DRAFT ENVIRONMENTAL ASSESSMENT (EA)

FOR

THE THIRD PORT IMPROVEMENTS PROJECT AT JOINT BASE LANGLEY-EUSTIS IN FORT EUSTIS, VIRGINIA

PREPARED FOR:

Department of the Air Force

PREPARED BY:

US ARMY CORPS OF ENGINEERS, NORFOLK DISTRICT

December 2021

Letters or other written comments provided may be published in the Final EA. As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

AND

FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

THIRD PORT IMPROVEMENTS PROJECT

Joint Base Langley-Eustis, Fort Eustis, Virginia

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §1500-1508, and 32 CFR §989, Environmental Impact Analysis Process, the U.S. Air Force (Air Force) assessed the potential environmental consequences associated with performing improvement projects at the Third Port facility at Joint Base Langley-Eustis, Fort Eustis (JBLE-Eustis), Newport News, Virginia.

The purpose of the proposed project is to prepare JBLE-Eustis for up to 10 new vessels that will be assigned to the Third Port in the near future. Additionally, other improvements are proposed to increase the usable waterway for the existing fleet and new vessels and to aid in training for cargo logistics and vessel operations. The proposed project is needed because a new class of vessel will be assigned to the Third Port at JBLE-Eustis in 2022. Up to 10 Maneuver Support Vessels (Light), or MSV(L)s, will be fielded at the Third Port. The new vessels will be 117 feet in length with a beam width of 28 feet 3 inches and a draft of 4 feet 5 inches and will berth along the finger piers. The new vessels will replace older vessels in the fleet; there will be no net increase in the number of vessels in the fleet. These new vessels are longer than the vessels of the existing fleet that berth in the finger pier area, and thus require improvements be made to berthing areas and turning basins to accommodate them. Additionally, other improvements are proposed that would increase the usable waterway for the vessel fleet, including the new vessels, and aid in training for cargo logistics and vessel operations. The finger piers are proposed to be replaced with the addition of a wave screen and stern ramp; additionally, the berthing area will be deepened. The mooring field is proposed to be realigned and a sill constructed to reduce sediment accretion in the channel; additionally, the area between the toe of the channel and the realigned moorings is proposed to be deepened to allow for greater use by the modular causeway system (MCS). At the Landship, proposed improvements include the addition of moorings with fendering as well as catwalks. A sill is proposed near the general's ramp.

The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential environmental consequences of activities associated with the Third Port Improvements Project, and provides environmental protection measures to avoid or reduce adverse environmental impacts.

The EA considers all potential impacts of Alternative 1 (Proposed Action), Alternative 2 (Preferred Alternative), Alternative 3, and the No-Action Alternative. The EA also considers cumulative environmental impacts with other projects in the Region of Influence (ROI).

ALTERNATIVE 1 *[Riprap Sill]*

Alternative 1 (Proposed Action) includes replacing the finger piers, constructing a wave screen, constructing a stern ramp, and deepening the berthing area. The mooring field would be realigned, the mooring piles would be replaced, riprap sill would be constructed to reduce

shoreline accretion in the mooring area, and the mooring field access area would be deepened. Gangways and fendering would be added to the Landship to improve access and training operations. A bulkhead sill would be constructed at the general's ramp to reduce shoreline accretion and slope slip failure into the maintained turning basin. Dredged material is proposed for placement at the Fort Eustis Dredged Material Management Area (FEDMMA), a nearby confined disposal site located on Fort Eustis.

ALTERNATIVE 2 *[Bulkhead Sill]*

Alternative 2 (Preferred Alternative) includes the same improvements as described in Alternative 1, except that a bulkhead sill would be constructed at the mooring field instead of a riprap sill. This alternative would reduce the amount of new work dredging required to complete the project and the area of permanently hardened subaqueous bottom.

ALTERNATIVE 3 *[Placement of Dredged Material at the NODS]*

Alternative 3 accounts for placement of new work and current and future maintenance dredged material from the improvements project at the Norfolk Ocean Disposal Site (NODS) in the event that adequate capacity is not available at the FEDMMA.

NO-ACTION ALTERNATIVE

Under the No-Action Alternative, none of the Action Alternatives would occur. The finger piers would not be replaced, the mooring field would not be replaced and realigned and depths restored, the Landship would not be improved, and the general's ramp would not be improved. No new work dredging would occur and no material would be placed at either the FEDMMA or the NODS. The finger piers would continue to degrade, and the operational depth of the piers would continue to decrease due to sediment accretion. The operational depth of the mooring field would continue to decline, continued sediment accretion in the area would decrease the usable length of the field and use of the area for the MCS would continue or worsen impacts to the navigable waterway. The Landship would not be improved to better support training operations. The general's ramp would not be improved to prevent or slow sediment accretion; eventually, shoreline accretion will severely reduce vessel maneuverability such that the ramp will be unnavigable or unusable for loading and unloading wheeled cargo. Due to all these impacts, the no action alternative would not adequately support the Fort Eustis mission.

SUMMARY OF FINDINGS

The EA evaluates the existing environmental conditions and potential environmental consequences of implementing the Proposed Action and all Alternatives that meet the purpose and need regarding noise, air quality, greenhouse gases, water resources, safety and occupational health, biological resources, cultural resources, earth resources, coastal zone resources, transportation, and socioeconomics/environmental justice.

The Air Force has concluded that by implementing standing environmental protection measures and operational planning, the Air Force would be in compliance with all terms and conditions and reporting requirements required by the United States Fish and Wildlife Service (USFWS), for implementation of any reasonable and prudent measures stipulated by the National Marine Fisheries Service (NMFS), and with the conditions stipulated by the Virginia Department of Historic Resources. No significant adverse impacts would result from activities associated with

Alternative 2 (Preferred Alternative) or the other Action Alternatives when considered with past, present, or reasonably foreseeable future projects.

PUBLIC AND AGENCY REVIEW OF EA

This Draft EA and proposed FONSI and FONPA are being made available for public review and comment for a 30-day period from 20 December 2021 to 18 January 2022. Due to current COVID-19 restrictions, hard copies of the Draft EA and proposed FONSI and FONPA will not be made available. Instead, documents are available to review at the 733d Civil Engineer Squadron (CES), Environmental Element webpage (https://www.jble.af.mil/Units/Army/Eustis-Environmental/) and the USACE Norfolk District (http://www.nao.usace.army.mil/) website.

FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

Executive Order (EO) 11990, *Wetland Protection*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands, unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. Additionally, 32 CFR §989.14 requires a FONPA if wetlands and/or the 100-year floodplain will be affected by the proposed project or action. 32 CFR §989.14(g) states a FONPA must be submitted to the Major Command (MAJCOM) Environmental Planning Function (EPF) when the alternative selected could be located in wetlands or floodplains and must discuss why no other practicable alternative exists to avoid impacts.

As noted in the attached EA, the portion of the Proposed Action located at the mooring field would be located adjacent to a wetland because there is no practicable alternative. The Proposed Action and Action Alternatives will result in minor indirect impacts to the adjacent wetlands. These indirect impacts include minor decreases in erosion in the wetland behind the mooring field, while another portion of the shoreline is expected to experience minor decreases in accretion. The new alignment of the mooring field is the only viable location within Skiffes Creek to meet the operational needs of the Third Port and reduce encroachment on the navigable channel. The Proposed Action and Action Alternatives avoid and minimize impacts to wetlands to the maximum extent practicable, such that impacts to wetlands are minor to positive and are anticipated to require no mitigation.

Therefore, taking all the environmental, economic, and other pertinent factors into account, pursuant to EO 11990 and in accordance with 32 CFR §989.14, the authority delegated by the Secretary of the Air Force Order 791.1, and taking into consideration the submitted information, I find that there is no practicable alternative to this action and the proposed action includes all practicable measures to minimize harm to the environment.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

The Air Force has concluded that no significant effects would result to environmental, natural, or cultural resources from implementing the Proposed Action or Action Alternatives. Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions

of NEPA, CEQ Regulations, and 32 CFR §989, I conclude that neither the Proposed Action nor each evaluated Action Alternative would have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact and Finding of No Practicable Alternative completes the environmental impact analysis process.

APPROVED BY:

_____ _____

Dee Jay Katzer, Colonel, USAF
Chief, Civil Engineer Divisions
HQ Air Combat Command (ACC/A4C)

Date

PREPARED BY:

_____ _____

Brian P. Hallberg, PMP
Colonel, U.S. Army
Commanding

Date

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TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

LIST OF APPENDICES

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AF	Air Force
AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zone
AQCR	Air Quality Control Region
BCY	Billion Cubic Yards
BGEPA	Bald and Golden Eagle Protection Act
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liabilities Act
CES	733d Civil Engineer Squadron
CFR	Code of Federal Regulations
CWA	Clean Water Act
CY	Cubic Yards
CZMA	Coastal Zone Management Act
DOPAA	Description of the Proposed Action and Alternatives
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ERDC	Engineer Research and Development Center

ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEDMMA	Fort Eustis Dredged Material Management Area
FEMA	Federal Emergency Management Agency
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
GHG	Green House Gas
IPaC	Information for Planning and Consultation
JBLE-Eustis	Joint Base Langley-Eustis
LPC	Limiting Permissible Concentration
LTM	Long-term Monitoring
MAJCOM	Major Command
MBSA	Migratory Bird Species Act
MCS	Modular Causeway System
MCY	Million Cubic Yards
MLLW	Mean Lower Low Water
MOA	Memorandum of Agreement
MPRSA	Marine Protection, Research, and Sanctuaries Act
MSV(L)	Maneuver Support Vessels (Light)
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NMFS	National Marine Fisheries Service
NPL	National Priority List

NOA	Notice of Availability
NOAA	National Oceanographic and Atmospheric Administration
NODS	Norfolk Ocean Disposal Site
PRD	Protected Resources Division
PREIAP	Planning Requirements for the Environmental Impact Analysis Process
ROD	Record of Decision
ROI	Region of Influence
SAV	Submerged Aquatic Vegetation
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Officer
SMMP	Site Management and Monitoring Plan
THPO	Tribal Historic Preservation Officer
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USATCFE	United States Army Transportation Center Fort Eustis
USC	United States Code
USFWS	United States Fish and Wildlife Service
VADEQ	Virginia Department of Environmental Quality
VaFWIS	Virginia Fish and Wildlife Information Service
VDCR	Virginia Department of Conservation and Recreation
VDWR	Virginia Department of Wildlife Resources
VDHR	Virginia Department of Historic Resources
VDNH	Virginia Division of Natural Heritage

VMRC	Virginia Marine Resources Commission

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

This Environmental Assessment (EA) identifies, documents, and evaluates the potential environmental effects associated with the Third Port improvements project at Joint Base Langley-Eustis (JBLE-Eustis) in Newport News, Virginia and those associated with a no action alternative. This document has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality Implementing Regulations, and U.S. Air Force regulations. The purpose of this document is to inform decision-makers and the public of the likely environmental consequences of the Proposed Action and Alternatives.

The Third Port facility is located at Fort Eustis, a joint base aligned with the Langley Air Force Base as of October 1, 2010. Both Langley Air Force Base and Fort Eustis are located in the Hampton Roads area of southeastern Virginia. Fort Eustis is located in the City of Newport News and is adjacent to the James River (Figure 1-1). The Third Port facility, located along Skiffes Creek (Figure 1-2), is a deepwater port used to train personnel in cargo logistics and vessel operations. The 7th Transportation Brigade (Composite), an assigned tenant element of the U.S. Army Transportation Center Fort Eustis (USATCFE), maintains a harbor complex at the Third Port.

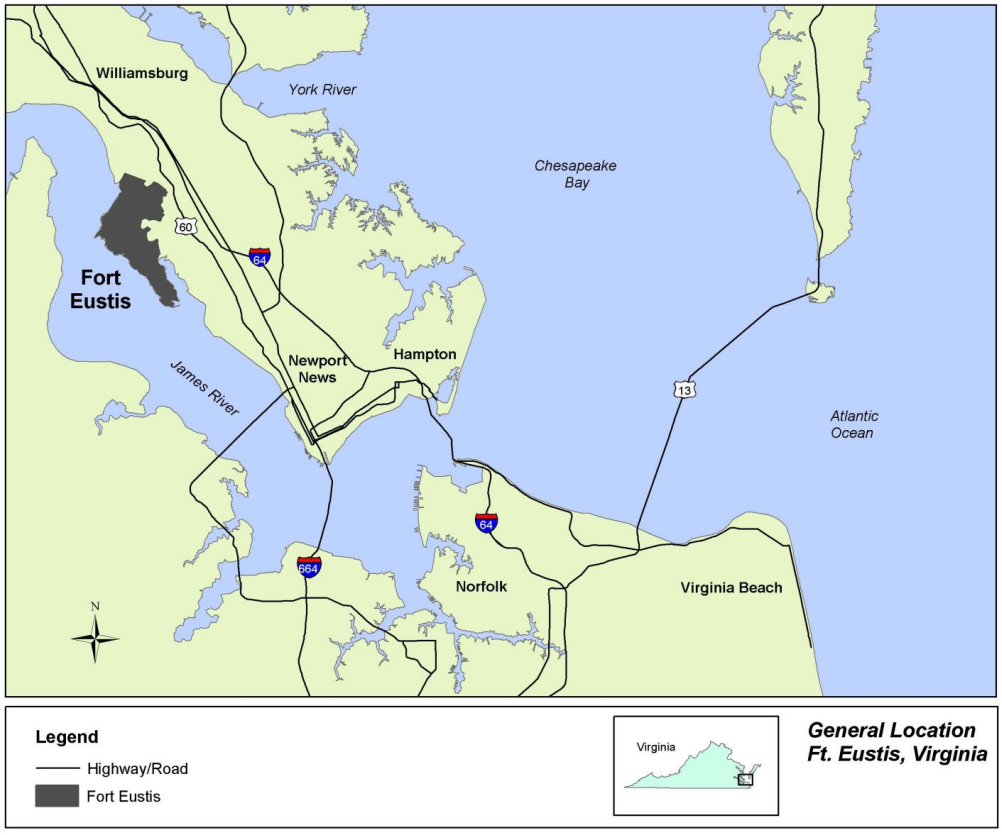

Figure 1-1. Regional location of Fort Eustis.

Figure 1-2. Skiffes Creek Channel (red outline) is located adjacent to the Third Port facility with the entrance channel located in the James River (western portion of the channel). The FEDMMA (orange hatch) is located southeast of Skiffes Creek.

The existing Third Port facility provides a safe harbor for the 7th Group's watercraft fleet and serves as a deployment platform for Army units. It is a strategic port supporting military watercraft and other government agencies in cargo operations, logistics management, training, and vessel operations. It consists of a pier for movement control and berthing of approximately 50 military watercraft consisting or tugboats, Logistics Support Vessels, Landing Craft Mechanized and fuel barges. Commercial vessels also use Skiffes Creek to access two industrial complexes located upstream of the Third Port.

1.2 PURPOSE OF THE ACTION

The purpose of the Proposed Action is to prepare JBLE-Eustis for up to 10 new vessels that will be assigned to the Third Port in the near future. Additionally, other improvements are proposed to increase the usable waterway for the existing fleet and new vessels and to aid in training for cargo logistics and vessel operations.

1.3 NEED FOR THE ACTION

A new class of vessel will be assigned to the Third Port at JBLE-Eustis in 2022. Up to 10 Maneuver Support Vessels (Light), or MSV(L)s, will be fielded at the Third Port. The new vessels will be 117 feet in length with a beam width of 28 feet 3 inches and a draft of 4 feet 5 inches and will berth along the finger piers. The new vessels will replace older vessels in the fleet; there will be no net increase in the number of vessels in the fleet. These new vessels are longer than the vessels of the existing fleet that berth in the finger pier area, and thus require improvements be made to berthing areas and turning basins to accommodate them. Additionally, other improvements are proposed that would increase the usable waterway for the vessel fleet, including the new vessels, and aid in training for cargo logistics and vessel operations. Accretion in mooring and berthing areas has restricted their use by the existing fleet, therefore requiring improvements to facilitate operations. Project areas are highlighted in Figure 1-3 below.

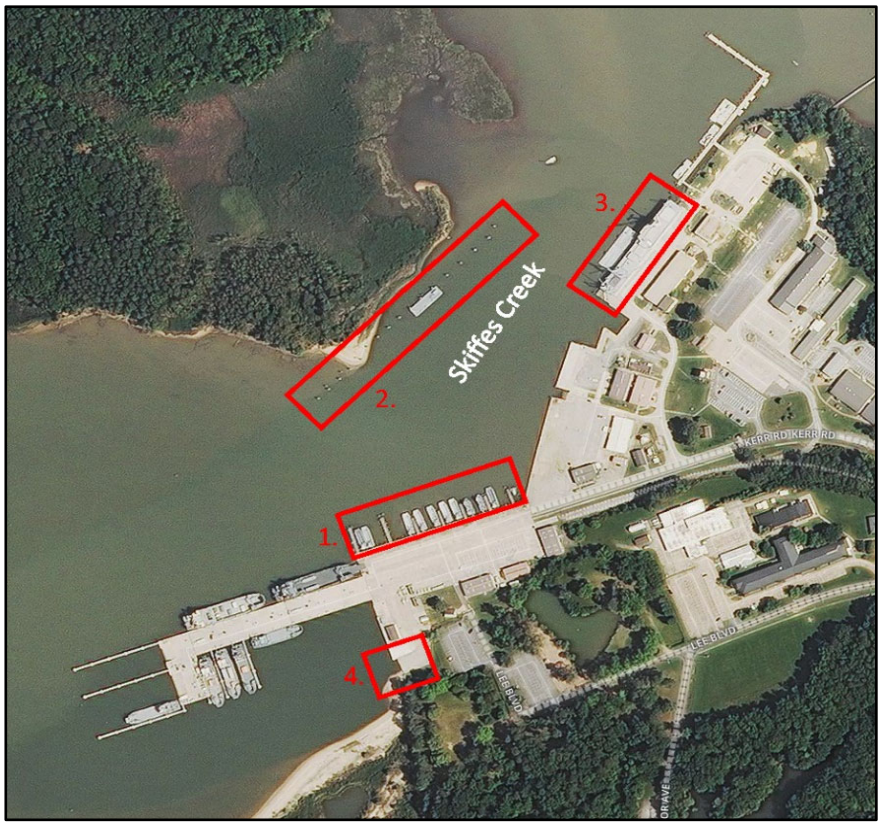

Figure 1-3. Project areas within Skiffes Creek: 1) finger piers; 2) mooring field; 3) Landship; and 4) general's ramp.

1.3.1 Finger Piers

The existing finger piers (Figure 1-4) provide berthing for the current fleet of support vessels at the Third Port. The piers are constructed of timber decking on timber piles, with timber mooring dolphins located along the piers for berthing. The condition and size of the existing piers is not adequate to accommodate the new class of vessels (117 feet in length) that will be berthed at the Third Port. Additionally, the existing dolphins lack a fendering system with rubber energy

absorbers, which has resulted in damage both to the timber piles and to vessels. The need for the Proposed Action is to improve the finger piers to accommodate the new vessels.

