Longfin Smelt from entrainment would be less than significant.

Under the Proposed Action Alternatives, dredging activities may occasionally delay or temporarily impede some vessels using the Federal navigation channels, resulting in short-term, minor impacts on navigation. Mechanical dredges have the potential to impact navigation because they are stationary while operating and involve the use of multiple vessels. Therefore, potential navigation impacts would be greater when dredging the outside perimeter of the berthing areas, but still minor in magnitude and less than significant.

Table 5-1 Summary of Impacts, Mitigation Measures, and NEPA Findings for the Action Alternatives

Impact	Mitigation Measure	NEPA Finding
3.4 Geology, Soils, and Sediment Quality		
Potential for Dredging, Transport, and Placement Activities to Result in Substantial Soil Erosion Erosion impacts would be less than significant. Future placement of dredged material at beneficial reuse sites would have beneficial impacts on soil resources.	No mitigation necessary.	Less- than-significant adverse impacts.
Potential for Dredging, Transport, and Placement Activities to Substantially Degrade Sediment Quality Impacts to sediment quality would be less than significant.	Sediment testing would identify chemical properties above ambient conditions and require material placement at appropriate sites to minimize impacts. Screen dredge materials down to ³ / ₄ " to remove 20 mm debris and UXO.	Less- than-significant adverse impacts.
Potential for Dredging, Transport, and Placement Activities to Result in Cumulative Impacts on Sediments and Soils The project alternatives would not result in cumulative impacts on sediments and soils.	Periodic testing would identify changes in sediment chemical properties and require material placement at appropriate sites to minimize cumulative impacts.	Less- than-significant adverse impacts.
Potential to Result in Cumulative Impacts to Sediment Quality The project alternatives would not result in cumulative impacts on sediments and soils.	Periodic testing would identify changes in sediment chemical properties and require material placement at appropriate sites to minimize cumulative impacts.	Less- than-significant adverse impacts.
3.5 Hydrology and Water Quality		
Potential to Substantially Degrade Water Quality through Alteration of Water Temperature, Salinity, pH, and Dissolved Oxygen Impacts to water quality temperature, salinity, pH, and dissolved oxygen from project activities would be minor, short-term, and localized.	No mitigation necessary.	Less- than-significant adverse impacts.
Potential to Substantially Degrade Water Quality Because of Increased Turbidity Dredging and placement activities would have minor, short-term, and localized impacts to water quality due to short-term increases in turbidity. Future placement of dredged materials at habitat restoration beneficial reuse projects could have long-term beneficial effects on water quality.	Do not allow overflowing of scows and reduce material handling to extent possible to minimize turbidity effects.	Less- than-significant adverse impacts.

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Potential to Substantially Degrade Water Quality Because of Mobilization of Contaminated Sediments or Release of Hazardous Materials Dredging and placement activities would not be expected to increase contaminant concentrations in the water column above baseline conditions, or result in violation of a water quality standard.	Turbidity and sediment testing BMPs with dredge material placement site requirements would minimize impacts.	Less- than-significant adverse impacts.
Potential to Result in Cumulative Impacts to Hydrology or Water Quality The project, in combination with other past, present, and reasonably foreseeable future projects, could result in adverse cumulative impacts on water quality; however, the project's contribution to this cumulative impact would not be cumulatively considerable or significant.	Sediment testing would identify chemical properties above ambient conditions and require material placement at appropriate sites to minimize impacts.	Less- than-significant adverse impacts.
3.6 Air Quality		
Potential violation of any air quality standard or contribute substantially to an existing or projected air quality violation.	No Mitigation Measures	No adverse impact
Potential conflict with or Obstruction of Implementation of an Applicable Air Quality Plan.	No Mitigation Measures	No adverse impact
Potential for exposure of Sensitive Receptors to Substantial Pollutant Concentrations.	No Mitigation Measures	Less- than-significant adverse impacts.
Potential to Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	No Mitigation Measures	Less- than-significant adverse impacts.
Cumulative Impacts	No Mitigation Measures	Less- than-significant adverse
Result in Cumulative Impacts on Regional Air Quality		impacts.
3.7 Biological Resources		
Potential Adverse Effects of Increased Turbidity Resulting from Maintenance Dredging and Dredged Material Placement on Federally-listed Species, Critical Habitat, and Commercially Valuable Marine Species Localized and temporary increases in turbidity resulting from dredging and the placement of dredged material may affect marine organisms and aquatic wildlife during various life stages. Impacts may include impaired respiration; reduced visibility and the ability to forage or avoid predators; and alteration of movement patterns. Increases in turbidity from the project are not expected to have substantial effects on special- status species, their critical habitat, or EFH.	Implement conservation measures described in the Biological Assessment and comply with the conservation measures, terms and conditions of the respective Biological Opinions.	Less- than-significant adverse impacts.
Potential Adverse Effects of Maintenance Dredging Resulting from the Disturbance of Benthic Habitat on Federally-listed Species, Critical Habitat, and Commercially Valuable Marine Species	No mitigation necessary.	Less- than-significant adverse impacts.
Dredging would have localized, direct impacts on benthic communities through physical disruption and direct removal of benthic organisms. Effects would be temporary because benthic habitat is quickly recolonized.		
Potential Adverse Effects of Underwater Noise Generated During Maintenance Dredging on Federally-listed Fish and Marine Mammals Underwater noise produced during dredging may have temporary adverse effects on fish and marine mammals, include fleeing, the cessation of feeding, or other behavioral changes, but would not be expected to cause injury to fish and marine mammals.	No mitigation necessary. The dredging noise levels are lower than the threshold for disturbance.	Less- than-significant adverse impacts.
Potential Adverse Effects from Entrainment on Federally-listed or Commercially and Recreationally Important Marine Species, Not Including Delta Smelt and Longfin Smelt During dredging, organisms on the dredged material may be entrained, in addition to organisms in the water column near the dredging apparatus. With implementation of the LTMS work windows and other	No mitigation necessary. Implement conservation measures, terms and conditions of the NMFS Biological Opinion.	Less- than-significant adverse impacts.

