

ENVIRONMENTAL ASSESSMENT

*Environmental Assessment
Appendices*

*Fort Norfolk Pier Rehabilitation and Expansion Project
USACE, Norfolk District, Fort Norfolk, Virginia*

APPENDIX D

Federal Consistency Determination, Clean Air Act General
Conformity Rule Record of Non-Applicability, and Clean
Water Act Section 404(b)(1)



Reply to
Attention of

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

August 31, 2022

Ms. Bettina Rayfield
EIR Program Manager
Office of Environmental Impact Review
P.O. Box 1105
Richmond, VA 23218

Dear Ms. Rayfield:

I have enclosed the Norfolk District, U.S. Army Corps of Engineers (USACE) Coastal Zone Management Act, Federal Consistency Determination (FCD) for the Fort Norfolk Pier Rehabilitation and Improvements Project, located at Fort Norfolk, in Norfolk, Virginia. The scope of the project includes improvements to the existing Fort Norfolk pier to allow for the safe mooring of three 65-foot vessels and to protect the mooring location from wave action and severe storm events.

The Norfolk District has determined that the proposed Federal agency action has reasonably foreseeable effects on Virginia's coastal uses and resources. The USACE is requesting concurrence from the Virginia Department of Environmental Quality through the enclosed Coastal Zone Management Act FCD that the proposed Federal agency action is consistent to the maximum extent practicable with the enforceable policies of Virginia's Coastal Resource Management Program.

To assist in the evaluation of the project, please submit any comments you may have by October 31, 2022. Please e-mail all comments to Mrs. Shannon Reinheimer at shannon.j.reinheimer@usace.army.mil. Should you have any questions or require further information on this submittal, please contact Shannon Reinheimer via email or 757-201-7074. Thank you for your assistance.

Sincerely,

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Lesley Dobbins-Noble
Chief, Operations Branch

Enclosures

Coastal Zone Management Act (CZMA) Federal Consistency Determination (FCD)
USACE – Norfolk District, Fort Norfolk Pier Rehabilitation
Project Located in Norfolk, Virginia
August 2022

The U.S. Army Corps of Engineers (USACE) provides the Commonwealth of Virginia with this USACE, Norfolk District’s Federal Consistency Determination (FCD) under CZMA section 307(c)(1) and 15 CFR Part 930, sub-part C, for the Fort Norfolk Pier Rehabilitation and Expansion Project in Norfolk, Virginia. This FCD is being submitted for coordination and concurrence to the Virginia Department of Environmental Quality (DEQ).

Proposed Federal Agency Activity

The proposed Federal action is to rehabilitate the existing pier at Fort Norfolk. Fort Norfolk is the Norfolk District Headquarters¹ located at 803 Front Street, Norfolk, VA 23510. The primary goal of the project is to modify the existing pier to allow for the safe mooring of three (3) 65 feet (ft) vessels at Fort Norfolk and protect the mooring location from wave action and severe storm events. Please see the project location below in Figure 1.