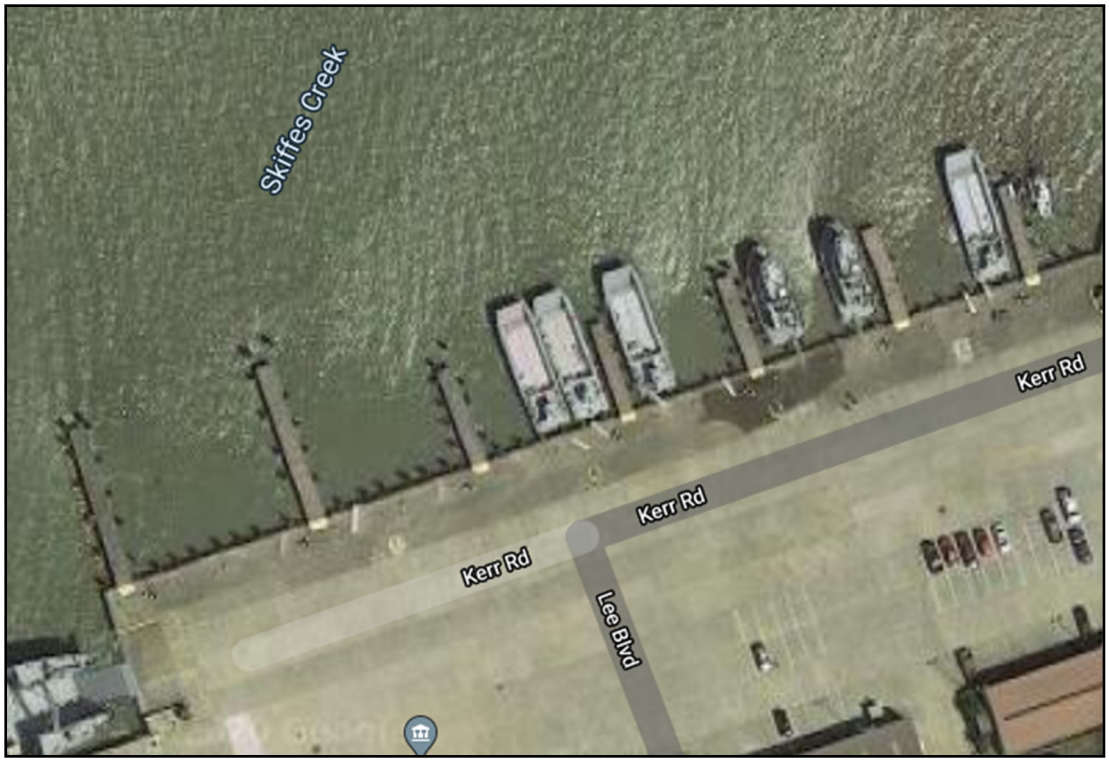

Figure 1-4. Existing finger piers, numbered 8 – 14 from west to east.

1.3.2 Mooring Field

The existing mooring field is located north of and across Skiffes Creek from the finger piers (Figure 1-5). The field is approximately 850 feet long and extends north from the James River into Skiffes Creek. Timber mooring dolphins, spaced approximately 50 feet apart, provide mooring for the modular causeway system (MCS). These dolphins lack appropriate fendering and have become damaged. Additionally, there is substantial accretion along the shoreline in the area which has resulted in the relocation of the MCS further into the navigable waterway and encroaching on the turning basin. The need for the Proposed Action is to realign and deepen the mooring field to increase the navigable waterway without negatively impacting existing wetlands, to provide the new and longer vessel class with adequate access to the existing turning basin, and to facilitate the use of the mooring dolphins by the MCS.

Figure 1-5. Existing mooring field.

1.3.3 Landship

The Landship is a stationary mock cargo vessel hull used for training Army personnel (Figure 1-6). The mock vessel sits on a concrete deck supported by concrete piles. Previously, the Landship had mooring dolphins and catwalks along the channel side for training and access. The need for the Proposed Action is to improve the Landship to aid in training by adding a gangway and fendering.

1.3.4 General's Ramp

The general's ramp is located at the southwest corner of the Third Port facility (Figure 1-7). The general's ramp is a gently sloped concrete ramp used to load and unload wheeled cargo. The area of the ramp adjacent to Goose Island has experienced accretion of sandy material, which has hindered vessel movement in the area. The need for the Proposed Action is to prevent sloughing of material or slope slip failure of accreted sediments into the basin while protecting existing wetlands.

Figure 1-6. Existing Landship.

Figure 1-7. Existing general's ramp.

1.4 DECISION TO BE MADE

Under the requirements of Section 102 of the National Environmental Policy Act (NEPA), this

proposed project constitutes a major Federal action, and an EA is therefore required. This EA has been prepared pursuant to NEPA and its implementing regulations.

The purpose of this EA is to evaluate the direct and indirect impacts associated with improvements and new work dredging operations within Skiffes Creek at the Third Port Facility located at JBLE-Eustis and placement of dredged material at the Fort Eustis Dredged Material Management Area (FEDMMA) and/or Norfolk Ocean Disposal Site (NODS). This document identifies and evaluates potential direct (those resulting from the alternatives and occurring at the same time and place) and indirect effects (those distant or occurring at a future date) to the environment, cultural resources, and socioeconomics associated with the Proposed Action in Chapter 2.0. Section 2.3 of this EA describes the alternatives considered, compares them, and identifies the Preferred Alternative. Section 3.0 describes the existing conditions that fall within the scope of this EA and the environmental consequences envisioned as a result of implementing the Proposed Action.

The EA focuses on impacts likely to occur from structural improvements and new work and maintenance dredging along Skiffes Creek channel. The document analyzes direct effects (those resulting from the alternatives and occurring at the same time and place) and indirect effects (those distant or occurring at a future date).

The decision to be made is the selection of an alternative for JBLE-Eustis to support improvements to the Third Port facility. The decision options are:

1) To continue with current operations (the No Action Alternative);
2) Selecting an alternative and preparing a FONSI; or
3) Preparing an Environmental Impact Statement if the alternatives would result in significant environmental impacts.

1.5 COOPERATING AGENCY AND INTERGOVERNMENTAL COORDINATION/ CONSULTATIONS

1.5.1 Cooperating Agency

The USACE Norfolk District is a cooperating agency in the preparation of this EA. The Air Force is working cooperatively with the USACE to ensure that adoption of the findings of this EA will enable the successful implementation of the proposed Third Port Improvements Project, as the USACE will be responsible for design, construction management, and construction oversight.

1.5.2 Interagency and Intergovernmental Coordination and Consultations

Federal, state, and local agencies with jurisdiction that could be affected by the alternative actions were notified and consulted during the development of this EA.

Chapter 5.0 contains the list of agencies consulted during this analysis. Copies of correspondence may be found in Appendix A.

1.5.3 Government to Government Consultations

Executive Order (EO) 13175, Consultation and Coordination with Indian Tribal Governments (6 November 2000), directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on

federally administered lands. To comply with legal mandates, federally recognized tribes that are affiliated historically with the JBLE-Eustis geographic region will be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal coordination process is distinct from NEPA consultation or the IICEP processes and requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations. The JBLE-Eustis point-of-contact for Native American tribes is the Installation Commander. The JBLE-Eustis point-of-contact for consultation with the Tribal Historic Preservation Officer (THPO) and the Advisory Council on Historic Preservation is the Cultural Resources Manager.

The Native American tribal governments that will be coordinated with regarding this action are listed in Table 5-1 and consultation documents may be found in Appendix B.

1.6 PUBLIC AND AGENCY REVIEW OF EA

Based on the analysis of potential environmental impacts of the alternatives presented in this Draft EA for the Third Port Improvements Project, the Air Force prepared a proposed FONSI for public review and comment. In addition, a proposed FONPA was prepared pursuant to EA 11990, *Wetland Protection*, because there is no practicable alternative to the mooring field alignment adjacent to wetlands in the proposed Third Port Improvements Project that would meet the operational needs of the Third Port and reduce encroachment on the navigable channel. An early public notice was published in the Daily Press on September 26 and 27, 2021 to disclose that the Proposed Action may impact wetlands adjacent to the project. A copy of the notice is provided in Appendix A. Comments from one agency were received during the early public notice period and were incorporated into the development of this draft EA; comments may be found in Appendix A.

A Notice of Availability (NOA) of the Draft EA and FONSI/FONPA will be published in the newspapers of record (listed below), announcing the availability of the EA for review. The NOA will invite the public to review and comment on the Draft EA. The public and agency review period will be for 30 days after publication. Public and agency comments will be provided in Appendix A.

The NOA will be published in the following newspaper: Daily Press, Newport News, Virginia (VA).

Copies of the Draft EA and FONSI will also be made available for review on the JBLE-Eustis Environmental Group (http://www.jble.af.mil/Units/Army/Eustis-Enviromental/) website and the USACE Norfolk District (http://www.nao.usace.army.mil/) website.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Proposed Action is to construct various improvements to the Third Port facility located at JBLE-Eustis to support both new vessels and continuing training operations. This includes improvements to the finger piers, the mooring field, the Landship, and the general's ramp as well as future maintenance of these areas. Note that the basing action including the assignment of up to 10 MSV(L)s was described and evaluated for environmental impacts by USAF (USAF 2020); thus, the assignment of the MSV(L)s is not evaluated as part of the Proposed Action in this EA. A new class of vessel will be assigned to the Third Port at JBLE-Eustis in 2022. Up to 10 Maneuver Support Vessels (Light), or MSV(L)s, will be fielded at the Third Port. The new vessels will be 117 feet in length with a beam width of 28 feet 3 inches and a draft of 4 feet 5 inches and will berth along the finger piers. The new vessels will replace older vessels in the fleet; there will be no net increase in the number of vessels in the fleet.

2.1.1 Project Sites

2.1.1.1 Vicinity Description

The Virginia Peninsula, extending into the Chesapeake Bay, is formed by the York River to the north and the James River to the south. Fort Eustis is on the south side of the peninsula. The cities of Newport News, Hampton, Poquoson, and Williamsburg are near the installation. Figure 1-1 in Section 1.1 shows the regional location of Fort Eustis.

2.1.1.2 Fort Eustis

Fort Eustis occupies approximately 7,900 acres fronting on the James River. The installation is flanked by two bodies of water flowing into the James River: Skiffes Creek to the northwest and Warwick River to the southeast. The Third Port is located in the northwest corner of Fort Eustis on Skiffes Creek.

2.1.1.3 Skiffes Creek Channel

Skiffes Creek Channel is located in the lower James River and provides navigation from deep water in the James River Federal Navigation Channel (i.e., Tribell Shoal Channel) to the mouth of Skiffes Creek adjacent to the Third Port facility at Fort Eustis. The channel traverses the eastern half of the James River and is proximate to Hog Island in Surry County located to the west, Jamestown Island to the north and west located in James City County, and Goose Island in the City of Newport News located to the south. Skiffes Creek Channel is federally maintained regularly as authorized.

Skiffes Creek Channel is maintained as described in an EA entitled "Final Environmental Assessment for the Maintenance Dredging of the Skiffes Creek Channel and MARAD Facility Access Channel", dated January 2003, and an SEA entitled "Final Supplemental Environmental Assessment: Skiffes Creek Federal Navigation Channel Maintenance Dredging", dated June 2014, which are both incorporated into this EA by reference. Up to 1,000,000 cubic yards of material may be dredged each maintenance cycle from the authorized channel, depicted in Figure 1-2 in Section 1.1. Dredged material may be placed at the FEDMMA, a nearby upland confined placement facility.

2.1.1.4 FEDMMA

The FEDMMA is located on the western portion of Fort Eustis, south of the Third Port facility. It is an approximately 80-acre upland confined placement facility constructed to accommodate dredged material from maintenance dredging of Skiffes Creek Channel. Dredged material placement operations at FEDMMA typically occur via hydraulic pipeline from a hydraulic cutterhead dredge. The pipeline would consist of both floating and submerged pipeline to the shoreline, then cross Harrison Road and into the FEDMMA.

Per the SEA for Skiffes Creek, maintenance activities and dike raising at the FEDMMA will occur to maximize the life of the site. Dike raising at the FEDMMA is within the site footprint and typically is done using suitable dredged material from within the site itself. Because the impacts of routine maintenance of the FEDMMA are assessed in the SEA for Skiffes Creek and the action has not changed, FEDMMA maintenance is not addressed further in this EA.

The FEDMMA is immediately adjacent to a small holding area that contained a heating oil/sludge mixture, which was residue from a 1979 spill of 5,000 gallons of heating oil. The holding area is a National Priority List (NPL) site and is managed in accordance with the provisions of the Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA). The selected remedial action, as specified in the Record of Decision and Explanation of Significant Differences for Site 11C – Oil/Sludge Holding Pond, included the excavation and off-site disposal of approximately 110 cubic yards of buried sludge/contaminated soil and 220 cubic yards of concrete from the site. The Remedial Action was completed in 2004 but required long-term monitoring (LTM). LTM took place over the next few years and was terminated in 2008. The site was officially closed with unlimited use and unrestricted exposure in September 2008 with EPA and VADEQ concurrence. Figure 1-2 in Section 1.1 shows the location of the FEDMMA relative to other project sites at Fort Eustis.

2.1.2 Improvements

2.1.2.1 Finger Piers

Seven existing finger piers (Piers 8 – 14) provide berthing for the fleet of support vessels at the Third Port. They are currently constructed of timber decking on timber piles, and timber mooring dolphins are located along the piers for berthing. The condition and size of the existing piers is not adequate to accommodate the new class of vessels (117 feet in length) that will be berthed at the Third Port. Additionally, the existing dolphins lack a fendering system with rubber energy absorbers, which has resulted in damage both to the timber piles and to vessels. The need for the Proposed Action is to improve the finger piers to accommodate the new vessels. This is proposed to be accomplished by removing the timber piers and mooring dolphins and replacing them (Figure 2-1).

Pier 8 is intended to be replaced with a concrete pile-supported concrete pier and would be extended from 93 feet to 132 feet in length relative to the existing bulkhead. The concrete pier would be supported by up to 65 concrete piles (24-inch square), which would be installed using impact hammering. Piers 9 – 14 would be replaced with five concrete mooring dolphin/gangway structures; one existing pier would be eliminated. Pier 9 would be extended from 93 feet to 122 feet in length relative to the existing bulkhead, and the remaining four piers would be extended from 53 feet to 122 feet in length relative to the existing bulkhead. For the five piers replacing Piers 9 – 14, 20 concrete piles (20-inch square) would be installed using impact hammering for each pier, totaling approximately 100 piles.

The new vessels are stern-loading and require stable support for loading ramps. A stern ramp support platform is proposed to be constructed along the length of the bulkhead east of Pier 8

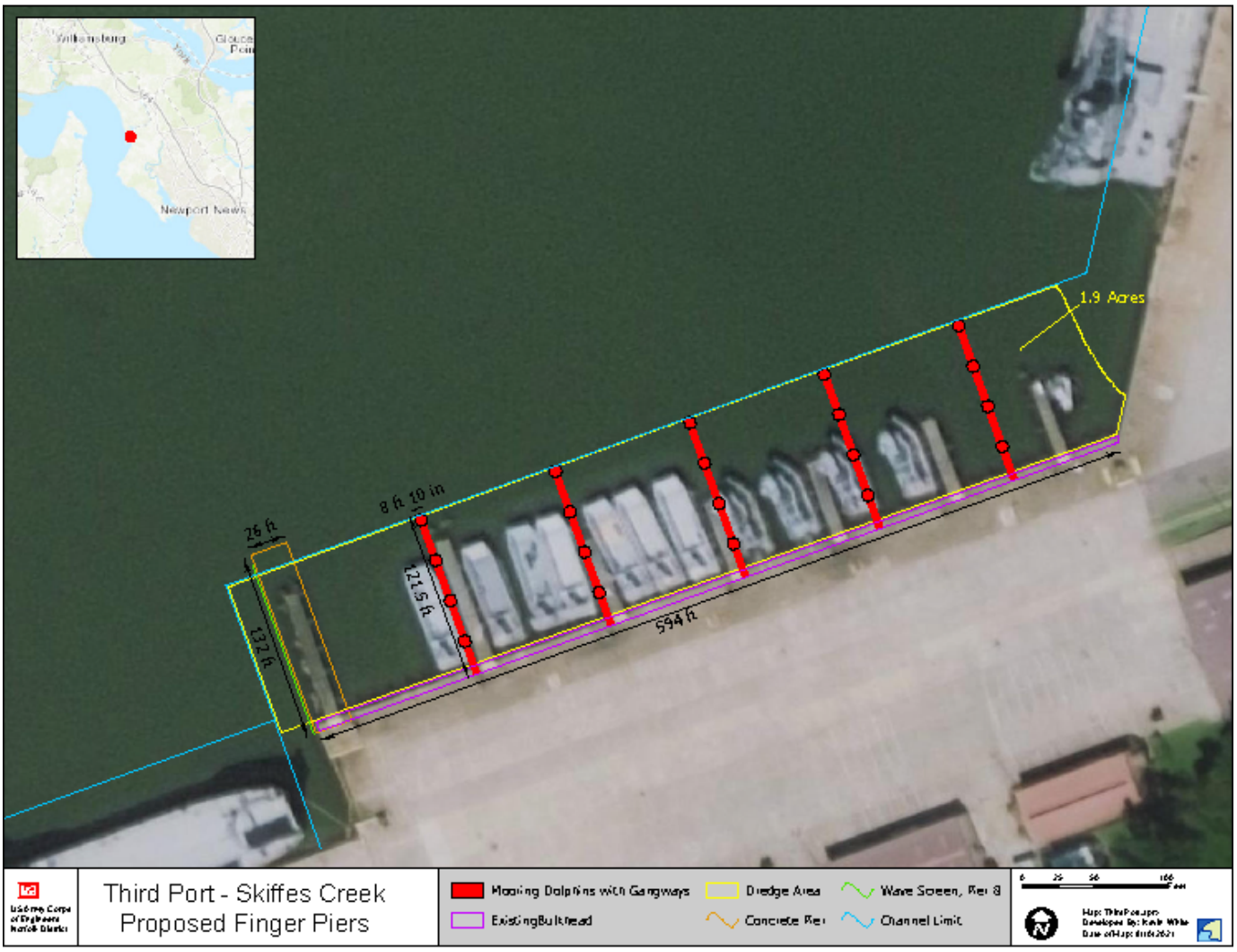

Figure 2-1. Proposed finger pier improvements, including structural improvements and new work dredging in the berthing area.

and would be approximately 542 feet in length. The concrete stern ramp would be supported by 55 concrete piles (20-inch square).

To reduce wave action in the berthing area that may damage berthed ships, a wave screen is proposed to be installed along the western side of Pier 8. The wave screen would be approximately 122 feet in length and would be constructed of structural steel suspended from and supported by the structure of Pier 8. The wave screen is designed to end three feet above the design dredge depth, in order to minimize the impact on subaqueous bottom and minimize the risk of silt accumulation in the berthing area, which would lead to increased frequency of dredging. Hydrodynamic modeling determined that the optimal level of porosity to reduce wave heights in the berthing area is 20 - 30% (see Appendix C).

Sediment accretion in the finger pier berthing area has reduced the operational depths in portions of the area. New work dredging will deepen the berthing area (approximately 1.9 acres of unvegetated subaqueous bottom) between the toe of the channel and the bulkhead that supports the finger piers from the existing mudline (varies from approximately -2 feet to -19 feet MLLW) to -17 feet MLLW (maximum allowable depth of -18 feet MLLW). Approximately 14,000 cubic yards of new work dredged material would be removed from the berthing area. Approximately 11,000 cubic yards of material will be removed during each future maintenance cycle.

2.1.2.2 Mooring Field

The existing mooring field is located north of and across Skiffes Creek from the finger piers. The field is approximately 850 feet long and extends north from the James River into Skiffes Creek. Timber mooring dolphins, spaced approximately 50 feet apart, provide mooring for the modular causeway system (MCS). The MCS is a floating pier structure that can be configured in many ways that is used for training. The existing dolphins lack appropriate fendering and have become damaged. Additionally, there is substantial accretion along the shoreline in the area which has resulted in reduced depths at existing mooring piles requiring the relocation of the MCS further into the navigable waterway and encroaching on the turning basin. The need for the Proposed Action is to realign and deepen the mooring field to increase the usable waterway without negatively impacting existing wetlands, to provide the new vessel class with adequate access to the turning basin, and to facilitate the use of the mooring dolphins by the MCS.

Existing timber piles are proposed to be replaced with approximately 20 steel monopiles (36-inch diameter) spaced approximately 50 feet apart. Timber piles are proposed to be removed from the area of the existing mooring field alignment; piles located in the creek may be pulled from the sediment or cut below the mudline, while piles located above the tideline would be cut at ground level. The new mooring field would be approximately 950 linear feet long and would be located further upstream in Skiffes Creek than the existing mooring field (Figure 2-2). The proposed alignment would improve operations within the navigable waterway.

Additionally, subaqueous riprap (approximately 950 linear feet) installed between the monopiles would mitigate the potential for shoreline accretion of the area channelward of the moorings (Figure 2-3). Approximately 0.75 acre of unvegetated subaqueous bottom would be hardened due to the installation of riprap. Installation of the riprap sill would require dredging in the footprint before mattresses and stone fill could be placed.

Maintenance and new work dredging to re-establish operational depths for training and mission requirements would deepen the area (approximately 1.5 acres of unvegetated subaqueous bottom) between the toe of the channel and the mooring field riprap sill from the existing mudline (varies from approximately -2 feet to -11 feet MLLW) to a depth of -11 feet MLLW (maximum allowable depth of -14 feet MLLW) (Figure 2-2). Approximately 1,000 cubic yards of maintenance dredged material and 10,000 cubic yards of new work dredged material would be removed from the mooring field access area. Approximately 11,500 cubic yards of additional material would be removed once to construct the riprap sill. Future maintenance events will remove approximately 8,000 cubic yards of material from the access area during each maintenance cycle.