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standard practices intended to reduce the potential for entrainment, effects to Federally-listed and commercially important species, not including Delta Smelt and Longfin Smelt, would not be significant.		
Potential Substantial Adverse Effects and Cumulative Impacts to Delta Smelt and Longfin Smelt from Entrainment Entrainment of Delta Smelt is unlikely with mechanical dredging, material transport and placement. With implementation of minimization measures, effects would be less than significant. Although the project could contribute to cumulative impacts on Delta Smelt, the project's contribution would not be significant.	Minimization measures are proposed as part the project description for both alternatives. Clamshell dredging during the LTMS work window would minimize adverse effects. Implement conservation measures, terms and conditions of the FWS Biological Opinion.	Less- than-significant adverse impacts.
Potential Substantial Adverse Effects of Dredge Material Management and Placement to Salt Marsh Harvest Mouse Habitat Construction of the management and placement areas is unlikely to have an adverse effect on Salt Marsh Harvest Mouse or its habitat. Conservation measures will be implemented as necessary to minimize adverse effects to adjacent wetland habitat and prevent mice from accessing the site during construction of the management and placement areas. With implementation of conservation measures, effects would be less than significant.	The dredge material management and placement sites shall be located outside of existing wetland habitat to minimize adverse effects to potential Salt Marsh Harvest Mouse habitat. Implement conservation measures, terms and conditions of the FWS Biological Opinion.	Less- than-significant adverse impacts.
Dredging and Placement Activities Could Result in the Disturbance of Essential Fish Habitat and "Special Aquatic Sites," Including Eelgrass Beds and Mudflats. SAV and EFH near the project dredging may be indirectly impacted by turbidity and increased sedimentation from dredging operations. Turbidity plumes from dredging operations may temporarily reduce light penetration in waters adjacent to the plumes. Sediment near areas of dredging may settle on eelgrass blades and affect the viability of the eelgrass in beds adjacent to dredging operations. Turbidity and sediment effects would be localized and short-term, and therefore less than significant.	Do not allow overflowing of scows and reduce material handling to extent possible to minimize turbidity effects.	Less- than-significant adverse impacts.
Interference with the Movement of Resident or Migratory Fish or Wildlife Species During Dredging and Placement Activities The noise and in-water disturbance associated with dredging and placement activities could cause fish and wildlife species to temporarily avoid the immediate dredging or placement area when work is being conducted. However, the affected area would be limited to the immediate dredging or placement zone and would not substantially limit the available habitat or movement of fish, seabirds, or marine mammals.	Implement terms and conditions from the Biological Opinions, DMMO, and other permits.	Less- than-significant adverse impacts.
Dredging and Placement Activities Could Disturb Roosting and Foraging by Avian Species Dredging, materials transport and placement may disturb avian foraging and resting behaviors, decrease time available for foraging, and increase energetic costs as a result of increased flight times and startling responses. The effects of materials transport and placement would be similar for other terrestrial species. Impacts would occur outside the breeding season due to the annual dredging work window (August 1 and November 30), and would be temporary, localized, and minor.	No mitigation necessary.	Less- than-significant adverse impacts.

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Contaminated Sediments Could Become Resuspended During Dredging and Placement Activities, and Could Be Toxic to Aquatic Organisms, Including Plankton, Benthos, Fish, Birds, and Marine Mammals Sediment testing results for navigation approach and berthing area indicates that, in general, dredged material is suitable for unconfined aquatic disposal. Dredging, transport, and placement of dredged material would be conducted in cooperation with the DMMO. This process would identify contaminated sediments and appropriate future placement site options for dredged materials, based on the characteristics of the sediment and criteria for each placement site. Adherence to best management practices and conditions in regulatory approvals would minimize the potential for water quality degradation that could impact aquatic organisms.	Sediment testing would identify chemical properties above ambient conditions and require material placement at appropriate sites to minimize impacts. Screen dredge materials down to ³ / ₄ " to remove debris and UXO.	Less- than-significant adverse impacts.
Dredging and Placement Could Substantially Increase the Spread of Invasive Nonnative Species Dredge equipment would comply with United Stated Coast Guard regulations for vessels intended to minimize the spread of invasive nonnative species. Beneficial reuse and upland placement site operators are responsible for managing the placement of dredged materials at the placement sites in accordance with conditions of their permits and other regulatory approval, which include measures to minimize the spread of invasive nonnative species. Therefore, project activities would not be expected to substantially increase the spread of invasive nonnative species.	Clean all equipment prior to dredging and moving outside the regional area.	Less- than-significant adverse impacts.
Potential to Result in Cumulative Impacts on Biological Resources The project, in combination with other past, present, and reasonably foreseeable future projects, could result in adverse cumulative impacts on biological resources; however, the project's contribution to these cumulative impacts would not be cumulatively considerable or significant.	The BMPs for sediment testing, turbidity, dredging equipment, LTMS work windows would minimize the potential for cumulative impacts on biological resources.	Less- than-significant adverse impacts.
3.8 Cultural and Paleontological Resources		
Potential Effect to Historical or Archaeological Resources Although unlikely, given the repeated dredging and dredged material placement activities that have historically occurred at the Federal navigation channels and existing placement sites, there remains the potential that archaeological materials could be inadvertently uncovered by project activities. Such inadvertently discovered archaeological materials could represent historical resources or unique archaeological resources, and their disturbance could adversely change their condition. As such, the inadvertent discovery of archaeological materials represents a potential project impact. Implementation of Mitigation Measure for Inadvertent Archaeological Discovery Measures, would reduce potential impacts.	Measures will be implemented to avoid potential adverse effects on inadvertently discovered NRHP- and/or CRHR-eligible or unique archaeological resources.	Less- than-significant adverse impacts.
Disturb Human Remains, including those Interred Outside of Formal Cemeteries There are no known cemeteries, formal or otherwise, or other evidence of human internment in the Federal navigation channels, DMPS or other existing placement sites. Although unlikely, given the repeated dredging and dredged material placement activities that have historically occurred at the Federal navigation channels and existing placement sites, there remains the potential that previously unidentified human remains could be inadvertently uncovered with project implementation. Such disturbance of human remains represents a potential project impact. Implementation of Mitigation Measures for Inadvertent Archaeological Discovery Measures, and Treatment of Human Remains, would reduce potential impacts.	The treatment of human remains and associated, or unassociated funerary objects discovered during any soil-disturbing activity will comply with applicable state laws. Refer to Section 3.7 for complete mitigation measure.	Less- than-significant adverse impacts.
Potential to Result in Cumulative Impacts on Cultural Resources Project activities would not result in impacts to known historic or unique archaeological resources or to significant paleontological resources, and therefore would not contribute to any cumulative impact to these resources. If previously undiscovered archaeological resources are inadvertently exposed by the project or other reasonably foreseeable projects, an incremental effect to archaeological resources may occur.	No mitigation necessary.	Less- than-significant adverse impacts.
3.9 Hazards and Hazardous Materials		

Potential Public or Environmental Exposure from the Transport, Use, and Disposal of Hazardous Materials

Dredging contractors would follow all scheduling, coordination, security, safety, permitting and other matters pertinent to work accomplished in accordance with Defense Explosive Safety Regulation (DESR) 6055.09, DOD Ammunition and Explosives Safety Standards

Mitigation Measure: Comply with DESR 6055.09, DOD Ammunition and Explosives Safety Standards, and submit an ESS.

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Less- than-significant adverse impacts.