2.1.2.3 Landship

The Landship is a stationary mock cargo vessel hull used for training Army personnel. The mock vessel sits on a concrete deck supported by concrete piles. Previously, the Landship had mooring dolphins and catwalks along the channel side for training and access. The need for the Proposed Action is to improve the Landship to aid in training. Monopile dolphins with fendering and a steel pile-supported gangway will be installed along the Landship (Figure 2-3). To support the gangways, 14 steel pipe piles (24-inch) will be installed, while 8 steel monopiles (36-inch) will be installed to support the fender assembly.

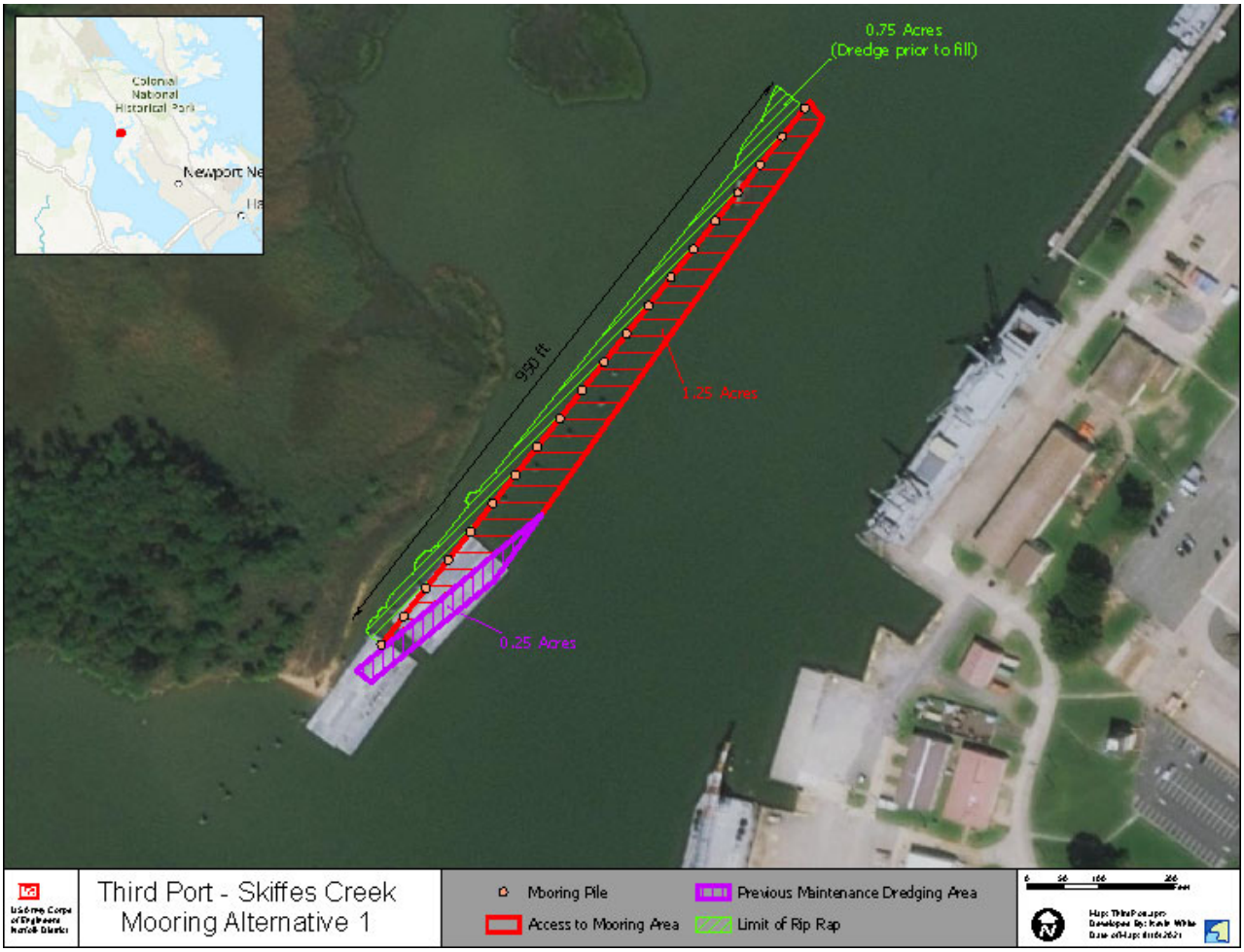

Figure 2-2. Proposed realignment of the mooring field, including proposed new work and maintenance dredging in the mooring field access area and riprap sill (Alternative 1) shoreward of the realigned moorings.

2.1.2.4 General's Ramp

The general's ramp is located at the southeast corner of the Third Port facility. The general's ramp is a gently sloped concrete ramp used to load and unload wheeled cargo. The area of the ramp adjacent to Goose Island has experienced accretion of sandy material along the shoreline, which has hindered vessel movement in the area. The need for the proposed action is to decrease accretion of material into the maintained basin. A subaqueous steel sheet bulkhead

(approximately 200 linear feet) is proposed to be installed perpendicular to the shore at the southeast edge of the general's ramp to prevent sloughing of material or slope-slip failure of accreted sediments into the basin while protecting existing wetlands (Figure 2-4). A steel monopile (36-inch) and donut fender assembly would protect the channelward end of the bulkhead. Both the bulkhead and the monopile would be installed using impact hammering. Approximately 0.01 acres of unvegetated subaqueous bottom will be hardened due to the bulkhead.

Figure 2-3. Proposed improvements to the Landship.

Figure 2-4. Proposed improvements to the general's ramp area.

2.1.3 Debris removal

Debris created from the removal of existing structures, including timber piles, decking, and other debris, would be removed from the work area via barge and placed in containers on land. The debris would then be trucked to a nearby landfill or other appropriate disposal facility.

2.1.4 Dredging Methods

New work and current and future maintenance dredging would be conducted by mechanical dredge, hydraulic cutterhead dredge, or a combination of both plant types consistent with the most economical and environmentally acceptable alternative. If mechanical dredges are used, dredged material would be removed from the channel and placed onto a scow or barge. Dredged material may be pumped out of the scow and placed via pipeline into the FEDMMA. If hydraulic cutterhead dredges are used, dredged material would be hydraulically pumped via pipeline into the FEDMMA. The dredged material would be hydraulically pumped through a pipeline (typically 16 inches to 20 inches diameter), varying in length from approximately 4,000 feet to 6,000 feet, depending on the distance to the FEDMMA. The pipeline may be a submerged pipeline and/or would run over water, supported by floatation devises, to the shoreline, then cross Harrison Road and into the FEDMMA.

2.1.4.1 Dredged Materials Characterization

In 1975, the Commonwealth of Virginia disclosed that the lower portions of the James River had become contaminated with Kepone (also known as chlordecone, a chlorinated hydrocarbon insecticide). Based on subsequent testing (Environmental Testing Services 1987), Kepone concentrations in both Skiffes Creek and the FEDMMA were found to be less than 0.015 µg/g. This is well below the Food and Drug Administration (FDA) action level of 0.3 µg/g. Undisturbed sediments in Skiffes Creek were sampled by IMS Environmental Services of Chesapeake, Virginia in April 2002 and no Kepone was detected. In 2014, USACE conducted testing of sediment and site water from Skiffes Creek channel in accordance with Section 103 of the Marine Protection, Research and Sanctuaries Act (MPRSA). None of the materials contained contaminant concentrations that exceeded FDA action levels. Based on prior sediment testing (Environmental Testing Services 1987; IMS Environmental Services 2002; EA Engineering, Science, and Technology, Inc. 2014), there is no reason to believe sediments that would be dredged in Skiffes Creek contain contaminants at levels that would require special handling or disposal.

2.1.4.2 Maintenance

Maintenance of improvements areas, including the finger piers berthing area and mooring field access area, will be accomplished via mechanical or hydraulic cutterhead dredge as described in Section 2.1.4. Maintenance of improvements areas may occur concurrently with channel maintenance activities (i.e., simultaneously under the same contract) or consecutively under separate contracts depending on shoaling rates.

2.1.5 Project Schedule

Activities to improve the finger piers are anticipated to take approximately 2.5 months to complete. Activities to improve the mooring field are anticipated to take approximately 3.5 months to complete. Activities to improve the Landship are anticipated to take approximately two weeks to complete. Activities to improve the general's ramp are anticipated to take three weeks to complete. Dredging activities related to the improvements are anticipated to take

approximately one month total to complete. All times are estimated and may vary based on equipment types, size, and specific means and methods employed by the contractors. Improvements may be constructed as part of separate contracts or simultaneously. Dredging related to the improvements may occur simultaneously to, consecutively to, or separate from regular maintenance of Skiffes Creek Channel.

2.2 SELECTION STANDARDS

The National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations mandate the consideration of reasonable alternatives for the proposed action. "Reasonable alternatives" are those that also could be utilized to meet the purpose of and need for the proposed action. Per the requirements of 32 Code of Federal Regulations (CFR) §989, the USAF Environmental Impact Analysis Process (EIAP) regulations, selection standards are used to identify alternatives for meeting the purpose and need for the USAF action.

The proposed action alternatives must meet the following selection standards:

1) Accommodate a new vessel class.
2) Maintains safe and reliable access to the waterway.
3) Aids in training for cargo and vessel operations.
4) Decreases accretion of sediments into berthing, mooring, and channel areas.
5) Avoids impacts to existing wetlands.
6) Minimizes impacts to subaqueous bottom.
7) Reduces structural maintenance and dredging costs over the life of the project.

2.3 ALTERNATIVES

The Air Force has considered three alternatives that would meet the purpose and need for improvements to the Third Port facility located at JBLE-Eustis to support both new vessels and operations.

- Proposed Action. Under Alternative 1, the proposed action is as described in Section 2.1 above.
- Alternative Bulkhead Sill. Under Alternative 2, a subaqueous bulkhead sill would be installed along the monopiles of the improved mooring field. The reasonableness and feasibility of this alternative is described in Section 2.3.2 below.
- Alternative Dredged Material Placement at the NODS. Under Alternative 3, the activities of the chosen Action Alternative (1 or 2) for the improvements project would take place as described except that new work and current and future maintenance dredged material would be transported to and placed at the NODS instead of at the FEDMMA. This alternative represents a Placement Alternative only and is not intended to describe a full Action Alternative. The reasonableness and feasibility of this alternative is described in Section 2.3.3 below.

- No Action. No action would involve the continuation of existing conditions of the affected environment, without implementation of any Action Alternative. This alternative is described in Section 2.3.4 below.

Initially other alternatives were considered but were determined not to meet the purpose and need of the project, therefore these alternatives were not considered. These alternatives are described in Section 2.4 and are not carried through in the Selection Standards screening below, because they did not meet the purpose and need.

2.3.1 Screening of Alternatives

The selection standards described in Section 2.2 were applied to these alternatives to determine which alternative(s) could meet operational needs of the Third Port facility and would fulfill the purpose and need for the action (Table 2-1). Note that Alternative 3 would only alter the costs of dredging and dredged material placement in the event that adequate capacity at FEDMMA is unavailable for dredged material placement; structural components and new work and maintenance dredging areas are described under Alternatives 1 and 2.

Table 2-1. Screening of the Proposed Action, Action Alternatives, and No Action Alternative.

Alternative Descriptions	Selection Standards						
	Accommodates new vessel class	Maintains waterway access	Aids in training and vessel operations	Decreases sediment accretion in channel	Avoids wetlands impacts	Minimizes impacts to subaqueous bottom	Reduces structural maintenance and dredging costs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Alternative 1 (Riprap Sill)	Yes	Partially	Yes	Partially	Yes	Partially	Partially
Alternative 2 (Bulkhead Sill)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Alternative 3* (Dredged Material Placement at NODS)	Yes	Yes	Yes	Yes	Yes	Partially	Yes*
No Action	No	No	No	No	Yes	Yes	Yes

*Dredged material placement at NODS is intended as a placement alternative only. Once FEDMMA reaches maximum capacity, placement of the dredged material at NODS would be the next least cost alternative that meets the Federal Standard.

2.3.2 Alternative Bulkhead Sill

This alternative is the same as the Proposed Action except that a steel sheet bulkhead sill, rather than riprap sill, would be installed between the monopiles of the improved mooring field to mitigate the potential for shoreline accretion in the area channelward of the moorings. The bulkhead sill (950 linear feet) would harden approximately 0.05 acres of subaqueous bottom (Figure 2-5). The bulkhead would be installed using impact hammering.

2.3.3 Alternative Dredged Material Placement at NODS

This alternative accounts for placement of new work and future maintenance dredged material from the either Alternative 1 or Alternative 2 at the NODS in the event that adequate capacity is not available at the FEDMMA.

2.3.3.1 Norfolk Ocean Disposal Site (NODS)

The NODS was officially designated as an ocean placement site in 1993 pursuant to Section 102(c) of the MPRSA of 1972 (as amended, 33 U.S.C. 1401 et seq.). The site has had a history of ocean disposal, as a portion of the NODS overlaps an area historically used for dredged material disposal prior to the 1960s.

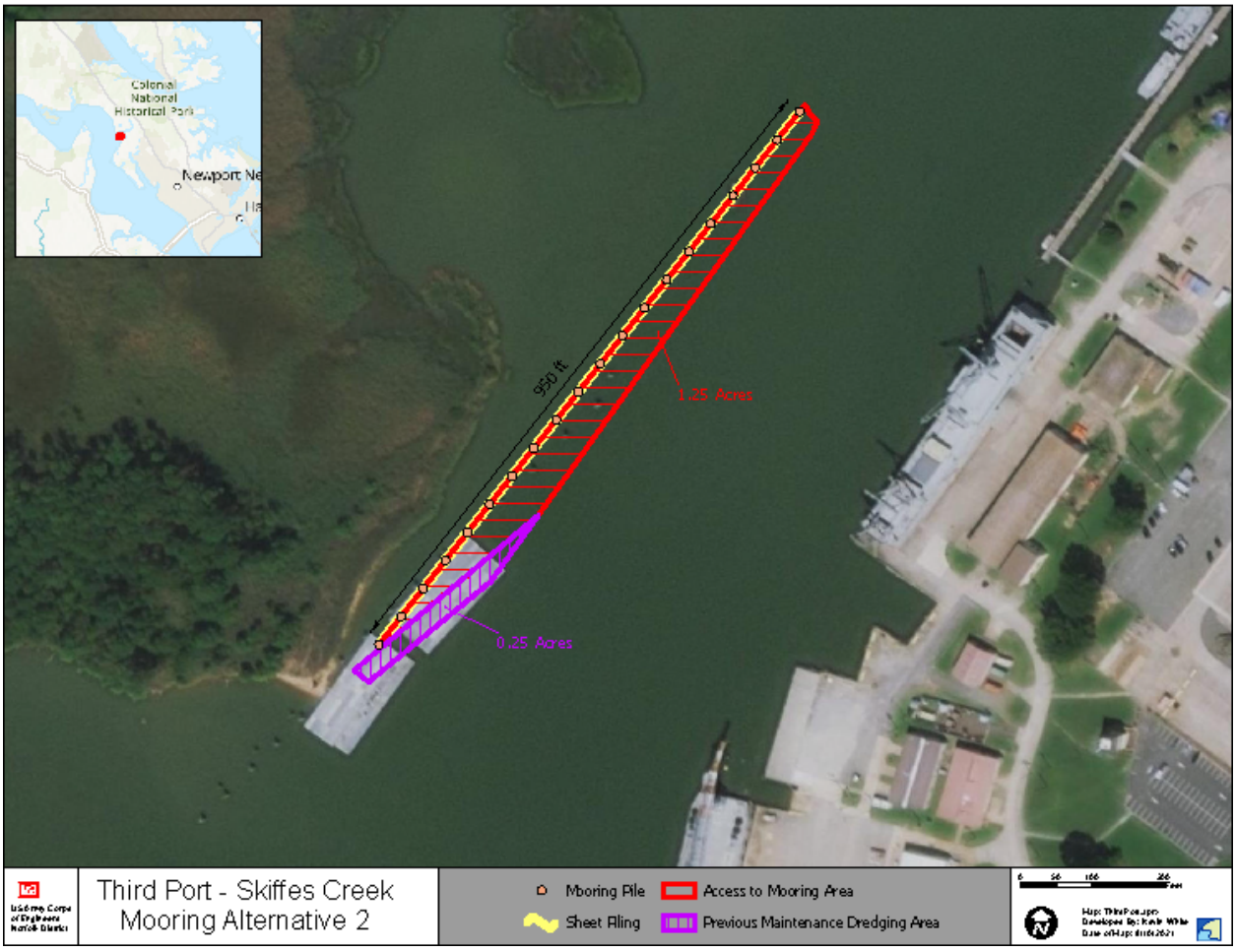

Figure 2-5. Proposed bulkhead sill (Alternative 2) at the mooring field. Note that the bulkhead width is not to scale.

To determine the site's suitability for ocean disposal, a Final Environmental Impact Statement (FEIS) for the NODS was submitted on July 23, 1992 by the U.S. Army Corps of Engineers Norfolk District. As a result of the EIS, the NODS was designated by the U.S. Environmental Protection Agency (USEPA) as an approved ocean disposal location in July 1993 (40 CFR 228.15(f)(2)). Prior to 2008, the NODS was solely used by the United States Navy. In August

1993, approximately 51,000 cubic yards of dredged material from the Naval Supply Center Cheatham Annex and 475,000 cubic yards of dredged material from the Naval Weapons Station Yorktown were placed at the site. Dredged material from both projects was composed primarily of silts and clays. Since 2010, other projects that have recently placed at the NODS, are currently being placed at the NODS, or are approved for future placement at the NODS include: Virginia Department of Transportation – Midtown Tunnel Project (1,121,642 cubic yards placed during the period of October 2013 to October 2014), JBLE-Skiffes Creek Channel (128,244 cubic yards placed during the period of November 2014 to December 2014), JBLE-Fuel Pier Basin (57,122 cubic yards placed during the period of March 2017 to May 2017 and 155,878 cubic yards placed during the period of February 2019 to July 2019), JBLE-Back River Channel (125,723 cubic yards placed during the period February 2019 to July 2019). Other projects that have been previously permitted for placement at the NODS include the Craney Island Eastward Expansion (CIEE), Norfolk Harbor Channels – Sewells Point to Lamberts Bend, and Chesapeake Bay Bridge Tunnel – Thimble Shoals Channel Parallel Tunnel. The NODS also serves as an alternative placement site for maintenance dredged materials from the upper Chesapeake Bay approach channels to the Port of Baltimore that undergo testing for ocean placement under the MPRSA. It should be noted that, while these projects have been previously permitted to place suitable dredged material at the NODS, USEPA Section 103 concurrences may have expired.

2.3.3.2 NODS Location and Management

The NODS is located approximately 17 miles east of the mouth of the Chesapeake Bay (Figure 2-6). The NODS is circular with a radius of 4 nautical miles and an area of approximately 50 square nautical miles. The center of the NODS site is located at 36º 59’ north latitude and 75º 39’ west longitude. Water depths near the center of the site vary between 43 and 85 feet. Bottom topography is generally flat with depth contours running parallel to the coastline.

Currently, the site is designated to receive new work and maintenance dredge material from Norfolk Harbor and the lower Chesapeake Bay. An EIS, titled: “Final Environmental Impact Statement for the Designation of an Ocean Dredged Material Disposal Site Located Offshore Norfolk Virginia” was finalized in March 1993. In June 2014, the SEA titled “Final Supplemental Environmental Assessment: Skiffes Creek Federal Navigation Channel Maintenance Dredging” identified and assessed the NODS as an alternative dredged material placement site for suitable dredged material from future dredging cycles of Skiffes Creek Channel. Thus, this EA focuses on assessing NODS as a possible placement site for maintenance and new work dredged material produced during construction of this project as well as future maintenance of these area that lie outside of the authorized channel framework.