5.2. NEPA ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The NEPA environmentally preferable alternative is the alternative that "...promotes the national environmental policy as expressed in NEPA's Section 101" (42 USC § 4331). NEPA does not require that an EA and Finding of No Significant Impact identify an environmentally preferable alternative. However, both Proposed Action Alternatives have been formulated to minimize effects and either can be implemented as an environmentally preferable alternative. The Proposed Action Alternatives provides a necessary balance between the quality of the environment, economic considerations, and MOTCO's statutory missions.

5.3. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Under 32 CFR Appendix D to Part 651, NEPA requires a description of the irreversible and irretrievable resource commitments related to the use of nonrenewable resources that could result from the implementation of the Proposed Action. Irreversible effects would primarily result from the use or destruction of a specific resource, such as energy and minerals that could not be replaced within a reasonable time frame. Irretrievable resource commitments would involve the loss in value of an affected resource that could not be restored as a result of the action; an example of this is the extinction of a threatened or endangered species, or the disturbance of a cultural resource.

Dredging and placement activities would require the use of fossil fuels for the operation of vessels and equipment. The commitment of these resources would apply irrespective of the alternative. Under Proposed Action alternatives, the fossil fuel consumption would be similar to that of the Navy's previous maintenance dredging operations.

An irretrievable loss of cultural resources could occur should the project uncover resources associated with the 1944 Port Chicago Disaster. However, measures have been identified that would minimize impacts; therefore, MOTCO determined that an irretrievable loss of these resources is not expected.

An irreversible loss of Federally-listed species could occur should the project result in incidental take of Federally-listed fish species. However, measures have been identified that would minimize impacts to these species; therefore, MOTCO determined that an irretrievable loss of these species' populations is not expected.

5.4. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

Under 32 CFR Appendix D to Part 651, NEPA requires consideration of the relationship between local, short-term uses of the environment, and the maintenance and enhancement of long-term productivity.

Maintenance dredging and the placement of dredged material would result in short-term impacts on sediments, water quality, biological resources, air quality, and navigation. Short-term adverse impacts include increases in turbidity, disturbance of benthic communities, effects on fish and wildlife behavior, emissions of criteria pollutants, and delayed navigation of vessels; these impacts would be minor, localized, and temporary during dredging and placement activities. Potential entrainment of Federally-listed fish species would result in permanent effects.

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However, MOTCO determined that these potential adverse effects would be minimized by implementing the standard practices identified in Chapter 2 and the mitigation measures discussed in Chapter 3. Moreover, these short-term impacts are expected to be outweighed by long-term, beneficial effects of maintaining MOTCO's wharves and Boat Ramp to meet the Department of Army mission needs and capabilities. In addition, the future beneficial reuse of dredged materials may contribute to the long-term productivity of the environment.

Therefore, the project would not be expected to adversely impact the long-term productivity of the environment.

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8. APPENDICES

APPENDIX A

DREDGING METHODS AND PLACEMENT SITES

This Appendix contains detailed information describing different dredging methods, local beneficial use and disposal sites active in the area not under the ownership and control of the Army.

A-1 DESCRIPTION OF DREDGING METHODS AND PLACEMENT PRACTICES

This section discusses the dredging methods considered for alternative analysis to maintain the wharf access, transport and place dredged material (USACE 2015). Dredging methods for a specific area are typically based upon site-specific characteristics, such as substrate type, water quality, site bathymetry, wave energy, dredging depth, desired production rate (i.e., cubic yards per hour), method of placement, distance to placement area, levels of constituents of concern, and spatial feasibility. Additionally, costs and availability of dredge equipment factor into selection of a type of dredging method. Dredging equipment and techniques for the purposes of this EA are categorized by two mechanisms:

- Mechanical dredging Removal of loose- or hard-compacted materials by clamshell, bucket, excavator, dipper, or ladder dredges. Unlike hydraulic dredging, mechanical dredges use mechanical systems to remove sediments from the dredging site.
- Knockdown and Bar dredging- are forms of mechanical dredging that redistribute the location of sediment rather than removing it. This is done using a bed-leveling device that can be pushed or pulled along bottom to "knock-down" high points of sediment.

Mechanical (Clamshell) Dredging

The clamshell bucket capacity would range between 20 to 50 CY, depending on dredge availability. Up to seven scows, with a capacity of 2,000 to 4,000 CY, and four 1,800 horsepower (hp) tugs would be used to transport dredged material to placement sites. In addition, one 1,000 hp tender tug would be required to maneuver each dredge plant.

The estimated daily production rate would range between 3,100 and 6,600 CY, depending on the location of dredging and the placement site being used. For example, production rate would be approximately 5,000 CY if dredged material were placed at the upland beneficial use sites. The production rate would decrease if material were transported to the Federal Deep Ocean Disposal Site (SFDODS).

A mechanical clamshell dredge consists of a crane mounted on a barge, with a clamshell bucket on the end of the crane boom (Photo A-1). The deck barge has two to four spud piles attached to the platform, generally at the corners. The spud piles are long pipes that are driven vertically into the bay bottom by hydraulic assistance. The

spud piles are used to anchor the dredge barge. Clamshell dredges are not selfpropelled, so they require a tugboat to tow or push the dredge to and from the dredge sites. Once a tug moves the dredge into place, the spuds are driven into the bay bottom anchoring the dredge. Once the dredge is anchored in place, dredging can begin. Relocating the dredge requires approximately 1 hour to complete. On average, the mechanical clamshell dredge plant for this project would need to be relocated approximately every 3 hours. In addition, when working adjacent to the ship channel, the dredge would need to be moved out of the shipping channel to allow deep draft vessels to transit the channel.

The crane has a boom that is long enough to extend out beyond the end of the work barge in any direction and can swivel 360 degrees on its mount. A large clamshell bucket is attached to the end of 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. The scows are open barges that can carry large quantities of sediment and are towed with tugboats to and from placement sites. As soon as one scow is filled and hauled away, another empty scow is maneuvered into place alongside the dredge and the digging continues.

Clamshell buckets are raised from and lowered to the bottom using a system of cables. The weight of the bucket is sufficient for it to fall through the water column into the bottom sediment. The cables restrict the clamshell from going too deep, or beyond the maximum allowable overdepth. The clamshell then closes and is pulled up through the water column to above the scow. Once over the scow, the clamshell opens and deposits the dredged material into the scow. When all the material within reach of the clamshell is dredged, the spuds are raised, and the tender tug transports the dredge and scow to the next area requiring dredging. The process is repeated until all material is dredged from the channel. Following dredging, hydrographic surveys would be conducted to ensure that the entire area is dredged to the desired depth.

During dredging, clamshells place a slurry of sediment and water in the scows. Depending on the sediment type being dredged, the sediment-to-water ratio of the slurry is expected to be approximately 60 to 70 percent sediment and 30 to 40 percent water. The San Francisco Bay Regional Water Quality Control Board allows unrestricted overflow in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary when sediment is greater than 80 percent sand. When sediment is less than 80 percent sand, overflow is only allowed if turbidity monitoring is conducted within 500 feet of dredging operations to demonstrate that the turbidity plume generated by overflow activities does not increase the ambient turbidity by more than 10 percent above background levels, does not reduce dissolved oxygen concentrations to below 7.0 mg/L in Suisun Bay, or result in the pH going below 6.5 or above 8.5.



Photo A-1 Typical Mechanical Clamshell Dredge and Scow



Photo A-2 Large scow with movable steel grizzly in the Port of Oakland (CA).



Photo A-3 Debris captured on 1-ft square grizzlies (California). Photos from DMMP 2015.



Photo A-4 Chain grizzly (California). Photo from DMMP 2015.

Sediment proposed for dredging in front of the MOTCO Wharves is anticipated to classify as clay, silt, and sand with significant clods of cohesive sediment. A jet spray with clean water may be used to break up clods on the static screens for processing. Appendix A April 2025

The alternating layers of silty clay, clayey silt, sandy silt, silty sand, sand, and interbedded clay and sand are discontinuous and of varying thickness. Shells, wood debris (e.g., branches, twigs, and rootlets), and organic soils grading to peat also are expected to be encountered. Sediment directly in front of MOTCO Wharves 2 and 3, the turning basin at and 4, and Barge Pier was <80% sand when analyzed for wharf renovations. Therefore, overflow turbidity monitoring may be required to demonstrate that the turbidity plumes are not adversely affecting water quality in the vicinity of the dredge.

Excavators

Amphibious or barge mounted excavators may be used for shallower inshore dredging. An excavator has mechanical arm with the bucket on the end for scraping sediment up. Excavators may be mounted on a barge that is moved around by a tugboat, or on a selfpropelled track system. The arm length and bucket size limit where an excavator may be effective to shallower dredging depths and close inshore areas where a clamshell dredge has less capability for production. The excavator must be up-armored to meet the unintentional detonation of the 5-inch 38 Caliber Mk 35, and the operator must be 45 feet from the bucket when it is actively excavating or placing spoils through the grizzly. Management of dredge materials to remove UXO will follow ESS Safety Requirements.