Management of the NODS and dredged material placement operations at NODS are conducted in accordance with the Site Management and Monitoring Plan (SMMP) that was last updated in February 2019. The SMMP for the NODS site establishes specific requirements for use of the site. The SMMP provides that only dredged material that has been evaluated in accordance the MPRSA Section 103 regulations and determined to be suitable by the USACE with independent concurrence from USEPA may be placed at the site. The SMMP does not specify specific methods of placement but does require that dredged material be evenly distributed to prevent unacceptable mounding and becoming a hazard to navigation. The management objective for the NODS area is to limit disposal quantities so as not exceed 1.3 billion cubic yards. The USACE has estimated that up to 250 million cubic yards of dredge material from dredging projects (public and private) may be disposed at the site over the next 50 years.

The quantity of material placed at the site depends on the quality of the dredged material; only material that meets ocean dumping criteria will be placed at the NODS. Acceptable material includes unconsolidated fine to medium grain sands, silts, and clays. No seasonal restrictions to the placement of dredged material have been implemented for the site. The management plan requires that each ocean disposal event be verified and documented through a computer database system. Scow or hopper dredge transits and placement activities at NODS are required to be tracked using the USACE Dredge Quality Management program (formerly "Silent Inspector") for tracking vessel transit locations and dredged material placement locations and activities.

2.3.3.3 Dredging Methods

New work and current and future maintenance dredging would be conducted by mechanical dredge. Dredged material would be removed from the channel and placed onto a scow or barge. The scow or barge would be transported for placement of dredged material at the NODS.

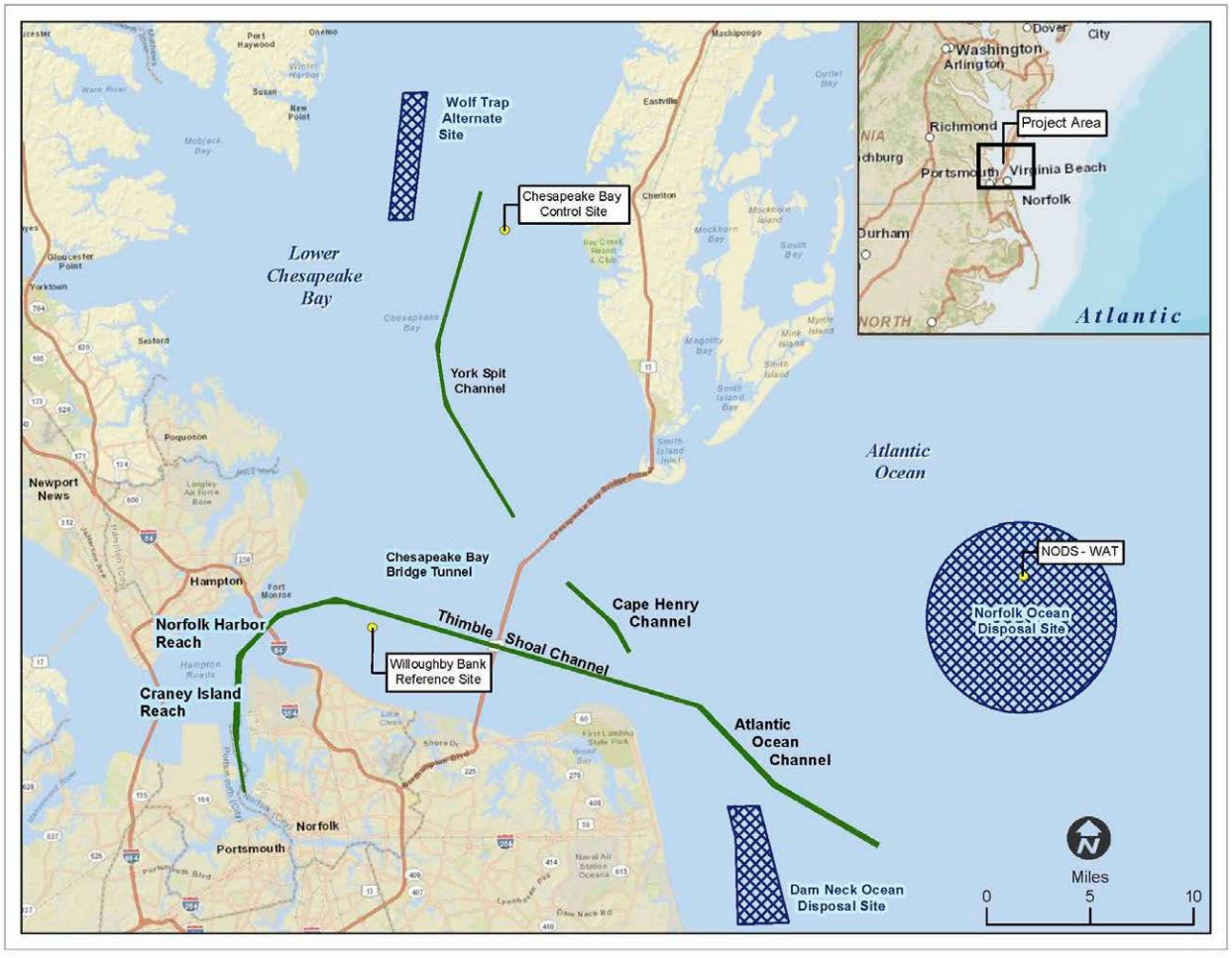

Figure 2-6. Norfolk Ocean Disposal Site (NODS) location.

2.3.4 No-Action Alternative

The Council on Environmental Quality (CEQ) regulations prescribe consideration of a no action alternative. This alternative also serves as a baseline against which the impacts of the proposed

action and other alternatives considered can be evaluated. Under the no action alternative, the finger piers would not be replaced, the mooring field would not be replaced and realigned and depths restored, the Landship would not be improved, and the general's ramp would not be improved. No new work dredging would occur. The finger piers would continue to degrade, and the operational depth of the piers would continue to decrease due to shoaling. The operational depth of the mooring field would continue to decline, continued sediment accretion in the area would decrease the usable length of the field, and the use of the area for the MCS would continue or worsen impacts to the navigable waterway. The Landship would not be improved to better support training operations. The general's ramp would not be improved to prevent or slow sediment accretion; eventually, shoaling will severely reduce vessel maneuverability such that the ramp will be unnavigable or unusable for loading and unloading wheeled cargo. Due to these impacts, the no action alternative would not adequately support the Fort Eustis mission. The no action alternative is evaluated in detail in Chapter 3.0 of this EA.

2.3.5 Alternative Comparison

A hydrodynamic study investigated the impacts of both mooring field alternatives (riprap vs bulkhead sill) was completed by the USACE's Engineer Research and Development Center (ERDC) in 2021 (Appendix C). This information was included in the ranking of the alternatives in Table 2-1 above. Both mooring field alternatives avoided impacts to nearby wetlands by decreasing erosion behind the structures overall when compared to the baseline, although Alternative 1 decreased overall erosion more than Alternative 2 when compared to the baseline. Alternative 2 reduced sediment accretion in all studied channelward areas, while Alternative 1 reduced sediment accretion in only one channelward area; sediment accretion increased in two channelward areas under Alternative 1.

Over time and during high weather and wave events, the riprap structure (Alternative 1) would be subjected and vulnerable to degradation and loss of armament. This stone armament may move into the navigation and dredging prism, where it could become a hazard to navigation and cause damage to moored vessels, barges, and tugboats. Removing large armament stones from the dredging prism and repairing the riprap structure may become a long-term maintenance problem and result in a cost-escalation of future maintenance. If armament stones could not be recovered for whatever reason, they may cause significant damage to moored vessels and dredge plant.

If designed and constructed properly to withstand severe weather and external forces, a sheet pile structure (Alternative 2) would be more stable over time and not as vulnerable to damage. Sheet pile bulkhead configurations are durable and hold up well to nearby dredging operations. Because sheet piles are embedded in the underlying sediments, the bulkhead structure would not be subject to movement, earth erosion, and potential failure to the extent that the riprap structure would be. Maintenance costs are expected to be reduced under this Alternative.

2.3.6 Preferred Alternative

Based on the screening criteria and comparison of alternatives, Alternative 2 (Bulkhead Sill) is the preferred alternative.

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

As none of the other alternatives that were considered would meet the purpose and need, the following alternatives have been eliminated from further consideration:

2.4.1 Alternative Mooring Field: No Sill

Under this alternative, the proposed project would be the same as described in the Proposed Action, except that a sill structure would not be constructed along the realigned mooring field. This alternative would not mitigate accretion in the mooring field access area and therefore, does not meet Selection Standard 1, 2, 3, or 4. Because this alternative would not meet the operational needs of the project, it is eliminated from further examination in this EA.

2.4.2 Alternative Disposal Site: Craney Island

Under this alternative, the Army would dispose of the dredged material in the Craney Island Dredged Material Management Area (CIDMMA) located in the southern portion of Chesapeake Bay at the confluence of the Elizabeth River and the Hampton Roads. This facility is used for the disposal of dredged material from dredging operation in Norfolk Harbor and adjacent waters and is approximately 20 miles from the project site. The areas to be dredged in this Proposed Action and Action Alternatives are outside geographic service area defined in the authorizing documents for the CIDMMA, and thus the dredged material is not eligible to be placed in the CIDMMA per the CIDMMA authorization documents. Because of this, use of the CIDMMA is not considered feasible and is not examined further in this EA.

2.4.3 Alternative Disposal Site: Overboard Disposal

Under this alternative, the Army would place the dredged material into currently permitted overboard areas in the James River. The impacts associated with overboard disposal would be similar to those resulting from dredging operations, except that the affected area would be larger since confinement of the dredged material is not technically feasible. The most obvious and most significant impact of overboard disposal would be direct burial of benthic organisms. Numerous studies have indicated that benthic communities recover within two years of placement of dredged material. Overboard placement of dredged material in the James River occurs every five years for material dredged from the nearby Tribell Shoal within the James River Federal Navigation Project. This designated overboard site does not have the capacity for the placement of additional material from other project areas. Therefore, overboard disposal is not considered technically feasible and is not further evaluated in this EA.

2.4.4 Alternative Disposal Site: Other Sites on Fort Eustis

Under this alternative, the Army would dispose of the dredged material at another upland location on Fort Eustis. An EA titled “Maintenance Dredging, Skiffes Creek, Fort Eustis, Virginia”, prepared by the U.S. Corps of Engineers, Norfolk District in August 1988, assessed the feasibility of disposing of dredged material on the installation golf course, the horseback riding facility, and at training sites south of Back River Road. These alternative locations and others at Fort Eustis previously studied by the U.S. Army Waterways Experiment Station (Miscellaneous Paper GL-87-2 1987) were again determined to be neither fiscally nor technically feasible nor compatible with the Fort Eustis mission or Master Plan. Therefore, none of these alternative sites are evaluated further in this EA.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The Region of Influence (ROI) for the Proposed Action and Alternatives includes the project boundaries within Skiffes Creek and the Third Port facility, the FEDMMA and pipeline route, and the NODS and vessel routes, unless otherwise specified below for a particular resource area where a resource would have a different ROI.

3.1 SCOPE OF THE ANALYSIS

This chapter describes the current conditions of the environmental resources, either man-made or natural, that would be affected by implementing the Proposed Action, the Action Alternatives, or the No Action Alternative as well as the environmental consequences of that implementations. The basing action including the assignment of up to 10 MSV(L)s was described and evaluated for environmental impacts by USAF (USAF 2020); thus, the assignment of the MSV(L)s is not evaluated as part of the analysis in this EA.

Consistent with guidance issued by the Council on Environmental Quality and USAF guidance in 32 CFR Section 989, as amended, the description of the affected environment focuses on those resources and conditions potentially subject to impacts. The USAF has considered certain environmental resources and conditions and found that they would not be affected by the proposed action. These are identified below, and the reasons for their not being examined in detail are presented. The following sections address resources and conditions that are germane to the proposed action: air quality, noise, water resources, and biological resources. These environmental resources and conditions are fully evaluated for their potential impacts.

The terms “impact” and “effect” are used interchangeably in this chapter. Impacts described in this chapter are evaluated in terms of type (positive/beneficial or adverse), context (setting or location), intensity (none, negligible, minor, moderate, severe), and duration (short-term/temporary or long-term/permanent). The type, context, and intensity of an impact on a resource are explained under each resource area. Unless otherwise noted, short-term impacts are those that would result from the activities associated with a project’s construction and/or demolition phase and within 1 – 3 years post-construction. Long-term impacts are generally those resulting from the operation of a proposed project and describe permanent impacts that would be expected to remain for many years. To reduce repetition, all potential impacts related to Alternative 1 (Proposed Action) are described, while similarities or differences are noted and described as needed for Alternative 2 (Preferred Alternative), Alternative 3, and the No Action Alternative. Some resource topics were excluded from further evaluation. A brief description of those topics can be found in Section 3.1.1.

The Proposed Action and Alternatives would be undertaken in a manner that is consistent, to the maximum extent practicable, with the enforceable policies of the Virginia Coastal Zone Management Program. A federal consistency determination was submitted to VADEQ for review and approval on August 20, 2021 and is included in Appendix D.

3.1.1 Resources Not Examined in Detail

The USAF has considered the following environmental resources and conditions and, for the reasons provided, found them not germane to the proposed action.

Air Installation Compatible Use Zone (AICUZ). Dredging, pile driving, and placement of dredged material at the FEDMMA or the NODS would not affect the Air Installation Compatible

Use Zone (AICUZ) as none of the proposed actions would impact land use, height of structures near flight paths, fair disclosure ordinances, subdivision regulations, or changes to any building that would require modifications to reduce noise level.

Land Use. Dredging, pile driving, and placement of material at the FEDMMA or the NODS would not affect land use, as the channels, the FEDMMA, and the NODS would continue to operate as or similarly to present and adjacent uses would not change. Similarly, land use at alternative placement sites would also not change from currently permitted use due to the actions of this project.

Airspace. Management and control of airspace above Skiffes Creek Channel, the FEDMMA, and the NODS do not affect activities at these locations.

Transportation Resources. While the areas proposed to be dredged are elements of transportation resources, their dredging would not alter Fort Eustis, except for navigable water routes, and would only improve or maintain existing transportation networks or systems. The continued use of the FEDMMA would not alter Fort Eustis or other transportation networks or systems. The continued use of the NODS would not alter Fort Eustis or other transportation networks or systems.

Utilities. Dredging, pile driving, and placement of dredged material at the FEDMMA or the NODS would not affect utilities (e.g., potable water supply, sewer, energy resources, communications), as the existing navigation channels, the FEDMMA, and the NODS do not pose demands on utilities. Maintenance and upgrades to existing utilities at the finger piers may occur as part of regular maintenance activities of the main pier but are not expected to pose additional demands on utilities.

Submerged Aquatic Vegetation. The Virginia Institute of Marine Science (VIMS) has not identified any submerged aquatic vegetation (SAV) in or adjacent to the project area (Figure 3-1); therefore, this impact was dismissed from further analysis.

Socioeconomics. Dredging, pile driving, and placement of material at the FEDMMA, the NODS, or alternative sites would not affect population and would provide only a one-time boost to the economy of primarily the Hampton Roads area. As the counties in the vicinity of Fort Eustis have robust economies, the magnitude of the effects would be of no measurable significance.

Environmental Justice. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 16, 1994), requires that federal agencies' actions substantially affecting human health or the environment not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. 33 CFR 334.281 establishes Skiffes Creek and any tributaries, creeks, estuaries, tidal areas, and Bailey's Creek within the boundaries of Fort Eustis, Virginia to be restricted. These restrictions enable the Army to enhance security around vessels moored at the facility. The restrictions also safeguard military vessels and United States government facilities from sabotage and other subversive acts, accidents, or incidents of similar nature. Additionally, the restriction are needed to protect the public from potentially hazardous conditions which may exist as a result of Army use of the area. Demolition of the existing mooring field, expansion of the new mooring field, dredging, pile driving, and placement of dredged material at the FEDMMA, the NODS, or alternative upland placement sites are not actions that would exclude persons, deny persons benefits (including benefits to the right of enjoyment of the waterway), or subject persons to discrimination because of their race, color, national origin, or income.

Figure 3-1. Submerged aquatic vegetation (SAV) in the project vicinity based on the annual SAV survey conducted by the Virginia Institute of Marine Science (VIMS).

Protection of Children. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 23, 1997), recognizes that children might suffer disproportionately from environmental health risks and safety risks. Operational areas of the Skiffes Creek Channel, the FEDMMA, and alternative placement sites are within a secure, limited access area; as such, children would not be exposed to environmental health or safety risks as a result of the proposed action. The NODS is an offshore placement site in federal waters and is therefore an unsecured limited access area; as such, children would not be exposed to environmental health or safety risks as a result of the proposed action.

Hazardous and Toxic Materials. There are three potential sources of HM/HW with respect to the dredging project: toxic substances in the sediment to be dredged, hazardous materials and wastes from equipment and related operations during dredging and placement, and characteristic HW leachate from the dredge material disposal site. Dredged materials are exempt from Hazardous Waste regulations so long as the dredged material is regulated and managed under the Clean Water Act (CWA) or MPRSA. Findings indicate, however, that HM/HW are not a concern with respect to this proposed action.

While dredging will resuspend sediment, contaminated sediment is not expected to be a concern for this project for reasons discussed in Section 2.1.1.4. Leachate testing from existing disposal material at the dredge material disposal site has been sampled and was found not to be contaminated (Muller 1998). Because previous testing of the sediment from the Skiffes Creek Channel has indicated the dredged material is not contaminated, there is no reason to

believe the new dredged material significantly differs in its chemical characteristics. Placement at FEDMMA is expected to provide sufficient constraints within the placement site to reduce any potential contaminant to acceptable levels due to the retention of solids at the site preventing its transport beyond the boundaries of the confined disposal facility consistent with provisions of 40 CFR 230.60(d). Additionally, any material placed at the NODS must undergo further MPRSA Section 103 testing for compliance with the Limiting Permissible Concentration (LPC) for each phase of the dredged material discharge (e.g., liquid, liquid plus suspended particulate, and solid phases) and its water column and benthic impacts to receive concurrence from the EPA and the USACE to receive a MPRSA, Section 103 permit.

The Fort Eustis and Fort Story HWM SOP specifies the requirements for waste identification, storage, handling, transportation, disposal, emergency response, and waste minimization. The HWM SOP would be strictly adhered to by contractors during dredging and disposal of the dredge material. While dredged material itself is exempt from hazardous waste regulations, hazardous materials and wastes generated from equipment and other operations conducted by the contractor would be handled in accordance with the HWM SOP. Based on these procedures, hazardous materials and wastes from equipment and other operations would not be a concern for this project.

3.2 NOISE

Noise is the term used to identify disagreeable, unwanted sound that interferes with normal activities or diminishes the quality of the environment (American National Standards Institute 1994; U.S. Army Center for Health Promotion and Preventive Medicine 2006) and can affect both human and non-human listeners. For humans, when sounds interfere with speech, disturb sleep, or interrupt routine tasks, they become noise. For the purposes of this document, noise is described in the context of sound levels that result directly from Fort Eustis construction and military operations and the compatibility of these levels with surrounding land uses.

The area around the proposed Project site contains several noise sources, including traffic on the local roadways, such as Lee Boulevard, Kerr Road, Monroe Avenue, and Taylor Avenue; noise generated from within Fort Eustis; and noise generated by the adjacent residences. Based on a review of noise levels generated from Year 2018 traffic, train, and aircraft activity, ambient noise levels in the Project vicinity range from a 24-Hr Leq of 70 dBA close to VA Route 60 to below 50 dBA Leq internal to the residential neighborhoods (FTA, 2018).

Fort Eustis is adjacent to the independent City of Newport News primarily on the northern boundary. The northern boundary includes Training Areas 1 and 2 as well as the Tactical Equipment Maintenance Facility which is adjacent to the Oakland Industrial Park. The main gate entrance and other portions are adjacent to private land. The installation is separated from the Newport News on the eastern boundary by the Warwick River. Residential areas primarily exist along the Newport News side of the river. The width of the Warwick River is variable but only several hundred feet at the widest point. The James River is considerably wider and borders Fort Eustis on the western side. The installation is geographically divided by a drainage way into two areas: Main Installation (cantonment area) and Mulberry Island. The cantonment area includes administrative offices, community facilities, military family housing, barracks, limited industrial operations, closed landfills (Environmental Restoration Program sites), Third Port, maintenance facilities, medical and dental clinics, research facilities, supply/storage areas, recreational facilities, and some of the installation's training areas. Mulberry Island includes the

Pines Golf Course, Felker Army Airfield, several historical sites, the Range and Training Complex.