Bar Dredging

"Barring" is a routine part of dredging episodes to smooth out high spots as needed after dredging has occurred. This method involves using a tug to pull a weighted blade across the channel bottom. As the blade encounters material, it scrapes the material into the adjoining areas with deeper depressions, redistributing the shoaled material in each channel. Barring is restricted to the dredging footprint and the authorized project depth, including the over-dredge depth allowance.

Knockdown Dredging

Separate from barring, which is implemented at the end of dredging episodes, "knockdown" events may be implemented to improve channel conditions between dredging episodes when a full dredging event is not warranted. Knockdowns use the same equipment and procedures as barring, but apply to isolated shoals or high spots, rather than the entire dredging footprint. Knockdowns are most useful when time constraints may not allow for normal dredging, or when a shoal threatening navigation covers a small portion of a project area 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 placement site. Because knockdowns typically create less resuspension than full dredging episodes (especially in the upper water column), they have at times been approved in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary to minimize necessary work outside environmental work windows.

General Dredge Material Transport and Placement

When the scows are full (1,500 or 3,000 CY), they would be transported by dieselpowered tugboats to the offloading facility for the Placement Site. Scows would moor at Appendix A April 2025

the offloading facility (see example in Figure 2), for transferring sediment out of the scow to the site. Typically, sediment is pumped out of a scow (offloaded) using of a modified hydraulic pipe dredge, which serves as an offloader.



Figure A-1 Aquatic Placement of Dredged Material

When the scow arrives at an open water placement site, the doors at the bottom of the scow would open and dredged sediment would fall through the scow doors to the bottom of the placement site (Figure A-1). As material falls through the water column, some sediment is stripped from the descending plume, creating turbidity around the scow. However, most sediment would fall to the bottom of the placement site.

Montezuma Wetlands, for example, typically uses the Liberty offloader, which is on a floating barge. Cullinan Ranch uses an offloader that is land. Once moored, the offloader would insert a snorkel into the scow, simultaneously injecting water into the scow to create a water-sediment slurry and pumping the slurry from the scow to a designated cell within the site. The offloader's water intake system must be screened in accordance with the California Department of Fish and Wildlife's screening criteria. It takes approximately 2 hours to completely offload dredged sediment from a scow. Alternatively, a long reach excavator or clamshell bucket may be used to unload a scow for loading materials onto a dump truck.



Figure 2 Liberty Offloader during Typical Offloading at Montezuma Wetlands Restoration Project

The transport distance from MOTCO to Montezuma Wetlands averages 12 miles, and to Cullinan Ranch is 19 miles. Scows-tugs would travel approximately 7 knots (8 miles per hour) from dredge sites to the beneficial use sites. On average, each scow-tug trip to and from the beneficial use sites, including offloading, would take approximately 6 hours.

A-2 OFF-MOTCO BENEFICIAL USE AND DISPOSAL SITES

Montezuma Wetlands Restoration Project (MWRP)

Montezuma Wetlands Restoration Project (MWRP) is a privately-owned restoration project located on the eastern edge of Suisun Marsh, north of the confluence of the Sacramento and San Joaquin Rivers near the town of Collinsville, in Solano County. In the early 1900s, the site was diked, drained, and used for agriculture. Since the site was diked, the land has subsided up to 10 feet. Once completed, Montezuma Wetlands is expected to restore 1,820 AC of tidal, seasonal, and managed wetlands (Collins and Grosso 2006). Approximately 17.5 million CY of dredged material are needed to raise site elevations. As of August 2017, approximately 4 million CY of dredged material have been placed at Montezuma Wetlands, contributing to the restoration of over 350 acres of wetlands (Dredging Operations and Sediment Management). The site can accept

both cover and foundation material. Foundation material is allowed only in the deepest portions of the site and must be covered with at least 3 feet of clean cover material.

A detailed description of the restoration activities and associated impacts to Federallylisted species and critical habitat are fully described in the Montezuma Wetland Restoration Project's biological opinions (USFWS file numbers 1-1-99-F-12; 1-1-02-F-0175 and 1-1-04-F-0270; NMFS file number F-SA-00-6:EAC), which are incorporated into this document by reference.

Based on the above information for Montezuma Wetlands, 9,000 to 11,429 CY of dredged sediment is required to create 1 acre of wetland habitat at the above locations. Using an intermediate value of 10,000 CY per acre of habitat, the approximately 93,961 CY of dredged sediment resulting from the Proposed Action could be expected to create 7.8 AC of wetland habitat due to its beneficial use. In order for this to occur, Additional secondary screening of dredge spoil material down to 20mm would be necessary for material from MOTCO to be used at this site.