People working at the Third Port facility and the golf course (located approximately 500 feet from the FEDMMA) would be potential noise receptors. Additionally, people residing in two single-family housing units located within 800 feet of Skiffes Creek Channel would be potential noise receptors. In water noise impacts from project activities are also anticipated.

Alternative 1. Construction of Alternative 1 would result in minor, temporary local increases in noise production during dredging, dredged material placement, and pile driving activities. The noise would result from the use of dredging equipment within the project area as well as pile-driving equipment within the project area. Any associated impacts would cease with the completion of the project.

The amount of noise generated by hydraulic cutterhead dredges relates to the size and type of dredging equipment used, the specifications, any modifications to the equipment, operational methods, and the geomorphology and suspended sediment loads at the site (Reine et al. 2012). Generally, noise generated by dredges is considered continuous and low in frequency (i.e., no rapid rise times and below 1,000 Hertz)(CEDA 2011). The estimated sound levels may range between 169 to 186 dB peak re 1µPa at one meter below the surface. However, most of the sound from cutterhead dredges occurs between 70 and 1,000 Hz, and peak sound pressures tend to range between 100 to 110 dB peak re 1µPa (Clarke et al. 2002). Clarke et al. (2002) recorded sounds of a 10,000 horsepower, 24-inch cutterhead dredge during maintenance dredging activities in the Mississippi River and found that dredge sounds were muted by other noises in the aquatic environment, and sounds attributed to the cutterhead dredge operations were virtually undetectable at 500 meters (1,640 feet) from the source. The exact size and specifications of a cutterhead dredged used to perform dredging activities under this alternative would vary from maintenance event to maintenance event (e.g., every 5 to 7 years). Dredges used for maintenance of Skiffes Creek and the nearby channels of the James River typically range between 16 and 20 inches (absolute maximum dredge size is 36 inches), which would be expected to produce less noise proportional with size.

Noises produced by mechanical dredges may be continuous or discrete. For instance, engine or generator noise is continuous, and has a peak sound pressure level of 134 dB re 1µPa, which occurred in the 20 Hz to 20 kHz frequency range with peak frequency at 125 Hz (Reine et al. 2014). Discrete noises include sounds produced from the bucket hitting the bottom, hydraulic ram, barge loading, maneuvering anchoring spuds, and spud advancement. The significant noise produced by mechanical dredges is caused by the bucket hitting the bottom, which was measured at 148.4 dB re 1µPa at a frequency of 215 Hz in pea gravel (Reine et al. 2014). Sediments to be excavated in this project are soft; therefore, peak noise generated by mechanical dredges should not be as great.

The installation of a maximum of 155 concrete piles (20-inch square), 65 concrete piles (24-inch square), 29 steel pipe piles (36-inch diameter), 14 steel pipe piles (24-inch), and steel sheet piles using impact hammering to conservatively estimate the maximum potential noise impacts may produce discrete noises in the project area. Impact hammering is estimated to produce peak sound pressure levels of 185 dB re 1µPa for 24-inch concrete piles, used as a conservative proxy for proposed 20-inch square concrete piles and concrete sheet, 208 dB re 1µPa for 36-inch steel pipe piles, 203 dB re 1µPa for 24-inch steel pipe piles, and 205 dB re 1µPa for 24-inch steel sheet piles (GARFO 2019). The dredging contract will require the use of properly installed and maintained mufflers, silencers, and manufacturer-recommended sound

suppressors on all plant, machinery, and equipment. “Soft-start” protocols will be followed for pile-driving. Contractors may implement additional noise attenuation measures for impact hammering, such as cushion blocks or air bubble curtains, that would reduce underwater noise levels by 4 – 26 dB (ICF Jones and Stokes 2009). Contractors may also choose to use vibratory hammering to install piles, which would result in the reduction of underwater noise levels by 10 – 20 dB (ICF Jones and Stokes 2009). Additionally, the construction crews at the project sites would be required to comply with all applicable laws regarding noise, including any potential time of day restrictions and maximum decibel levels.

Alternative 2. Construction of Alternative 2 would result in minor, temporary local increases in noise production during dredging, dredged material placement, and pile driving activities similar to that caused by Alternative 1. The noise would result from the use of dredging equipment within the project area as well as pile-driving equipment within the project area. Any impacts associated with the Action Alternative would cease with the completion of the project. As noted for Alternative 1, the dredging contract will require the use of properly installed and maintained mufflers, silencers, and the manufacturer-recommended sound suppressors on all plant, machinery, and equipment. “Soft-start” protocols will be followed for pile-driving, and contractors may implement additional noise attenuation measures for impact hammering, such as cushion blocks or air bubble curtains, or choose to use vibratory hammering to install piles to reduce underwater noise levels. Additionally, the construction crews at the project sites would be required to comply with all applicable laws regarding noise, including any potential time of day restrictions and maximum decibel levels.

Alternative 3. Construction of Alternative 3 would result in minor, temporary local increases in noise production during dredging and dredged material placement, similar to those described for mechanical dredging in Alternative 1. The noise would result from the use of dredging equipment within the project area and at the NODS. As noted for Alternative 1, the dredging contract will require the use of properly installed and maintained mufflers, silencers, and the manufacturer-recommended sound suppressors on all plant, machinery, and equipment. Any impacts associated with this Placement Alternative would cease with the completion of the project.

No Action Alternative. Under the No Action Alternative, airborne noise would result from the operation of watercraft, land vehicles and equipment, traffic on the local roadways, trains, aircraft activity, noise generated from within Fort Eustis, and noise generated by the adjacent residences. Noise levels under the No Action Alternative are anticipated to be similar to noise levels generated from the Year 2018 traffic, train, and aircraft activity, ambient noise levels in the Project vicinity range from a 24-Hr Leq of 70 dBA close to VA Route 60 to below 50 dBA Leq internal to the residential neighborhoods (FTA, 2018). There would be no noise impacts beyond those associated with these existing daily activities related to the channel, the Third Port facility, and in the surrounding area. Under the No Action Alternative, JBLE-Eustis would not be able to support the new class of vessel, replace older vessels in the fleet with the new class, replace the finger piers or mooring field, improve the Landship or general’s ramp, improve the berthing areas and turning basins, increase the usability of the waterway for the fleet, or aid in the training for cargo logistics and vessel operations. Accretion in mooring and berthing areas will continue to restrict operations of the existing fleet in the future. Eventually, shoreline accretion will severely reduce vessel maneuverability such that the ramp will be unnavigable or unusable for loading and unloading wheeled cargo.

3.3 AIR QUALITY

3.3.1 National Air Quality Standards

Six air pollutants are regulated by the U.S. Environmental Protection Agency (USEPA) under the Clean Air Act due to the risks they create for human health and welfare when present in excessive amounts in the environment. These pollutants, known as "criteria pollutants," are ground-level ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and particulate matter. Particulate matter includes two types: 1) particles less than ten micrometers in size, or PM_{10}; and 2) particles less than 2.5 micrometers in size, or $PM_{2.5}$. Of the six criteria pollutants, particulate matter and ground-level ozone are the most widespread health threats. Ozone is not emitted directly but results from the chemical interaction in the atmosphere of two precursor pollutants: volatile organic compounds (VOCs) and nitrogen oxides (NO_x).

The USEPA regulates criteria pollutants by setting standards, or permitted levels, for the amount of each pollutant that air may contain. These are known as National Ambient Air Quality Standards (NAAQS). There are two sets of NAAQS: the primary standards, which set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly; and the secondary standards, which set limits to protect public welfare, including the prevention of visibility impairment, and damage to animals, crops, vegetation, and buildings. The standards, the averaging times, and the criteria for exceedances are unique to each standard. The Clean Air Act requires periodic review of the science upon which the standards are based and of the standards themselves. Table 3-1 shows the current NAAQS.

3.3.1.1 National Ambient Air Quality Standards Attainment Status

The USEPA has designated specific areas as air quality control regions within which the NAAQS must be achieved or maintained. The Third Port within Skiffes Creek is located in the Air Quality Control Region (AQCR) known as Hampton Roads Intrastate ACQR in Virginia (40 CFR 81.93) and is part of the Norfolk-Virginia Beach-Hampton Roads (Hampton Roads), VA Marginal Maintenance Area for the 1997 ozone NAAQS. The Hampton Roads area is currently in attainment for all other NAAQS. Although the 1997 ozone standard has been revoked, maintenance areas for that standard must still demonstrate compliance with the standard for 20 years. This requirement is based on the South Coast II Court Decision and subsequent EPA guidance. The Hampton Roads Area was redesignated to attainment for the 1997 ozone NAAQS on June 1, 2007, which would be the point at which the maintenance timeline would start.

Table 3-1. National Air Quality Standards (NAAQS).

Pollutant	Primary or Secondary	Average Time	Level[1]	Form
CO	Primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Pb	Both	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded
NO_2	Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Both	1 year	53 ppb	Annual mean
O_3	Both	8 hours	0.07 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
$PM_{2.5}$	Primary	1 year	12 µg/m^3	Annual mean, averaged over 3 years
	Secondary	1 year	15 µg/m^3	Annual mean, averaged over 3 years
	Both	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
PM_{10}	Both	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
SO_2	Primary	1 hour	75 ppb	99th percentile of 1-hour dialy maximum concentrations, averaged over 3 years
	Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

[1]ppm = parts per million; µg/m^3 = microgram per cubic meter; ppb = parts per billion

3.3.2 Clean Air Act Conformity

The USEPA final rules on general conformity (40 CFR Parts 51 and 93) apply to federal actions in nonattainment and maintenance areas for any of the criteria pollutants. The rules specify *de minimis* (threshold) emission levels by pollutant to determine the applicability of conformity requirements for a project. Actions that generate annual emissions below the applicable *de minimis* levels do not require a formal general conformity analysis and are considered to have no significant impact on air quality under NEPA. For the purposes of general conformity applicability analysis, project emissions are compared to baseline emissions. For this Proposed Action, emissions under the No Action Alternative constitute the baseline.

The Clean Air Act Amendments of 1990 expand the scope and content of the act's conformity provisions in terms of their relationship to a state implementation plan. Under Section 176(c), a project is in conformity if it corresponds to the plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving their expeditious attainment. Conformity further requires that such activities would not:

- Cause or contribute to any new violations of any standards in any area.
- Increase the frequency or severity of any existing violation of any standards in any area.
- Delay the timely attainment of any standard or any required interim emission reductions or other milestones in any area.

Alternative 1. Air emissions due to demolition, dredging, placement, pile-driving, and other construction activities for this project will be minor and temporary. This project alternative has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. Estimates of total emissions from each project element are presented in Table 3-2 (see Appendix I for a description of the methodology used to develop these estimates).

Table 3-2. Total emissions estimated for each phase of work for Alternative 1 (riprap sill). Anticipated construction timeline and project phasing are subject to change based on funding availability.

Project Phase	Construction Element	Total Emissions (tons)							
		NOx	PM10	PM2.5	VOC	CO	CO_2	SO_2	Pb*
Phase 1 (FY 23)	Finger Piers	23.06	0.44	0.42	0.69	4.93	3333.64	0.04	0.00
	Mooring Field	24.73	0.46	0.45	0.72	5.25	3576.49	0.04	0.00
	Phase 1 Total	**47.80**	**0.90**	**0.87**	**1.41**	**10.18**	**6910.13**	**0.08**	**0.00**
Phase 2 (FY24+)	Finger Piers	16.37	0.31	0.30	0.49	3.53	2368.36	0.03	0.00
	Landship	6.10	0.11	0.11	0.17	1.26	878.39	0.01	0.00
	General's Ramp	8.92	0.17	0.17	0.27	1.92	1283.79	0.02	0.00
	Phase 2 Total	**31.40**	**0.59**	**0.57**	**0.93**	**6.71**	**4530.54**	**0.05**	**0.00**

General Conformity Rule applicability was determined based on the net difference between emissions under Alternative 1 in the project area and the emissions of the No Action Alternative in the project area. The projected emissions were then compared to the applicable *de minimis* levels on an annual basis. The applicability determination is based on the amount of volatile organic compounds (VOC) and nitrogen oxides (NO_x), which are ozone precursors, that would be generated by construction of improvements elements as described by Alternative 1. The *de minimis* levels applicable to an ozone maintenance area are 100 tons per year for both nitrogen oxides and volatile organic compounds. The net increase in emissions of both precursor pollutants would be below *de minimis* levels. Therefore, Alternative 1 does not require a formal General Conformity analysis.

Alternative 2. This Action Alternative would result in minor, temporary local increases in air emissions due to demolition, dredging, placement, pile-driving, and other construction activities, similar to those described for Alternative 1. This project alternative has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. Estimates of total emissions from each project element are presented in Table 3-3 (see Appendix I for a description of the methodology used to develop these estimates).

Table 3-3. Total emissions estimated for each phase of work for Alternative 2 (bulkhead sill). Anticipated construction timeline and project phasing is subject to change based on funding availability.

Project Phase	Construction Element	Total Emissions (tons)							
		NOx	PM10	PM2.5	VOC	CO	CO_2	SO_2	Pb*
Phase 1 (FY 23)	Finger Piers	23.06	0.44	0.42	0.69	4.93	3333.64	0.04	0.00
	Mooring Field	50.90	0.98	0.95	1.51	10.89	7313.70	0.10	0.00
	Phase 1 Total	**73.97**	**1.41**	**1.37**	**2.20**	**15.82**	**10647.34**	**0.14**	**0.00**
Phase 2 (FY24+)	Finger Piers	16.37	0.31	0.30	0.49	3.53	2367.95	0.03	0.00
	Landship	6.10	0.11	0.11	0.17	1.26	878.39	0.01	0.00
	General's Ramp	8.92	0.17	0.17	0.27	1.92	1283.79	0.02	0.00
	Phase 2 Total	**31.40**	**0.59**	**0.57**	**0.93**	**6.70**	**4530.13**	**0.05**	**0.00**

General Conformity Rule applicability was determined based on the net difference between emissions under Alternative 2 in the project area and the emissions of the No Action Alternative in the project area. The projected emissions were then compared to the applicable *de minimis* levels on an annual basis. The applicability determination is based on the amount of VOC and NO_x, which are ozone precursors that would be generated by construction of improvements elements as described by Alternative 2. The *de minimis* levels applicable to an ozone maintenance area are 100 tons per year for both nitrogen oxides and volatile organic compounds. The net increase in emissions of both precursor pollutants would be below *de minimis* levels. Therefore, Alternative 2 does not require a formal General Conformity analysis.

Alternative 3. This Action Alternative would result in minor, temporary local increases in air emissions due to dredged material transport and placement at the NODS. This project alternative has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. Estimates of total emissions from each project element are presented in Table 3-4 and Table 3-5 (see Appendix I for a description of the methodology used to develop these estimates).

Table 3-4. Total emissions estimated for each phase of work for Alternative 1 including placement of dredged material at the NODS (Alternative 3). Note that Alternative 3 only alters emissions for transport of dredged material to NODS; all other estimates are taken from Alternative 1. Anticipated construction timeline and project phasing is subject to change based on funding availability.

Project Phase	Construction Element	Total Emissions (tons)							
		NOx	PM10	PM2.5	VOC	CO	CO_2	SO_2	Pb*
Phase 1 (FY 23)	Finger Piers	23.41	0.44	0.43	0.70	5.00	3383.90	0.04	0.00
	Mooring Field	25.79	0.48	0.46	0.75	5.46	3727.27	0.04	0.00
	Phase 1 Total	**49.20**	**0.92**	**0.89**	**1.45**	**10.46**	**7111.17**	**0.08**	**0.00**
Phase 2 (FY24+)	Finger Piers	16.72	0.32	0.31	0.50	3.60	2418.62	0.03	0.00
	Landship	6.10	0.11	0.11	0.17	1.26	878.39	0.01	0.00
	General's Ramp	8.92	0.17	0.17	0.27	1.92	1283.79	0.02	0.00
	Phase 2 Total	**31.75**	**0.60**	**0.58**	**0.94**	**6.78**	**4580.80**	**0.06**	**0.00**

Table 3-5. Total emissions estimated for each phase of work of Alternative 2 including placement of dredged material at the NODS (Alternative 3). Note that Alternative 3 only alters emissions for transport of dredged material to the NODS; all other estimates are taken from Alternative 2. Anticipated construction timeline and project phasing is subject to change based on funding availability.

Project Phase	Construction Element	Total Emissions (tons)							
		NOx	PM10	PM2.5	VOC	CO	CO_2	SO_2	Pb*
Phase 1 (FY 23)	Finger Piers	23.41	0.44	0.43	0.70	5.00	3383.90	0.04	0.00
	Mooring Field	51.40	0.98	0.95	1.52	10.98	7384.06	0.10	0.00
	Phase 1 Total	**74.81**	**1.43**	**1.38**	**2.22**	**15.98**	**10767.96**	**0.14**	**0.00**
Phase 2 (FY24+)	Finger Piers	16.72	0.32	0.31	0.50	3.60	2418.62	0.03	0.00
	Landship	6.10	0.11	0.11	0.17	1.26	878.39	0.01	0.00
	General's Ramp	8.92	0.17	0.17	0.27	1.92	1283.79	0.02	0.00
	Phase 2 Total	**31.75**	**0.60**	**0.58**	**0.94**	**6.78**	**4580.80**	**0.06**	**0.00**

General Conformity Rule applicability was determined based on the net difference between emissions under Alternative 3 in the project area and the emissions of the No Action Alternative in the project area. Because Alternative 3 describes alternative placement of material, the difference in placement emissions were added to the other Action Alternatives to provide a more accurate comparison. The projected emissions were then compared to the applicable *de*

minimis levels on an annual basis. The applicability determination is based on the amount of VOC and NO_x, which are ozone precursors that would be generated by construction of improvements elements as described by Alternative 3. The *de minimis* levels applicable to an ozone maintenance area are 100 tons per year for both nitrogen oxides and volatile organic compounds. The net increase in emissions of both precursor pollutants would be below *de minimis* levels. Therefore, Alternative 3 does not require a formal General Conformity analysis.

No Action Alternative. The No Action Alternative is the baseline for assessing the potential environmental consequences of the Action Alternatives. As such, the environmental consequences from the No Action Alternative represent a continuation of the existing level and intensity of activities at JBLE-Eustis. The total emissions from JBLE-Eustis under the No Action Alternative were calculated by combining the inventory from the most recent Hampton Roads area reporting criteria emissions inventory from the Virginia Department of Environmental Quality (VADEQ 2019). The No Action Alternative would have no significant impact on air quality. Under the No Action Alternative, JBLE-Eustis would not be able to support the new class of vessel, replace older vessels in the fleet with the new class, improve the berthing areas and turning basins, increase the usability of the waterway for the fleet, or aid in the training for cargo logistics and vessel operations. Accretion in mooring and berthing areas will continue to restrict operations of the existing fleet in the future.

3.3.3 Greenhouse Gas Emissions

Greenhouse gases (GHGs) are compounds that contribute to the greenhouse effect. The greenhouse effect is a natural phenomenon caused by gases trapping heat within the surface-troposphere (lowest portion of the earth's atmosphere) system, heating the surface of the earth. The primary GHGs generated by human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

The heating effect from GHGs is considered to be the probable cause of the global warming observed over the last 50 years (U.S. Environmental Protection Agency 2009). The USEPA Administrator recognized potential risks to public health or welfare and signed an endangerment finding regarding GHGs under Section 202(a) of the Clean Air Act on December 15, 2009. The finding recognized that the current and projected concentrations of the six key gases listed above threaten the public health and welfare of current and future generations.

The global warming potential of the various GHGs is generally expressed relative to carbon dioxide, used as a reference gas, which is assigned a global warming potential of 1. Emissions of GHGs are multiplied by their global warming potential and the results are added to calculate the total equivalent emissions of carbon dioxide.

On a national scale, federal agencies are addressing emissions of GHGs by reductions mandated in federal laws and Executive Orders (EOs). Most recently, EO 13834, *Efficient Federal Operations*, was enacted to address efficiency and waste reduction in federal agency actions, including meeting statutory requirements for GHG emissions and reporting.

For information and disclosure purposes, this EA addresses GHG emissions consistent with the *Final NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas* issued by the Council on Environmental Quality in 2016, withdrawn in 2017, and under review for revisions and updates in 2021. Because the dominant GHG emitted from fossil fuel combustion is carbon dioxide (82 percent of United States emissions [U.S. Environmental

Protection Agency 2014]), the analysis estimate considers carbon dioxide as representative of project related GHG emissions.