Cullinan Ranch Restoration Project

The Cullinan Ranch Restoration Project is located along the northern shoreline of San Pablo Bay, near the City of Vallejo in Solano and Napa Counties. The site consists of diked baylands that was used for agriculture until the late 1980s. Following diking and draining the site, much of it lost up to 6 feet of elevation as a result of sediment deposition, soil compaction, and loss of organic matter (USFWS 2010). The USFWS is currently restoring over 1,500 AC of the site to tidal wetlands consistent with the USFWS' recovery plan for salt marsh harvest mouse and California Ridgway's clapper rail. In addition, it is believed that the restored marsh would provide suitable habitat for Delta Smelt, Long-fin Smelt, Central California coastal Steelhead (*Onchorhynchus mykiss*), Central Valley Steelhead (*O. mykiss*), winter-run Chinook Salmon (*O. tshawytscha*), green sturgeon (*Acipenser medirostris*), and western snowy plover (*Charadriius alexandrines nivosus*) (USFWS 2010). The Cullinan Ranch Restoration Project also is expected to provide food and nutrients for aquatic species in the adjacent Napa River Estuary and San Pablo Bay.

In 2014, regulatory permits were revised to increase the volume of dredged sediment authorized for placement in support of tidal marsh habitat restoration at Cullinan Ranch (DMMO 2015). Specifically, the amount was increased from 450,000 CY to restore 50 AC to 2.8 million CY to restore 290 AC of the 1,575 AC site to elevations suitable for marsh plain establishment. As of December 2017, approximately 800,000 CY had been placed at Cullinan Ranch, leaving a remaining capacity of approximately 2 million CY.

A detailed description of the restoration activities and associated impacts to Federallylisted species and critical habitat are fully described in the San Pablo Bay National Wildlife Refuge Comprehensive Conservation Plan (USFWS 2010, 2011). In order for this to occur, additional secondary screening of dredge spoil material down to 20mm would be necessary for material from MOTCO to be used at this location to guarantee that no UXO is transferred to the site.



Figure A-3 Modified Offloader Currently Offloading Dredged Material at Cullinan Ranch (Dutchman Slough)

Antioch Dunes National Wildlife Refuge (ADNWR).

The Antioch Dunes National Wildlife Refuge (ADNWR) is an approximately 55-acre refuge managed by USFWS that consists of two parcels separated by a Georgia-Pacific Gypsum Plant and a Pacific Gas & Electric utility easement. The refuge was founded in 1980 and is located along the shoreline of the San Joaquin River in Antioch, California. The western parcel, the 41AC Stamm Unit, is the only unit proposed to receive dredge sediment for this project. The ADNWR is located about 12 miles east of MOTCO.

The site is surrounded by industry including a gypsum plant to the east, a former shipyard to the west, a former wastewater treatment facility which now functions as a municipal landfill, and a set of railroad tracks to the south. A total of three Federally-listed species: the Contra Costa Wallflower (*Erysimum capitatum ssp. angustatum*), the Antioch Dunes Evening Primrose (*Oenothera deltoides ssp. howellii*), and the Lange's Metalmark Butterfly (*Apodemia mormo langei*), have been identified at ADNWR.

As part of the Comprehensive Conservation Plan (CCP) for the ADNWR, dune restoration is one of the primary objectives for habitat restoration (USFWS 2002). Beginning in 1991, the USFWS has imported sand to the ADNWR in order to create additional habitat. The CCP specifies identifying potential sources of clean sand, specifically from the Stockton DWSC, and importing the sand for habitat restoration. Due to the sandy substratum in the areas surrounding Antioch Dunes, the shoaling that typically occurs in this section of the San Joaquin River is sand. In 2013, the Port of Stockton and the USFWS at Antioch Dunes partnered with the USACE to begin restoration efforts using dredged material. The beneficial use of dredged material allows

Appendix A April 2025 the recreation of sand dunes, the natural habitat of the Contra Costa wallflower, the Antioch Dunes evening primrose, and Lange's metalmark butterfly. Continued use of this site for the beneficial use of dredged material will eventually allow natural restructuring of the sand dunes, possibly recreating the natural function and habitat value of the ADNWR. The site has received over 91,851 CY of sand material since 2013, and may receive up to 400,000 yds³ of dredge materials (>75% sand). This site was used as a Placement Site several times since 2013.