Alternative 1. The total amount of carbon dioxide emitted by Alternative 1 would be approximately 11,440.67 tons, representing a minute portion of the overall emissions in the Hampton Roads Area (see No Action Alternative below). Thus, the contribution of the Alternative 1 at JBLE-Eustis to greenhouse gas emissions would be insignificant.

Alternative 2. The total amount of carbon dioxide emitted by Alternative 2 would be approximately 15,177.47 tons, representing a minute portion of the overall emissions in the Hampton Roads Area (see No Action Alternative below). Thus, the contribution of Alternative 2 at JBLE-Eustis to greenhouse gas emissions would be insignificant.

Alternative 3. The total additional amount of carbon dioxide emitted by Alternative 3 would be approximately 251.29 tons for Alternative 1 (see Table 3-4 for project element estimates) or approximately 107.88 tons for Alternative 2 (see Table 3-5 for project element estimates), representing a minute portion of the overall emissions in the Hampton Roads Area (see No Action Alternative below). Thus, the contribution of Alternative 3 at JBLE-Eustis to greenhouse gas emissions would be insignificant.

No Action Alternative. The No Action Alternative at JBLE-Eustis would continue generating the existing level of carbon dioxide annually. While there are no data available for comparison within the Hampton Roads region, state-level carbon dioxide emission inventories from fossil fuel combustion by end-use sectors (commercial, industrial, residential, transportation, and electric power) available from the USEPA (2012) may provide a broad point of reference. In 2010, total emissions in Virginia for all five sectors totaled 109.71 million tons of carbon dioxide. The No Action Alternative would have no significant impact on GHG emissions. Under the No Action Alternative, JBLE-Eustis would not be able to support the new class of vessel, replace older vessels in the fleet with the new class, improve the berthing areas and turning basins, increase the usability of the waterway for the fleet, or aid in the training for cargo logistics and vessel operations. Accretion in mooring and berthing areas will continue to restrict operations of the existing fleet in the future.

3.4 WATER RESOURCES

3.4.1 Surface Waters

The surface waters in the vicinity of the project site are the marsh tributaries adjacent to the FEDMMA, Skiffes Creek, the portion of the James River adjacent to the project area (see Figure 1-2) and the NODS located in the Atlantic Ocean (see Figure 2-6); they are the only surface waters considered for the purposes of this document.

The James River is tidal along its boundary with Fort Eustis and downriver to Hampton Roads. Skiffes Creek flows for about 10 miles from its confluence with the James River at the Third Port at Fort Eustis. The lower portion of the creek is wide and deep enough (with periodic dredging) for the passage of commercial and military vessels and barges.

3.4.2 Storm Water Runoff

Storm water runoff on Fort Eustis is controlled and directed by storm sewers and drainage ditches. The storm water collection system discharges directly to the James and Warwick Rivers

or to nearby creeks, lakes, and canals that discharge to the rivers (Malcolm Pirnie 1998 as cited in Tetra Tech, Inc. 1999).

3.4.3 Floodplains

Areas along the James River are prone to flooding. Water levels can rise significantly when a major storm event, such as a hurricane, backs up water in the James River while large amounts of rainfall occur. The flood of record at the installation is 15 feet, which occurred in 1958 (USACE 1986 as cited in Tetra Tech, Inc. 1999). Much of Mulberry Island, the peninsula on which Fort Eustis sits, lies below the 100-year flood level and is especially prone to minor tidal flooding (SAIC 1996 as cited in Tetra Tech, Inc. 1999). The mean tidal range in the area is 2.6 feet.

3.4.4 Ground Water

The Columbia Aquifer is the uppermost aquifer in the Fort Eustis area. The Columbia Aquifer is unconfined throughout most of its extent (Malcolm Pirnie 1998 as cited in Tetra Tech, Inc 1999) and attains a maximum thickness of 35 feet, though it is generally 10 to 15 feet thick in the Fort Eustis Area (Meng and Harsh 1988 as cited in Montgomery Watson 1997). Because the aquifer is unconfined, groundwater moves under the influence of gravity to discharge areas such as streams, rivers, and lakes. Groundwater flow is generally in a southeasterly direction. Recharge occurs primarily as infiltration of precipitation.

3.4.5 Water Quality

An assessment of contaminant levels in the surface waters of Fort Eustis was conducted in conjunction with an evaluation of the public health effects of contaminants in NPL sites. The conclusion of the assessment was that contaminant levels in surface waters at Fort Eustis were not sufficiently high to present a public health hazard.

Although Skiffes Creek and the James River are not part of Fort Eustis proper, water quality in these surface waters is of concern with respect to the proposed project due to the possibility of introducing contaminants (primarily as suspended sediment) to one or both water bodies during dredging that would occur as part of the project. Due to high bacteria levels in Skiffes Creek, it has been deemed a shellfish condemnation zone since 2005 (VADEQ 2007). Water quality monitoring by James City County indicates that overall water quality in Skiffes Creek is good and supports a healthy environment (James City County 2016).

Following the guidance in the Ocean Testing Manual (USEPA/USACE 1991), water and sediment testing was completed in 2014 as described in the SEA titled “Final Supplemental Environmental Assessment: Skiffes Creek Federal Navigation Channel Maintenance Dredging”, which is incorporated into this EA by reference. Tier II and Tier III testing was completed by examining physical, chemical, and ecotoxicological properties of the sediment and elutriate water through water column and whole sediment bioassays and bioaccumulation studies (tissue chemistry) (EA 2014). The dredged material from Skiffes Creek Channel met the requirements for ocean disposal at the NODS and maintenance dredging activities placed approximately 128,000 cubic yards during the period from November to December 2014.

The USACE conducts dredging and dredged material discharge activities in accordance with Section 404 of the CWA. Section 404 requires that discharge sites be specified through the application of the Section 404(b)(1) Guidelines (Guidelines) developed by EPA in conjunction with the USACE. Section 404 requires that the “Guidelines shall be based upon criteria

comparable to the criteria applicable to the territorial seas, contiguous zone, and the ocean". The Guidelines, which impart other requirements in addition to those associated with contaminant-related impacts, are published in 40 CFR 230. The guidance in the Inland Testing Manual (USEPA/USACE 1998) provides testing procedures through a tiered approach identical to that described in the Ocean Testing Manual. Tier I uses readily available, existing information, included all previous testing, to make a factual determination of the suitability of dredged material for various placement options in accordance with the Guidelines. Based on the testing described above for placement at NODS, there is no reason to suspect contamination. See Appendix D for the Final Evaluation of 404(b)(1) Guidelines.

3.4.6 Coastal Zone Management Consistency

The Coastal Zone Management Act (CZMA) of 1972 (16 USC 1451 et seq., as amended) provides for the protections, restoration, and responsible development of the nation's coastal resources. The CZMA established the National Coastal Zone Management Program as a partnership between the federal government and coastal states. Section 307 of the CZMA established the federal consistency provision, which requires federal actions that may have effects on coastal use or natural or cultural resources within the coastal zone be consistent with the state's coastal management program (NOAA 2021). The Virginia Coastal Zone Management Program was approved in 1986. Any federal activities that are likely to affect resources within Virginia's coastal resource management area must be consistent to the maximum extent practicable with the policies of this program, which include tidal and non-tidal wetlands, subaqueous lands, dunes and beaches, Chesapeake Bay preservation areas, marine fisheries, wildlife and inland fisheries, plant pests and noxious weeds, Commonwealth lands, point source air pollution, point source water pollution, nonpoint source water pollution, and shoreline sanitation (VADEQ 2021b).

The entirety of Newport News, including JBLE-Eustis, is within Virginia's coastal zone management area. As such, the proposed improvements to the Third Port require a federal consistency determination that is reviewed by VADEQ. The federal consistency determination submitted to VADEQ on August 20, 2021 and agency correspondence is included in Appendix D.

3.4.7 Environmental Consequences

Alternative 1. Short-term and localized direct minor adverse effects to water resources would be expected. The surface waters of Skiffes Creek and the James River would be expected to have increased concentrations of suspended solids during the proposed pile-driving and new work dredging activities. No effects to stormwater, floodplains, or ground water would be expected to occur.

Cutterhead dredges use suction to entrain sediment for pumping through a pipeline to a designated dredged material discharge site. Production rates vary greatly based on dredge pump capacities and the type (size and rotational speed) of cutter used, as well as the vertical bank height that the dredge is removing, pumping distances, and static head that must be overcome pumping slurried dredged material to the discharge site (e.g., upland placement sites). Sediments are re-suspended during lateral swinging of the cutterhead as the dredge progresses forward. Modeling results of cutterhead dredging indicated that total suspended solids (TSS) concentrations above background levels would be present throughout the bottom six feet (1.8 meters) of the water column for a distance of approximately 1,000 feet (305

meters)(USACE 1983). Based on these analyses, elevated suspended sediment concentrations are expected to be present only within an approximate 1,000-foot (305 meter) radius of the cutterhead dredge. TSS concentrations associated with cutterhead dredge sediment plumes typically range from 11.5 to 282.0 mg/L with the highest levels detected adjacent to the cutterhead dredge and decreasing with greater distance from the dredge (Nightingale and Simenstad 2001). Because of the siphoning action of cutterhead dredges, sediment can be removed with relatively small amounts of resuspension extending beyond the immediate vicinity of the dredge (Hayes et al. 1984, Raymond 1984). Modeling efforts have estimated that only approximately 0.0035 – 0.0103% of sediment is resuspended and lost as part of the sediment plume during cutterhead dredging operations, while all other sediment is either entrained in the cutterhead or resettles quickly after resuspension (Hayes et al. 2000).

Mechanical dredges may be used in conjunction with scows to pump material to the FEDMMA via pipeline. Dredged material in the pumpout scow would be refluidized prior to pump out. Mechanical dredging entails lowering an open bucket or clamshell through the water column, closing the bucket after impact on the bottom, lifting the bucket up through the water column, and emptying the bucket into a barge. The bucket operates without suction or hydraulic intake, moves relatively slowly through the water column, and impacts only a small area of the subaqueous bottom at any time, Mechanical dredges include many different bucket designs (e.g., clamshell, closed versus open bucket, level-cut bucket) and backhoe dredges, representing a wide range or bucket sizes. TSS concentrations associated with mechanical open clamshell bucket dredging operations in Boston Harbor have been shown to range from 105 mg/L in the middle of the water column to 445 mg/L near the bottom (210 mg/L, depth-averaged), while enclosed buckets produce a depth-averaged TSS value of 50 mg/L (Welp et al. 2001). Furthermore, a study by Burton (1993) measured TSS concentrations at distances of 500, 1,000, 2,000, and 3,300 feet (152, 305, 610, and1,006 meters, respectively) from dredge sites in the Delaware River and were able to detect concentrations between 15 mg/L and 191 mg/L up to 2,000 feet (610 meters) from the dredge site. In support of the New York/New Jersey Harbor Deepening Project, USACE conducted extensive monitoring of mechanical dredge plumes (USACE 2015). Although briefly addressed in the report, the effect of currents and tides on the dispersal and dilution of suspended sediments were not thoroughly examined or documented. Independent of bucket type or size, plumes dissipated to background levels within 600 feet (183 meters) of the source in the upper water column and 2,400 feet (732 meters) in the lower water column. Based on these studies, elevated suspended sediment concentrations at several hundreds of mg/L above background levels may be present in the immediate vicinity of the bucket but would settle rapidly within a 2,000-foot (610 meter) radius of the dredge location.

Placement at the confined upland placement area (FEDMMA) would avoid and minimize effects to water resources. After being pumped into the FEDMMA, coarse sediments settle out quickly and fine sediments continue to settle out of suspension as the water moves toward the spillbox, undergoing the sedimentation process and gravity settling with clarified water being released back to the river. As water percolates through placed dredged material in the FEDMMA, leachate may be produced as a result of precipitation or dredge carrier water resulting from the dredging operation. As described below, there is no reason to believe that sediments from Skiffes Creek Channel placed in the FEDMMA are contaminated; therefore, use of the FEDMMA is expected to have minimal impacts to groundwater.

Alternative 2. Short-term and localized direct minor adverse effects to water resources would be expected, similar to those described for Alternative 1. The surface waters of Skiffes Creek

and the James River would be expected to have increased concentrations of suspended solids during the proposed pile-driving and new work dredging activities. No effects to stormwater or to floodplains would be expected to occur.

Alternative 3. Typically, mechanical dredges are used in conjunction with scows to transport dredged material to an ocean disposal site (NODS). Mechanical dredging would occur as described for Alternative 1. Water resources at the Norfolk Ocean Disposal Site (NODS) may experience short-term and localized direct minor adverse effects due to dredged material placement. Dredged material from the maintenance of Skiffes Creek channel has been placed at the NODS when the FEDMMA did not have adequate capacity during a dredging cycle. Sediments that are unable to be placed at the FEDMMA may be placed at the NODS, if determined to be suitable, for this Action Alternative. The NODS may also be the preferred long-term placement site once the FEDMMA reaches the end of its lifecycle. As described in the SEA entitled "Final Supplemental Environmental Assessment: Skiffes Creek Federal Navigation Channel Maintenance Dredging," dated June 2014, transport and placement of dredged material at the NODS has previously met the MPRSA requirements under the limiting permissible concentrations for liquid phase, liquid and suspended particulate phase, and solid phase dredged material. The transport and placement of dredged material at the NODS is consistent with U.S. Environmental Protection Agency (USEPA) designated use of the site for dredged material placement. The USEPA determined maintenance dredging of Skiffes Creek Channel complied with MPRSA Section 103 criteria and provided concurrence to USACE on May 13, 2014. Dredged material placed at the NODS would be transported via scows, with trips up to one time per day during active dredging operations. Ocean currents would be expected to disperse suspended solids quickly.

No Action Alternative. Under the No Action Alternative, the improvements would not be constructed. Therefore, there would be no new impacts to surface waters, storm water runoff, floodplains, water quality from construction related soil disturbance, or Virginia's coastal zone from construction related soil disturbance. Accretion in mooring and berthing areas will continue to restrict operations of the existing fleet in the future. Eventually, shoreline accretion will severely reduce vessel maneuverability such that the general's ramp will be unnavigable or unusable for loading and unloading wheeled cargo.

3.5 SAFETY AND OCCUPATIONAL HEALTH

Shoaling, defined as the building up of sediment on the bottom of the channel that poses a hazard to navigation, has reduced the operating depth of the project, and could impact operations at the Third Port facility. Reduced operating depths restrict JBLE-Eustis' ability to conduct training activities and missions. Reduced depths may also inhibit or be a hazard to navigation for military vessels, commercial barges, and recreational boaters navigating the area, because the designated channel depth has shoaled in, becoming shallower than required for safe passage through the channel.

Additionally, areas of new work dredging have been subject to both shoaling along the channel and accretion by nearby landforms. This substantially reduces the operating depth of areas that have historically been used as turning areas for large vessels, as staging areas for barges and equipment, and for other training activities and missions. Use of these areas has become limited and is a hazard for personnel and equipment.

Alternative 1. No safety or occupational health hazards would be introduced into the project site as a result of Alternative 1. New work and maintenance dredging in areas between the toe of the channel and the mooring field and the finger piers would maintain safe navigation and use of these areas and reduce risks to human health and safety that could occur if current shoaling continues.

Alternative 2. No safety or occupational health hazards would be introduced into the project site as a result of Alternative 2. New work and maintenance dredging in areas between the toe of the channel and the mooring field and the finger piers would maintain safe navigation and use of these areas and reduce risks to human health and safety that could occur if current shoaling continues.

Alternative 3. No safety or occupational health hazards would be introduced into the project site as a result of the proposed placement of dredged material at the NODS.

No Action Alternative. There would be no impacts to existing conditions; therefore, ongoing shoaling would result in a continued reduction in operational depths of the mooring field and finger piers. Eventually, these areas would reach hydrodynamic equilibrium and the shoaling would become a hazard to safe navigation and human health and safety. Eventually, shoreline accretion will severely reduce vessel maneuverability such that the general's ramp will be unnavigable or unusable. JBLE-Eustis would not be able to support the new class of vessel, replace older vessels in the fleet with the new class, improve the berthing areas and turning basins, increase the usability of the waterway for the fleet, or aid in the training for cargo logistics and vessel operations.

3.6 BIOLOGICAL / NATURAL RESOURCES

3.6.1 Introduction

The U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Virginia Marine Resources Commission (VMRC), the Virginia Department of Wildlife Resources (VDWR), and the Virginia Department of Conservation and Recreation (VDCR) were consulted regarding sensitive species and habitat at Fort Eustis. Copies of letters sent and any responses received are in Appendix A.

3.6.2 Terrestrial Vegetation

Because of the artificial and altered nature of the FEDMMA and the area's specific purpose, impacts to any terrestrial vegetation that might incidentally be growing there and that would result from the placement of additional dredged material would not be considered ecologically significant.

3.6.3 Wetlands

An estimated 3,600 acres of tidal and nontidal wetlands are present on Fort Eustis, most of which are associated with the extensive estuarine ecosystem that surrounds much of the installation (Tetra Tech, Inc. 1999). Tidal estuarine emergent wetlands are found within 1 mile of the project site along the James River, Skiffes Creek, and Bailey Creek and surrounding Goose Island. Some palustrine-forested wetlands occur in the upper reaches of Skiffes Creek and Bailey Creek (Terwilliger Consulting 1998). Estuarine tidal marsh vegetation is predominantly black needlerush (*Juncus roemerianus*), saltmarsh cordgrass (*Spartina alterniflora*), big

cordgrass (*Spartina cynosuroides*), saltmeadow cordgrass (*Spartina patens*), and cattails (*Typha* spp.). Bald cypress trees (*Taxodium distichum*) and black gum (*Nyssa sylvatica*) are typically found in forested wetlands.

3.6.4 Wildlife

Several common wildlife species have been reported from habitats around Lake Eustis, including great blue heron (*Ardea herodias*), osprey (*Pandion haliaetus*), raccoon (*Procyon lotor*), mallard (*Anas platyrhynchos*), and gray squirrel (*Sciurus carolinensis*) (Malcolm Pirnie 1998 as cited in Tetra Tech, Inc. 1999). These species are somewhat tolerant of human disturbance and are likely to be found elsewhere in the vicinity of the project site. Fort Eustis is also home to several successful breeding pairs of bald eagles and other rare bird species. A fish survey was conducted on the installation in 1990 (Fort Eustis 1990). In 1998, red bats (*Lasiurus borealis*), big brown bats (*Eptesicus fuscus*), evening bats (*Nycticeius humeralis*) and tricolored bats (*Perimyotis subflavus*) were observed (Clark et al. 1998). A survey conducted in 2016 identified the presence of two federally listed bat species: the Northern long-eared bat (*Myotis septentrionalis*) and the Indiana bat (*Myotis sodalis*)(Virginia Tech Conservation Management Institute 2016). A complete list of birds, mammals, fish, and reptiles and amphibians known and expected to occur at Fort Eustis is presented in Appendix E.

The James River is an important breeding ground for economically important shellfish. American oysters (*Crassostrea virginica*) are found in the James River and its tributaries near Fort Eustis. Public and leased oyster grounds are present off Mulberry Island from Deep Water Shoals to the mouth of the James River, and covering about 15,700 acres. The beds are primarily to the southwest of Mulberry Island. The entirety of Skiffes Creek is a shellfish condemnation zone (Figure 3-2); thus, no public or private oyster grounds are located within Skiffes Creek, and shellfish harvesting in Skiffes Creek is illegal. Blue crabs (*Callinectes sapidus*) are found in tidal habitats and areas containing submerged aquatic vegetation in the James River and its tributaries. The James River ranks third in crab catch and revenue for Virginia. Loss of habitat, including wetlands and submerged aquatic vegetation, poor water quality, and commercial harvest pressure represent the threats to blue crabs in Chesapeake Bay (Hovel & Lipcius 2001, Sharov et al. 2003, Fogarty & Lipcius 2007, Ma et al. 2010, Mizerek et al. 2011). Striped bass (*Morone saxatilis*) have also been reported from the James River near the dredging sites. A complete list of fishes and shellfish known and expected to occur at Fort Eustis is presented in Appendix E.