This site has been eliminated from consideration as a location to receive MOTCO's dredge sediment as the sand content is not high enough to satisfy the parameters of this location. If future sediment analysis shows a change and it becomes a viable location in the future then secondary screening of dredge spoil material down to 20mm would be necessary for material from MOTCO to be used at this location to guarantee that no UXO is transferred to the site. Additional supplemental NEPA analysis would also be necessary.

SF-9 Carquinez Strait Placement Site.

The SF-9 placement site is a 1,000-foot by 2,000-foot rectangle, approximately 10 to 55 feet deep, 0.9 mile west of the entrance to Mare Island Strait in eastern San Pablo Bay in Solano County. Placement is limited to 1.0 million CY of dredged material per month and a maximum of 3.0 million CY per year during wet or above-normal water flow years; and 2.0 million CY per year during all other years. The only federal agency authorized to dispose of dredge materials in-bay is the USACE. MOTCO materials cannot be sent here and therefore this location was eliminated as an alternative.

SF-16 Suisun Bay Placement Site

The SF-16 placement site is a single-user, in-Bay, unconfined disposal site reserved for sand dredged from the Suisun Channel and New York Slough projects only. SF-16 is a 500-foot by 11,200-foot rectangle adjacent to the northern side of Suisun Bay Channel, approximately 1 mile upstream of the Interstate 680 Bridge. The depth at this site is approximately 30 feet MLLW. Currently, the site is authorized to receive 200,000 CY of dredged sand per year. The only federal agency authorized to dispose of dredge materials in-bay is the USACE. MOTCO materials cannot be sent here and therefore this location was eliminated as an alternative.

San Francisco Deep Ocean Dredge Disposal Site (SF DODS)

Approximately 55 miles (48 nautical miles) west of the Golden Gate Bridge, SF-DODS is the farthest offshore and deepest (8,000 to 10,000 feet) dredged material placement site in the United States (USACE 2015). Sediment disposed at SF-DODS can have levels of contaminants slightly above that of sediment disposed at in-Bay placement sites. Therefore, disposal at SF-DODS is considered to be environmentally preferable to disposal of the same material at the traditional unconfined disposal sites in the more sensitive San Francisco Bay/Sacramento-San Joaquin Delta Estuary. In order for this to

occur, secondary screening of dredge spoil material down to 20mm would be necessary for material from MOTCO to be used at this location to guarantee that no UXO is transferred to the site.

APPENDIX B - FEDERAL ENDANGERED SPECIES ACT CONSULTATION DOCUMENTATION

APPENDIX C - CULTURAL RESOURCES CONSULTATION

APPENDIX D - PUBLIC INVOLVEMENT

Interagency and Intergovernmental Coordination

As part of the public involvement process, interagency and intergovernmental coordination letters were sent to the following federal, tribal, state, and local governmental agencies and representatives. The following organizations were consulted in the development of the Environmental Assessment for Wharf Maintenance Dredging Project at Military Ocean Terminal Concord, CA.

Federal Agencies	
Fish and Wildlife Service (USFWS)	
National Marine Fisheries Service (NMFS)	
National Park Service (NPS)	
U.S. Army Corps of Engineers (USACE), SPN Regulatory	
Environmental Protection Agency, Region 9 (USEPA)	
11 th Congressional District	
Native American Tribes (8 tribes represented)	
Kletsel Dehe Wintun Nation	
Tachi Yokut Tribe	
Yocha Dehe Wintun Nation	
Amah Mutsun Tribal Band	
Wilton Rancheria	
Indian Canyon Mutsun Band of Costanoan	
Muwekma Ohlone Indian Tribe of the San Francisco Bay Area	
North Valley Yokuts Tribe	
State Agencies	
California Department of Fish and Wildlife	
California State Clearinghouse	
State Historic Preservation Officer (SHPO)	
Regional Water Quality Control Board (RWQCB)	
Bay Conservation and Development Commission (BCDC)	
State Assembly, District 14	
Local Agencies	
Contra Costa County Board of Supervisors, District V	
Contra Costa County Board of Supervisors, District IV	
Mayor of Concord	

The initial dredging application and supporting documents were sent to the interagency Dredge Materials Management Office (DMMO) on 30 April 2020 for agency review and comment. The Regional Water Quality Control Board requested additional information for processing the permit application.

The Notice of Availability for this Environmental Assessment was published in the East Bay Times on May 6th, 2025. The closing date was June 6th, 2025. The Army's intent during the Draft EA review process was to provide a responsible level of opportunity for government agencies, special interest groups, and the general public to learn about the alternatives being evaluated in the EA and offer several ways for those interested to express their comments regarding the proposal.