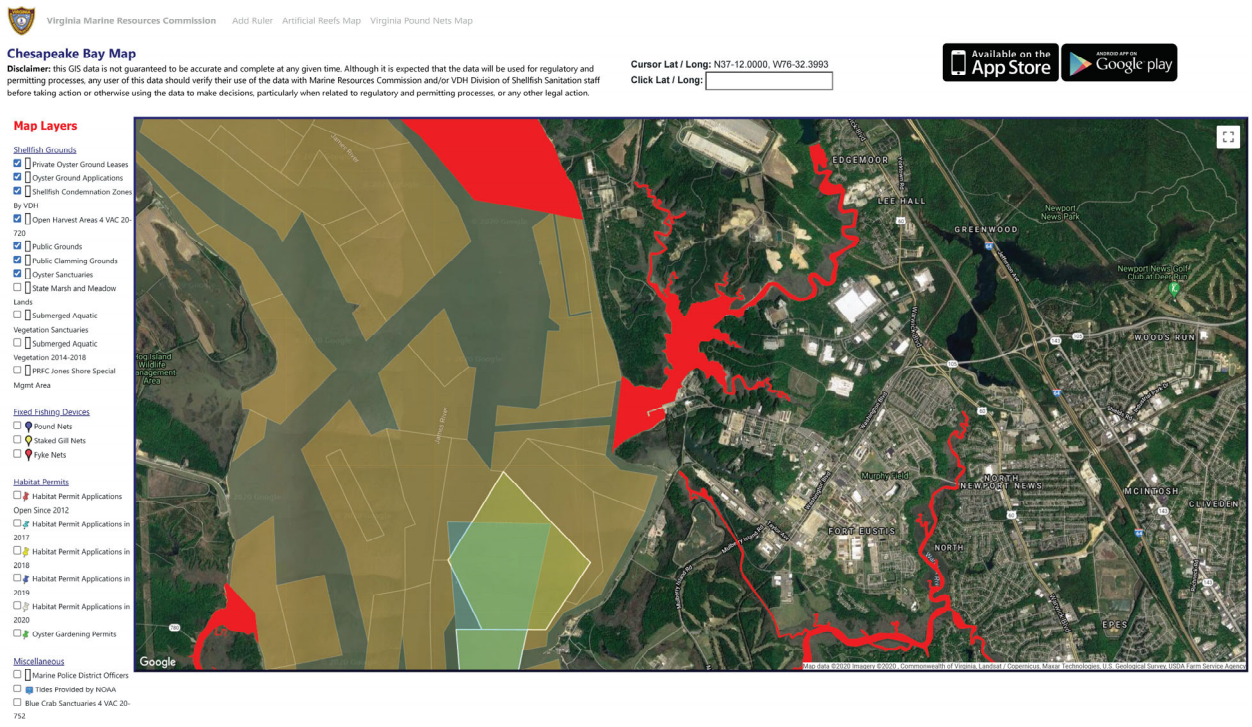

Figure 3-2. Oyster grounds and leases in the vicinity of Skiffes Creek and the project areas. Skiffes Creek is within a shellfish condemnation zone.

3.6.5 Essential Fish Habitat

A request for consultation for Essential Fish Habitat as required under Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), was submitted to NMFS' Greater Atlantic Regional Fisheries Office (GARFO) on July 19, 2021. The James River Estuary is Essential Fish Habitat (EFH) for nine federally managed fish species: windowpane flounder (*Scopthalmus aquosus*), bluefish (*Pomatomus saltatrix*), Atlantic butterfish (*Peprilus triacanthus*), summer flounder (*Paralicthys dentatus*), black sea bass (*Centropristus striata*), king mackerel (*Scomberomorus cavalla*), Spanish mackerel (*Scomberomorus maculatus*), cobia (*Rachycentron canadum*), red drum (*Sciaenops occelatus*). An EFH Assessment was prepared for this EA to construct improvements to the Third Port facility with placement of maintenance and new work dredged materials at the FEDMMA to fulfill required consultation with the National Marine Fisheries Service mandated under the Magnuson-Stevens Fishery Conservation and Management Act. The EFH Assessment and agency response is included in Appendix F.

3.6.6 Rare, Threatened, and Endangered Species

State- and federally-listed species that are reported to occur, or potentially occur, within the vicinity of the proposed project were identified using the USFWS Information for Planning and Consultation (IPaC) online application (USFWS 2021), NOAA Fisheries Greater Atlantic Region ESA Section 7 Mapper (NMFS 2021) Virginia Department of Wildlife Resources (VDWR) Virginia Fish and Wildlife Information Service (VaFWIS) Database (VDWR 2021a), Virginia Eagle Nest Locator (Center for Conservation Biology 2021), and Northern Long-Eared Bat Winter Habitat and Roost Trees Application (VDWR 2021b). Information from previous surveys

conducted at JBLE-Eustis was used to identify special status species with the potential to occur in the proposed project vicinity, each species' listed status, source of its listing, and documentation of occurrence (Table 3-6).

Table 3-6. Special status species with the potential to occur in the vicinity of the proposed project.

Species	Status	Source of Listing	Occurance	Critical Habitat Present
Altantic Sturgeon (*Acipenser oxyrhynchus*)	Federal and State Endangered	NMFS Section 7 Mapper	Confirmed	Yes
Shortnose Sturgeon (*Acipenser brevirostrum*)	Federal and State Endangered	NMFS Section 7 Mapper	Potential	No
Northern Long-eared Bat (*Myotis septentrionalis*)	Federal and State Endangered	IPaC	Confirmed in 2016 survey*	N/A
Indiana Bat (*Myotis sodalis*)	Federal and State Endangered	N/A	Confirmed in 2016 survey*	No
Red Knot (*Calidris canutus rufa*)	Federal and State Threatened	VDWR VaFWIS	Potential	No
Eastern Black Rail (*Laterallus jamaicensis jamaicensis*)	Federal Threatened, State Endangered	VDWR VaFWIS	Potential	No
Little Brown Bat (*Myotis lucifigus*)	State Endangered	VDWR VaFWIS	Confirmed	N/A
Tri-Colored Bat (*Perimyotis subflavus*)	State Endangered	VDWR VaFWIS	Confirmed	N/A
Rafinesque's Eastern Big-eared Bat (*Corynorhinus rafinesquii macrotis*)	State Endangered	VDWR VaFWIS	Potential	N/A
Canebrake Rattlesnake (*Crotalus horridus*)	State Endangered	VDWR VaFWIS	Potential	N/A
Eastern Tiger Salamander (*Ambystoma tigrinum*)	State Endangered	VDWR VaFWIS	Potential	N/A
Peregrine Falcon (*Falco peregrinus*)	State Threatened	VDWR VaFWIS	Confirmed	N/A
Loggerhead Shrike (*Lanius ludovicianus*)	State Threatened	VDWR VaFWIS	Potential	N/A
Migrant Loggerhead Shrike (*Lanius ludovicianus migrans*)	State Threatened	VDWR VaFWIS	Potential	N/A
Henslow's Sparrow (*Ammodramus henslowii*)	State Threatened	VDWR VaFWIS	Potential	N/A
Mabee's Salamander (*Ambystoma mabeei*)	State Threatened	VDWR VaFWIS	Potential	N/A

*Virginia Tech Conservation Management Institute 2016

Bald eagles (*Haliaeetus leucocephalus*) were listed as endangered in 1978 following the enactment of the Endangered Species Act of 1973. The status was downgraded to threatened in 1995, followed by complete delisting in 2007 based on recovery status. This species is afforded protections under the Migratory Bird Species Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Currently, several bald eagle nest sites exist in the vicinity of Skiffes Creek and the FEDMMA, although all are located outside of the immediate project area. Existing nests and buffers are depicted in Figure 3-3.

Peregrine falcons have been observed nesting in a ship that is part of the James River Reserve Fleet (Tetra Tech, 1999). State special concern birds, northern harrier (*Circus cyaneus*) and least tern (*Sterna antillarum*), have also been documented in the vicinity of Fort Eustis during the spring breeding season.

Figure 3-3. Bald eagle nests, including nest buffers, in the vicinity of the Third Port and the FEDMMA. Map generated on August 4, 2021 using the Virginia Eagle Nest Locator (Center for Conservation Biology 2021).

The Northern long-eared bat (*Myotis septentrionalis*) is known to inhabit areas of Fort Eustis. In 2016, two males were captured in mist nets and others were identified via acoustic means (Virginia Tech Conservation Management Institute 2016). The Northern long-eared bat was federally listed effective April 2, 2015. No known roosts or hibernaculum exist in Fort Eustis. In the same 2016 survey, Indiana bats (*Myotis sodalis*) were identified via acoustic means; however, no individuals were captured. The Indiana bat was federally listed in 1967 and is typically found in western portions of Virginia and was not expected to be found on Fort Eustis at the time of the survey.

The Atlantic sturgeon (*Acipenser oxyrhynchus*) has been observed in the James River near Skiffes Creek. The Atlantic sturgeon is a federally listed endangered species and is also state listed as endangered in Virginia. In April and May of any given year, Atlantic sturgeon make spawning runs from coastal waters through the Chesapeake Bay to reach freshwater tributaries. Atlantic sturgeon have been observed spawning in the James and York Rivers (Murdy et al. 1997). Spawning occurs between the salt front and the fall line in narrow reaches of the James River. There has been no documented spawning in Skiffes Creek or the action area; there is no suitable spawning habitat in the action area. Atlantic sturgeon are bottom dwellers, feeding on benthic mollusks, insects, and crustaceans. Juvenile Atlantic sturgeon can spend several years in brackish water before moving into coastal habitats. Atlantic sturgeon critical habitat is designated in the James River. Portions of the proposed action occur in designated Atlantic sturgeon critical habitat located at the mouth of Skiffes Creek where it meets the James River.

The shortnose sturgeon (*Acipenser brevirostrum*) may be present in the action area. The shortnose sturgeon is federally- and state-listed as endangered. Only two shortnose sturgeon have been captured in the James River, of which Skiffes Creek is a tributary. Both captures occurred at river kilometer 48 (river mile 30) of the James River, approximately 29 river kilometers (12 river miles) upriver of the action area. Spawning occurs from mid to late spring at

discrete sites in northern rivers, typically at the farthest upstream reaches of the river (NMFS 2017). In Chesapeake Bay, spawning historically occurred in the Susquehanna (Litwiler 2001) and Potomac (Kynard et al. 2007) Rivers and may occur currently in the James River (Balazik pers. comm. as referenced in NOAA Fisheries 2021).

The Virginia Division of Natural Heritage (VDNH) completed a rare plant inventory of Fort Eustis in 1994. Seven wetland plant species on the VDNH Watch List (those that have between 20 and 100 occurrences known) were identified on Fort Eustis (Tetra Tech, Inc., 1999). Of the seven plant species on the VDNH Watch List, only shadow witch (*Ponthieva racemosa*), an orchid known from the Atlantic Coastal Plain, has the potential to occur within 1 mile of the Skiffes Creek Channel in wetlands in the adjacent Bailey Creek. Per the Virginia Natural Heritage Resources Database (VDCR), hazel dodder (*Cuscuta coryli*) may also be present within the Skiffes Creek watershed. Due to the nature of the project and use of existing pipeline routes on land to the FEDMMA, impacts to rare terrestrial plants are unlikely.

3.6.6.1 Candidate species

Candidate species are those organisms under consideration for federal listing in the future. Currently, the spotted turtle (*Clemmys guttata*), little brown bat (*Myotis lucifugus*), tricolored bat (*Perimyotis sublavus*), northern red-bellied cooter (*Pseudemys rubriventris*), monarch butterfly (*Danaus plexippus plexippus*), and golden-winged warbler (*Vermivora chrysoptera*) are being considered and are known to occur or may potentially occur on Fort Eustis.

3.6.7 Endangered Species Act Section 7 Consultations

3.6.7.1 FWS

An effects determination of “may affect” for the northern long-eared bat was submitted to FWS through the Information for Planning and Consultation (IPaC) system on July 14, 2021 as part of the responsibility of the action agency under the Endangered Species Act (ESA) Section 7(a)(2). The USACE determined that the action is consistent with the activities analyzed in the FWS’ Programmatic Biological Opinion, dated 5 January 2016, which addresses activities exempted from “take” prohibitions applicable to the northern long-eared bat under the ESA, as amended.

Although tree removal is not anticipated for this project, the proposed action may affect the northern long-eared bat, and any take that may occur as a result of the action is not prohibited under the ESA Section 4(d) rule adopted for this species (50 CFR 17.40(o)). A verification letter supporting this determination may be found in Appendix G of this EA.

As determinations of “may effect” and “no effect” were made for the northern long-eared bat and critical habitat, respectively, a self-certification package was submitted to the FWS Virginia Field Office on July 19, 2021. All consultation documentation may be found in Appendix G.

3.6.7.2 NMFS

An effects determination of “not likely to adversely affect” (NLAA) for Atlantic sturgeon, shortnose sturgeon, and Atlantic sturgeon critical habitat was submitted to the NMFS Protected Resources Division (PRD) under the USACE NLAA Program on July 19, 2021. NMFS concurred with the determination of NLAA listed species or critical habitat on August 10, 2021. Consultation documentation may be found in Appendix H.

3.6.8 Environmental Consequences

Alternative 1. Short-term direct minor adverse effects to aquatic wildlife would be expected. Environmental impacts would primarily result from dredging activities, permanent conversion of soft sediments to hardened riprap and subaqueous bulkhead, and noise due to pile-driving.

Dredging approximately 36,500 cubic yards of sediment (e.g., maintenance and new work dredged material) in less frequently maintained and previously undisturbed areas adjacent to the maintained channel would be expected to have only short-term minor adverse effects on essential fish habitat and aquatic resources. These effects would be due to temporary increases in turbidity as described in Section 3.4 above and the direct removal of benthic macroinvertebrates, such as worms, crabs, and mollusks in the path of the dredge. Previous studies in the upper Chesapeake Bay have demonstrated rapid recovery and resettlement by benthic biota and similar biomass and species diversity to pre-dredging conditions (Johnston 1981, Diaz 1994). Similar studies in the lower portions of Chesapeake Bay produced rapid resettlement of dredging and placement areas by infauna (Sherk 1972). McCauley et al. (1977) observed that, while infauna populations declined significantly after dredging, infauna at dredging and placement areas recovered to pre-dredging conditions within 28 and 14 days, respectively. Therefore, impacts to the benthos are expected to be minimal and temporary as benthic habitat areas and benthic organisms are expected to recover quickly.

When excessive, turbidity can reduce the penetration of light necessary for photosynthesis by phytoplankton and macrophytes, thus reducing the oxygen supply in the water column. Suspended sediments could cause adverse impacts to filter-feeding organisms, such as abrasion of gill filaments, clogging of gills, impaired respiration, impaired feeding, reduced pumping rates, slowed egg development, and reduced larval growth and survival rates. However, a study of resuspended sediment impacts on the eastern oyster (Crassostrea virginica) found that oysters exposed to 0, 100, 250, and 500 mg/L total suspended solids for 7 days showed no significant differences in survival, behavior, weight, or condition index thirty days post-exposure (Suedel et al. 2015). Similar impacts could occur to zooplankton, larval fish, and larval crabs. These impacts would not readily affect adult fish because of their mobility; however, filter-feeding fish could be affected more than non-filter-feeding fish. Dredging could also result in chemical changes in the water column like decreased dissolved oxygen concentrations due to increased oxygen demand resulting from resuspension of nutrients and sediments (Brown and Clark 1968). Turbidity and siltation could adversely affect shellfish populations in the vicinity of the action area, but only within approximately 500 feet of the cutterhead dredge. These effects are short-term, localized, and minor.

No direct adverse effects on wetlands adjacent to the project areas would be expected due to the construction of structures or dredging. A hydrodynamic study investigated the impacts of constructing the riprap mooring field structure relative to the baseline conditions was completed by the USACE's Engineer Research and Development Center (ERDC) in 2021 (Appendix C). Alternative 1 avoided impacts to nearby wetlands by decreasing erosion behind the riprap structure overall when compared to the baseline.

No direct adverse effects on terrestrial vegetation, wetlands, or wetland wildlife including globally declining amphibian populations would be expected from using the existing FEDMMA to store dredged material. Excess water in the FEDMMA would be removed through a weir and spillway system conveying clarified water from the sedimentation pond directly to the James River, leaving the hydrology of surrounding wetlands unaffected. Dredging and dike renovation activities would not affect any upland habitats or upland species either. The hydraulic dredge

pipeline from Skiffes Creek Channel to the FEDMMA would consist of both floating submerged pipeline necessary to accommodate navigation and safety and be routed around the western side of Goose Island, thereby avoiding potential adverse effects to state-owned wetlands located on Mulberry Island. Once on upland areas the hydraulic dredge pipeline would be routed to cross Harrison Road and under Bridge #5 through a maintained path in a wooded upland area to the FEDMMA. If the dredge pipeline leaks are identified during operations, the line would be immediately shut down and repaired, preventing all but incidental sedimentation effects resource areas around Fort Eustis.

Negligible direct adverse effects to terrestrial wildlife and rare, threatened, or endangered species would be expected. Skiffes Creek is an industrial area that has seen over 50 years of constant vessel traffic, engine noise, and other human disturbance from base operations. Fish and wildlife species that remain near Fort Eustis facilities are presumed to be habituated to noise and periodic disturbance from operations. No effects from dredging to nesting bald eagles would be expected. All recorded nests are located approximately 0.25 miles or more from the action area within Skiffes Creek and would not be expected to be disturbed by the action due to the level of existing activity at the Third Port and Fort Eustis. Bald eagles and many other birds raise their young in the spring. Fish species also migrate and spawn in the spring. Dredging restrictions in the James River to protect anadromous fish habitat from February 15 to June 30 of any given year would preclude activities that could disturb striped bass, Atlantic sturgeon, bald eagle, great egret, northern harrier, least tern, and other fish and birds during the spring breeding season. No effects to peregrine falcons nesting on ships parked in the James River Reserve Fleet would be expected because these ships would not move or be otherwise affected by dredging operations or construction activities.

Alternative 2. Short-term direct minor adverse effects to aquatic wildlife would be expected. Environmental impacts would primarily result from dredging activities, permanent conversion of soft sediments to hardened subaqueous bulkhead, and noise due to pile-driving. Impacts are similar to those described for Alternative 1, including that the bulkhead mooring field decreased erosion behind the structure when compared to the baseline in the same hydrodynamic study (Appendix C).

Alternative 3. Impacts to the benthos at the NODS are similar to those described for Alternative 1 and are expected to be minimal and temporary as benthic habitat areas and benthic organisms are expected to recover quickly.

No Action Alternative. Terrestrial vegetation, wetlands, wildlife, and habitat would not be disturbed under the No Action Alternative. No new effects would be expected on biological or natural resources. Accretion in mooring and berthing areas will continue to restrict operations of the existing fleet in the future.

3.7 CULTURAL RESOURCES

There are three known architectural resources within the ROI. The architectural resources are the National Register of Historic Places (NRHP)-eligible Battle of Yorktown (VDHR #099-5283), the Fort Eustis Historic District (VDHR #121-0105), and the Landship Training Facility (VDHR # 121-5341). Consultation with the State Historic Preservation Office (SHPO) was initiated on August 18, 2021 with an effects determination of “no adverse affect” on historic properties. The SHPO concurred with this determination on September 16, 2021. USACE Initiation of Tribal Consultations was approved by the installation’s Cultural Resource Manager on 2 Aug 2021. To

date, no responses or additional communications from the tribes have been received. Consultation documentation may be found in Appendix B.

Alternative 1. No adverse impacts to architectural resources located at the Third Port are expected. The Alternative 1 enhances the previously developed area of the Third Port. Alternative 1 will not entail physical destruction or alteration of any of the NRHP-eligible properties, change the character of the properties' physical features or settings, or result in the introduction of elements that diminish the integrity of the properties' significant historic features. The proposed gangway and mooring structures at the Landship require no demolition of the existing Landship. There are no known archeological sites within the proposed project areas.

Alternative 2. No adverse impacts to architectural resources located at the Third Port are expected. Impacts are similar to those described for Alternative 1. There are no known archeological sites within the proposed project areas.

Alternative 3. There are no architectural resources and no known archeological sites within the NODS; therefore, no effects would be expected.

No Action Alternative. There would be no impacts to historic architectural resources under the No Action Alternative, because there are no known architectural sites within the project area. The NRHP-potentially eligible Civil War Battle of Yorktown Battlefield would not be affected under the No Action Alternative because no construction would occur that would potentially disturb archaeological resources associated with the historic event. The Landship would not be improved. Additionally, the general's ramp would not be improved to prevent or slow sediment accretion. Therefore, there would be no impacts to archaeological resources.

3.8 EARTH RESOURCES

3.8.1 Geology

Fort Eustis lies on the Princess Anne terrace formation, a Pleistocene-aged (10,000 to 1.6 million years old) formation. Below the terrace lie approximately 2,000 feet of unconsolidated Cretaceous (66 to 144 million years old) and Tertiary (28 to 66 million years old) period sediments separated by an unconformity above the granite basement rock. These deposits, composed on clay, silt, sand, and gravel with variable amounts of shell material, thicken and drop eastward toward the Atlantic Ocean. Virginia is seismically active, but earthquakes are rarely strong. Since records have been kept, no earthquakes have been centered on the Fort Eustis area. Fort Eustis is in Earthquake Hazard Zone 2, indicating a moderate probability for damage should an earthquake occur.

3.8.2 Soils

Sediment within the Skiffes Creek Improvements project area consists of maintenance and new work material. Future maintenance events will remove previously disturbed material. FEDMMA is the preferred placement site for all dredged materials produced from the project and its maintenance. If the FEDMMA reaches its capacity, the new work or maintenance material may be placed at the NODS. To ensure that dredged material is suitable for placement at the NODS, sediment and site water samples within the project footprint will be tested per the guidance in the Ocean Testing Manual (ESEPA/USACE 1991). Prior testing conducted in 2014 indicated that sediments were suitable for placement at NODS.

3.8.3 Bathymetry

The Skiffes Creek Improvements project area is located within the Atlantic Coastal Plain Physiographic Province. The site itself is subtidal and mostly flat with water depth varying from -1 feet to -24 feet MLLW. Roads, buildings, bridges, and other common urban features are found in the surrounding area.

3.8.4 Environmental Consequences

Alternative 1.

Geology – Permanent, but minor impacts to the Princess Anne terrace formation may occur as a result of new work dredging. The majority of the sediments in lower river systems are recently deposited alluvial sediments. Therefore, most, if not all, of the material proposed to be removed from outside of the maintained channel is not part of the terrace formation but is material deposited by river flow from upstream areas or from erosion of nearby landforms. Material from previously maintained areas is considered to be recently deposited alluvial sediment. The areas proposed for new work dredging are also areas of shoaling, further indicating that alluvial sediments are accumulating rapidly outside of the currently maintained channel framework.

Soils – Long-term impacts, typical of dredging projects, would be expected from Alternative 1. The areas proposed for maintenance and new work dredging are areas of accretion, indicating that alluvial sediments are accumulating rapidly outside of the currently maintained channel framework. Short-term impacts to river sediments are thus expected and minor, long-term impacts to the sedimentation rates in Skiffes Creek would occur. Approximately 36,500 cubic yards of material would be dredged from the project's dredging footprint to achieve maximum allowable depths in the initial cycle. For each subsequent maintenance cycle, approximately 25,000 cubic yards of material would be dredged from the project's footprint. Material would be placed upland at the FEDMMA.

Bathymetry – The intent of Alternative 1 is to remove sediment in the project footprint to increase the depth of areas between the toe of the channel and the mooring field to -11 feet MLLW (-14 feet MLLW including paid and non-paid overdepths) and the finger piers to a depth of -17 feet MLLW (-18 feet MLLW including overdepth). The result of this action would create permanent, long-term impacts to the current bathymetry of Skiffes Creek, which ranges from approximately -1 to -24 feet MLLW. A project-specific hydrodynamic model was used to evaluate the potential impacts of this change. The results of the model indicate that the proposed riprap structure would act as a partial sediment barrier and reduce sediment accretion in one of three studied areas channelward of the structure where dredging would occur. Alternative 1 showed increased accretion in the two more upriver channelward areas compared to the baseline, and reduced erosion in areas behind the structure along the shoreline where there are wetlands. However, the most western shoreline area studied, located west of the structure at the mouth of Skiffes Creek along the James River, showed a small decrease in accretion, because reduced current speeds and erosion behind the mooring structure reduced the amount of material moving to the western shoreline. As a result, the changes to the river bottom from the proposed structures and dredging would not result in significant adverse impacts to the hydrodynamics in Skiffes Creek. The placement of dredged material at the FEDMMA would result in a minor, direct impact on the topographic elevation of the surface of the placement area. At FEDMMA, the dredging contractor must comply with applicable regulations, permits, and USACE contract requirements for deposition of material to reduce impacts to adjacent surface waters. A long-term cumulative impact to the storage capacity at

FEDMMA would result from the receipt of dredged material from the proposed project in combination with other past, present, and reasonably-foreseeable future actions, but this would not be adverse or significant because FEDMMA is projected to have adequate capacity for several maintenance cycles. Dikes at FEDMMA would be maintained and/or raised as needed to retain adequate capacity for future maintenance cycles until the dikes reach the maximum height as described in the "Final Environmental Assessment for the Maintenance Dredging of the Skiffes Creek Channel and MARAD Facility Access Channel".

Alternative 2.

Geology – Permanent, but minor impacts to the Princess Anne terrace formation may occur as a result of new work dredging, similar to those described for Alternative 1.

Soils – Long-term impacts, typical of dredging projects, would be expected from the Action Alternative, similar to those described for Alternative 1.

Bathymetry – Permanent, long-term impacts to the current bathymetry, which ranges from approximately -1 to -24 feet MLLW, are anticipated as described for Alternative 1. Impacts from dredging relatively small volumes from relatively small areas adjacent to the maintained channel are not expected to have a significant impact on water elevation, current velocity, salinity, or sediment potential in Skiffes Creek. A project-specific hydrodynamic model was used to evaluate the potential impacts of the proposed structures at the mooring field as described by the Action Alternatives on sediment erosion and accretion in Skiffes Creek. The results of the model indicate that the proposed bulkhead structure would act as a sediment barrier and reduce sediment accretion in all studied areas channelward of the structure where dredging will also occur. Alternative 2 reduced erosion relative to the baseline in areas behind the structure along the shoreline where there are wetlands. However, the most western shoreline area studied, located at the mouth of Skiffes Creek along the James River, showed a small decrease in accretion due to reduced current speeds behind the structures, similar to that observed for Alternative 1. As a result, the changes to the river bottom from the proposed structures and dredging would not result in significant adverse impacts to the hydrodynamics in Skiffes Creek.

Alternative 3.

Geology – No additional impacts beyond those described for Alternative 1 would be anticipated under Alternative 3.

Soils – If suitable, dredged material from the project site would be transported to the NODS for ocean disposal. No additional impacts to soils beyond those described for Alternative 1 would be expected.

Bathymetry – Impacts to bathymetry would be similar to those presented for Alternatives 1 and 2. The placement of dredged material at the NODS would result in a minor, direct impact on the topographic elevation of the surface of the placement area. The NODS has abundant capacity to accept all dredged material from the actions proposed by either Alternative 1 or 2 and all foreseeable maintenance events once FEDMMA capacity has reached the end of its practicable service life.

No Action Alternative.

Geology – Under the No Action Alternative, neither the Proposed Action nor Action Alternatives would occur; therefore, there would be no impacts to the site's underlying geology.

Soils – Under the No Action Alternative, neither the Proposed Action nor Action Alternatives would occur; therefore, there would be no impacts to the site's soils.

Bathymetry – Under the No Action Alternative, neither the Proposed Action nor Action Alternatives would occur. There would be no impacts to the site's bathymetry; therefore, ongoing sediment accretion would continue to occur in areas used by vessels for mooring and berthing that are outside of the currently authorized and maintained channel, resulting in an increased potential for negative impacts to human health and safety.

3.9 SOLID WASTE

Landfills are engineered cells designed to contain municipal solid wastes and collect liquid or leachate that may have percolated through solid waste. Sanitary landfills and treatment facilities have finite capacities that are generally intended for the disposal of municipal waste streams or more highly contaminated materials that are not suitable for other disposal alternatives. There are three permitted landfills or treatment facilities located within the region that may be considered for solid waste disposal. These landfills are Big Bethel, Charles City, and Clearfield MMG, Inc. Big Bethel landfill is located in the City of Hampton and, as of 2019, has a capacity of approximately 22.2 million tons and an estimated 74 years of capacity remaining (VADEQ 2020). Charles City landfill is located in Charles City County and, as of 2020, has a capacity of approximately 12 million tons with an estimated 33 years of capacity remaining (VADEQ 2021a). Clearfield MMC, Inc. treatment facilities are located in the City of Chesapeake and the City of Suffolk. The regional landfill and treatment facilities do not have direct access to navigable waterways and would require truck haul operations to transfer materials to a designated facility. Other permitted facilities may be considered for disposal as future considerations warrant.

Alternative 1. Approximately 3,540 tons of solid waste is expected to be generated by Alternative 1 including an estimated 1,415 tons of concrete pavement, 1,220 tons of subbase and soils, 860 tons of timber piles, and 45 tons of additional pier materials. Debris created from the removal of existing structures, including timber piles, decking, and other debris, would be removed from the work area via barge and placed in containers on land. The debris would then be trucked to a nearby permitted landfill or other appropriate disposal facility in accordance with all local, state, and federal laws. Solid waste will be in alignment with materials accepted by the chosen facility and the Resource Conservation and Recovery Act.

Alternative 2. The estimated quantity of solid waste generated by Alternative 2 is expected to be the same as Alternative 1. Debris created from the removal of existing structures, including timber piles, decking, and other debris, would be removed from the work area via barge and placed in containers on land. The debris would then be trucked to a nearby permitted landfill or other appropriate disposal facility in accordance with all local, state, and federal laws. Solid waste will be in alignment with materials accepted by the chosen facility and the Resource Conservation and Recovery Act.

Alternative 3. Dredged materials would be placed within the FEDMMA and would not affect solid waste disposal at the site; the FEDMMA only accepts dredged material regulated under Section 404 of the Clean Water Act. Only acceptable dredged material would be placed at the NODS under Section 103 of the MPRSA. Alternative upland placement would be considered appropriate for any future dredged material that is identified as environmentally unsuitable for upland placement at the FEDMMA or placement at the NODS under CWA or MPRSA

regulations and may require disposal as solid waste. It is not anticipated that dredged material would be required to be disposed of as solid waste due to the history of sediment testing within Skiffes Creek Channel.

No Action Alternative. The No Action Alternative at JBLE-Eustis would continue generating the existing level of solid waste annually. No additional solid waste from the improvements would be generated.

3.10 OTHER NEPA CONSIDERATIONS

3.10.1 Unavoidable Adverse Effects

This EA identifies any unavoidable adverse impacts that would be required to implement the Proposed Action and Action Alternatives and the significance of the potential impacts to resources and issues. Title 40 of the *CFR* §1501.3(b) specifies that a determination of significance requires consideration of the potentially affected environment and degree. Improvements to the Third Port, including new work dredging, pile driving, and dredged material placement would impact the local project area at JBLE-Eustis. The severity of potential impacts would be limited by regulatory compliance for the protection of the human and natural environment.

Unavoidable short-term adverse impacts associated with implementing the Proposed Action or Action Alternatives would include temporary increases in noise due to dredging, dredged material placement, and pile-driving, minor decreases in air quality due to construction activities, temporary decreases in water quality due to increased sediment suspension from active dredging, and temporary impacts to aquatic wildlife. However, these effects are considered minor and would be confined to the immediate construction area and dredge plume. Use of environmental controls and implementing controls required in permits and approvals obtained would minimize these potential impacts. Unavoidable long-term adverse impacts include permanent changes to soils and bathymetry due to dredging. No significant negative impacts to wetlands are expected due to the construction of either Action Alternative at the mooring field. Both Alternative 1 (riprap sill) and Alternative 2 (bulkhead sill) reduce erosion along two vegetated shoreline areas behind the mooring field assessed by the hydrodynamic model.

For the Proposed Action or Action Alternatives to be accomplished, these impacts would occur. The action is required to prepare JBLE-Eustis for a newly assigned vessel class, to maintain safe and reliable access to the waterway, and to aid in training for cargo logistics and vessel operations. No other alternatives would provide the engineering solution to meet the safety standards for this unique mission of national security.

3.10.2 Relationship of Short-Term Uses and Long-Term Productivity

The relationship between short-term uses and enhancement of long-term productivity from implementation of the Proposed Action or Action Alternatives is evaluated from the standpoint of short-term effects and long-term effects. Short-term effects would be those associated with construction activities, including pile-driving and dredging, to improve the Third Port. The long-term enhancement of productivity would be those effects associated with operation and maintenance of the Third Port and Skiffes Creek Channel after implementation of the Proposed Action or Action Alternatives.

The Proposed Action and Action Alternatives represent an enhancement of long-term productivity for training operations at JBLE-Eustis. The negative effects of short-term operational changes during construction activities would be minor compared to the positive benefits from the proposed improvements. Immediate and long-term benefits would be realized for operation and maintenance after completion of the Proposed Action or Action Alternatives.

3.10.3 Irreversible and Irretrievable Commitments of Resources

This EA identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action or Action Alternatives, if implemented. An irreversible effect results from the use or destruction of resources (e.g., energy) that cannot be replaced within a reasonable time. An irretrievable effect results from loss of resources (e.g., endangered species) that cannot be restored as a result of the Proposed Action or Action Alternatives. For the Proposed Action and Action Alternatives, resource commitments would neither be irreversible or irretrievable. Consultations with applicable agencies have either concluded or are being concluded and necessary permits will be obtained; as such, there will be no irreversible or irretrievable commitment of resources prior to incorporation of pertinent requirements into contract plans and specifications for solicitation and contract award or commencement of construction activities.

3.11 CONCURRENT ACTIONS AND EFFECTS

This EA also considers the effects or impacts as required in 40 CFR 1508.1(g) and concurrent actions as required in 40 CFR 1508.25[1]. Effects or impacts, as defined by the CEQ (40 CFR 1508.1(g)) “means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives.”

Actions announced for the ROI for this project that could occur during the same time period as the proposed action are:

- Regular maintenance dredging cycles of Skiffes Creek Channel of up to 1 million cubic yards of dredged material and maintenance of the FEDMMA.
- Replacement of the bulkhead supporting the finger piers that is nearing the end of its serviceable life (NAO-2020-7843).

For this EA analysis, these announced actions are addressed from a cumulative perspective and are analyzed in this section. These actions are evaluated under separate NEPA actions or other appropriate environmental permitting. Based on the best available information for these proposals by others, the AF cumulative impact analysis does consider them.

Descriptions of the concurrent actions and effects for the resource areas follow:

Noise

Alternative 1. Temporary, minor, and local increases to noise in the vicinity of pile driving would be expected. People residing in two single-family housing units located within 800 feet of Skiffes Creek Chanel would be potential noise receptors during concurrent actions. People working at

the Third Port facility and the golf course (located approximately 500 feet from the FEDMMA) would also be potential noise receptors. Noise impacts related to maintenance dredging, dredge material placement, and pile driving associated with replacement of the bulkhead supporting the finger piers are expected to be similar to those described in Section 3.2 and are hereby incorporated by reference.

Alternative 2. Temporary, minor, and local increases to noise production during dredging, dredged material placement, and pile driving activities similar to that caused by Alternative 1.

Alternative 3. No cumulative effects would be expected.

No Action Alternative. No cumulative effects would be expected.

Air Quality

Alternative 1. No cumulative effects would be expected.

Alternative 2. No cumulative effects would be expected.

Alternative 3. No cumulative effects would be expected.

No Action Alternative. No cumulative effects would be expected.

Water Resources

Alternative 1. Minor increases to suspended sediment concentrations would be expected in the localized area as a result of the actions occurring concurrently or in series. In the event of actions occurring in series, minor impacts may occur over a prolonged period relative to the individual project timelines. The surface waters of Skiffes Creek and the James River would be expected to have increased concentrations of suspended solids during concurrent or subsequent activities. Water resource impacts related to maintenance dredging, dredge material placement, and pile driving associated with replacement of the bulkhead supporting the finger piers are expected to be similar to those described in Section 3.4 and are hereby incorporated by reference.

Alternative 2. Minor increases to suspended sediment concentrations would be expected in the localized area as a result of the actions occurring concurrently or in series. In the event of actions occurring in series, minor impacts may occur over a prolonged period relative to the individual project timelines. The surface waters of Skiffes Creek and the James River would be expected to have increased concentrations of suspended solids during concurrent or subsequent activities. Water resource impacts related to maintenance dredging, dredge material placement, and pile driving associated with replacement of the bulkhead supporting the finger piers are expected to be similar to those described in Section 3.4 and are hereby incorporated by reference.

Alternative 3. Minor increases to suspended sediment concentrations would be expected in the localized area as a result of the actions occurring concurrently or in series. In the event of actions occurring in series, minor impacts may occur over a prolonged period relative to the individual project timelines. Water resource impacts related to maintenance dredging, dredge material placement, and pile driving associated with replacement of the bulkhead supporting the

finger piers are expected to be similar to those described in Section 3.4 and are hereby incorporated by reference.

No Action Alternative. No cumulative effects would be expected.

Safety and Occupational Health

Alternative 1. No cumulative effects would be expected.

Alternative 2. No cumulative effects would be expected.

Alternative 3. No cumulative effects would be expected.

No Action Alternative. No cumulative effects would be expected.

Biological / Natural Resources

Alternative 1. Temporary and minor cumulative effects to aquatic resources would result from removing approximately 1 million cubic yards of sediment from the project area and the authorized Skiffes Creek Channel for maintenance. Temporary and minor impacts to fish species due to noise in the vicinity of pile driving would be expected.

Alternative 2. Temporary and minor cumulative effects to aquatic resources would result from removing approximately 1 million cubic yards of sediment from the project area and Skiffes Creek Channel for maintenance. Temporary and minor impacts to fish species due to noise in the vicinity of pile driving would be expected.

Alternative 3. Temporary and minor cumulative effects to aquatic resources at the NODS would result from the placement of approximately 1 million cubic yards of sediment dredged from the project area and Skiffes Creek Channel maintenance.

No Action Alternative. No cumulative effects would be expected.

Cultural Resources Impacts

Alternative 1. No cumulative effects would be expected.

Alternative 2. No cumulative effects would be expected.

Alternative 3. No cumulative effects would be expected.

No Action Alternative. No cumulative effects would be expected.

Earth Resources

Alternative 1. No cumulative effects would be expected.

Alternative 2. No cumulative effects would be expected.

Alternative 3. No cumulative effects would be expected.

No Action Alternative. No cumulative effects would be expected.

4.0 LIST OF PREPARERS

This EA has been prepared under the direction of Air Force 733d CES, JBLE-Eustis, by the USACE Norfolk District.

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5.0 PERSONS AND AGENCIES CONSULTED/COORDINATED

The following Persons and Agencies were contacted in the preparation of this EA

Table 5-1. Persons and Agencies Consulted/Coordinated

Federal Agencies	
U.S. Fish and Wildlife Service Virginia Field Office 6669 Short Ln Gloucester, VA 23061	Mr. Mark Murray-Brown Protected Resources Division National Marine Fisheries Service – Northeast Regional Office 55 Great Republic Dr Gloucester, MA 01930-2276
Mr. David O'Brien Habitat and Ecosystem Services Division National Marine Fisheries Service – Virginia Field Office 1370 Greate Rd Gloucester Point, VA 23062	
State Agencies	
Ms. Samantha Henderson Virginia Department of Historic Resources 2801 Kensington Avenue Richmond, VA 23221	Ms. Janine Howard EIR Program Manager Office of Environmental Impact Review Virginia Department of Environmental Quality P.O. Box 1105 Richmond, VA 23218
Local Agencies	
Other Stakeholders	
Tribal Agencies	
First Assistant Chief Wayne Adkins Chickahominy Indian Tribe 8200 Lott Cary Road Providence Forge, VA 23140	Mr. Dana Adkins Tribal Environmental Director Chickahominy Indian Tribe 8200 Lott Cary Road Providence Forge, VA 23140

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Reggie Tupponce Tribal Administrator Upper Mattaponi Tribe 5932 East River Road King William, VA 23086	Leigh Mitchell Natural Resources and Environmental Protection Coordinator 13476 King William Road King William, Virginia 23086
Caitlin Rogers Catawba Indian Nation Tribal Historic Preservation Office 1536 Tom Steven Road Rock Hill, SC 29730	Dr. Wenonah G. Haire Catawba Indian Nation THPO and Director 1536 Tom Steven Road Rock Hill, SC 29730

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