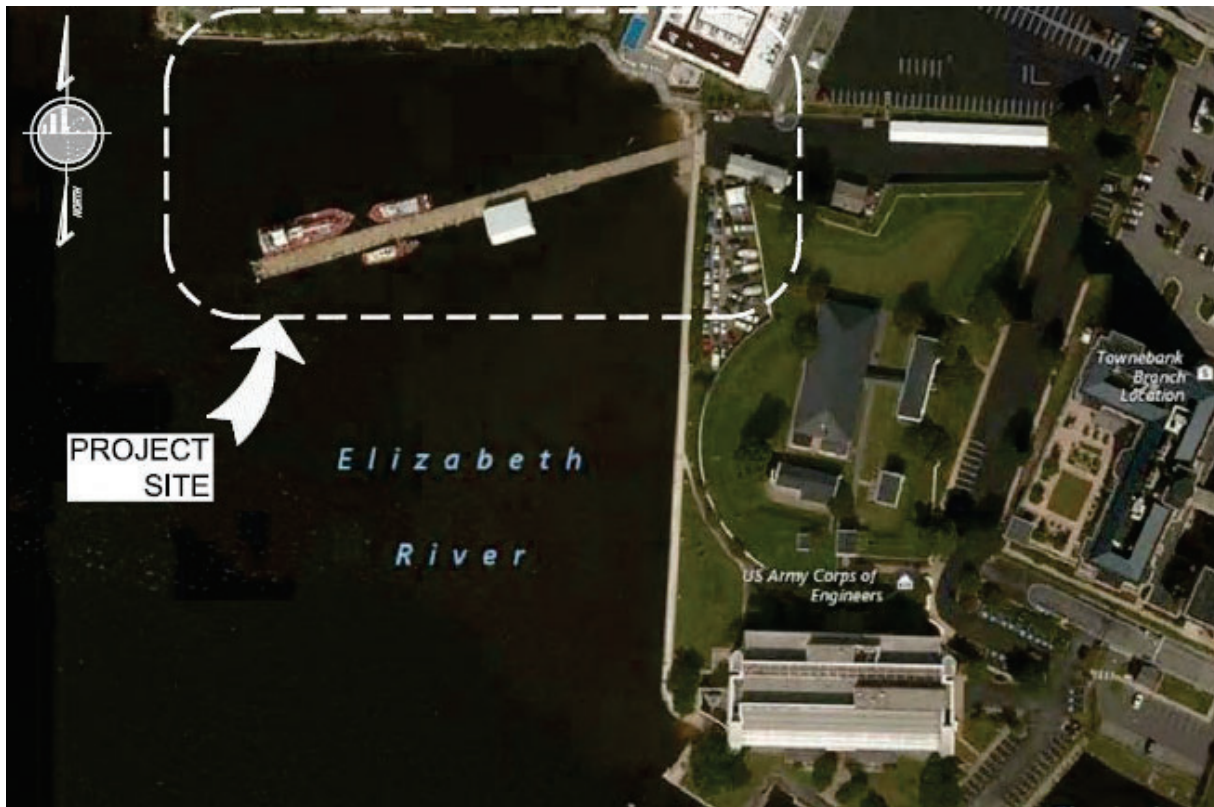


Figure 1. Fort Norfolk Pier Project Site

¹ Please note that USACE, Norfolk District Headquarters at Fort Norfolk is referred to as “NAO” in the project drawings.

Background

The existing pier, located at the northwest edge of Fort Norfolk, is comprised of 20 ft long by 3.5 ft wide by 1.25 ft deep precast prestressed concrete planks atop 16 ft long by 2.5 ft wide by 2.33 ft deep precast concrete pile caps which bear upon 16 inch (in) by 16 in precast prestressed concrete piles. There is a 4 in cast in place concrete deck (topping) atop the concrete planks that slopes from the centerline of the pier to its edges where it is 3 in thick. A cast in place edge beam exists along the northern and southern ends of the pier with a timber fender system. The pier is approximately 466 ft in length by 16 ft wide. Atop the pier, located on the southern face, is an operations building. The footprint of the operations building is approximately 44 ft by 32 ft. Cleats and bollards exist on the north and south edges of the pier. The existing pier is not an adequate mooring location for District vessels in moderate to severe weather situations in conjunction with simultaneous high tides. During these storm events with the current state of the pier, the vessels are relocated to other facilities for the duration of the storm event. As a result, the vessels may not be able to access the port for multiple days before or after a storm event, preventing the USACE from performing mission critical port and channel surveys required for maintaining navigable waterways and surveys for reopening of the port after significant storm events.

Scope of Work

The north side of pier will be developed with a floating mooring system to allow for minimal adjustments of mooring lines during tidal fluctuations. A "main" floating dock with two finger floating docks (three slips) will be installed (Figure 2). The freeboard of the docks will be 30 in (maximum for stability). The existing pier will be modified for new utilities as well as raised to accommodate for rising tide levels and a new gangway.

The proposed main floating dock and two (2) proposed floating dock fingers (three slips) will be accessed by a small 8 ft x 16 ft platform and a 6 ft x 60 ft aluminum gangway. The main floating dock is 30 ft wide and 60 ft long. The two finger floating docks are 20 ft wide and 80 ft and 240 ft long, respectively. The main floating dock and finger floating docks will be made of concrete. Twenty-two (22) new 30-inch-diameter hollow steel pipe piles will be installed to anchor the floating docks. Four (4) new 30-inch-diameter hollow steel pipe monopiles with donut fenders attached will be installed on the waterward side of two of the slips to protect the vessels and aid in mooring. The platform will be supported by four (4) 18-inch-diameter hollow steel pipe or timber piles.

A steel breakwater wave screen will be installed to the west and perpendicular of the pier to protect the dock system from wave action. The wave screen will consist of two legs, joined at approximately a 120-degree angle. The shorter of the two legs will be 90 ft long and the longer of the two will be 220 ft long. Twenty-one (21) 30-inch-diameter steel pipe piles will support the screen. There will be an opening at the bottom of the screen of at least 3 ft.

A new 335 linear feet (LF) long timber wave fence will be installed on the south side of the existing timber fender. On the southwest corner of the pier, the wave screen will be extended another 45 LF using three (3) 30-inch-diameter steel pipe piles to support the screen. The wave fence will have a 3 ft-high opening at the bottom. There will be two steel monopiles with floating donut fenders, one at the west end of the 45 LF of new wave screen and the other at the south end of the short 90 LF segment of the larger wave screen. These monopiles will be separated by approximately 53 ft-4 in to create the opening of the basin.

The existing pier deck will be raised by the addition of new steel beams to protect the deck from flooding. The new deck elevation will be approximately 2 ft higher than the current elevation. A new ramp will be installed to access the raised deck. Pier raising will be done by building a secondary deck atop the existing pier. Wide flange steel beams will be used to increase the height and a fiberglass grating will be used for the new deck surface. New concrete edge beams will be poured atop the perimeter of the pier and will include scuppers to handle drainage. All concrete pouring will take place above the water on the existing structure. None of the existing pilings have been treated with creosote.

A sanitary pump out station will be added and connected to an existing sanitary pipeline, that runs adjacent to and supported by the pier, to the shore sanitary lift station. The sanitary pump will be the KECO Model 900D Peristaltic "Dockside Pumping System" or similar equivalent. The pump can operate at approximately 30+ gallons per minute and will be equipped with leak detection and an automatic shutdown. It will be housed in a fiberglass enclosure that measures up to 40 in x 40 in x 45 in.

Additionally, on the south side of the pier, a new boat lift for a Boston whaler vessel is proposed. The lift will be supported by four (4) 12-inch-diameter timber piles.

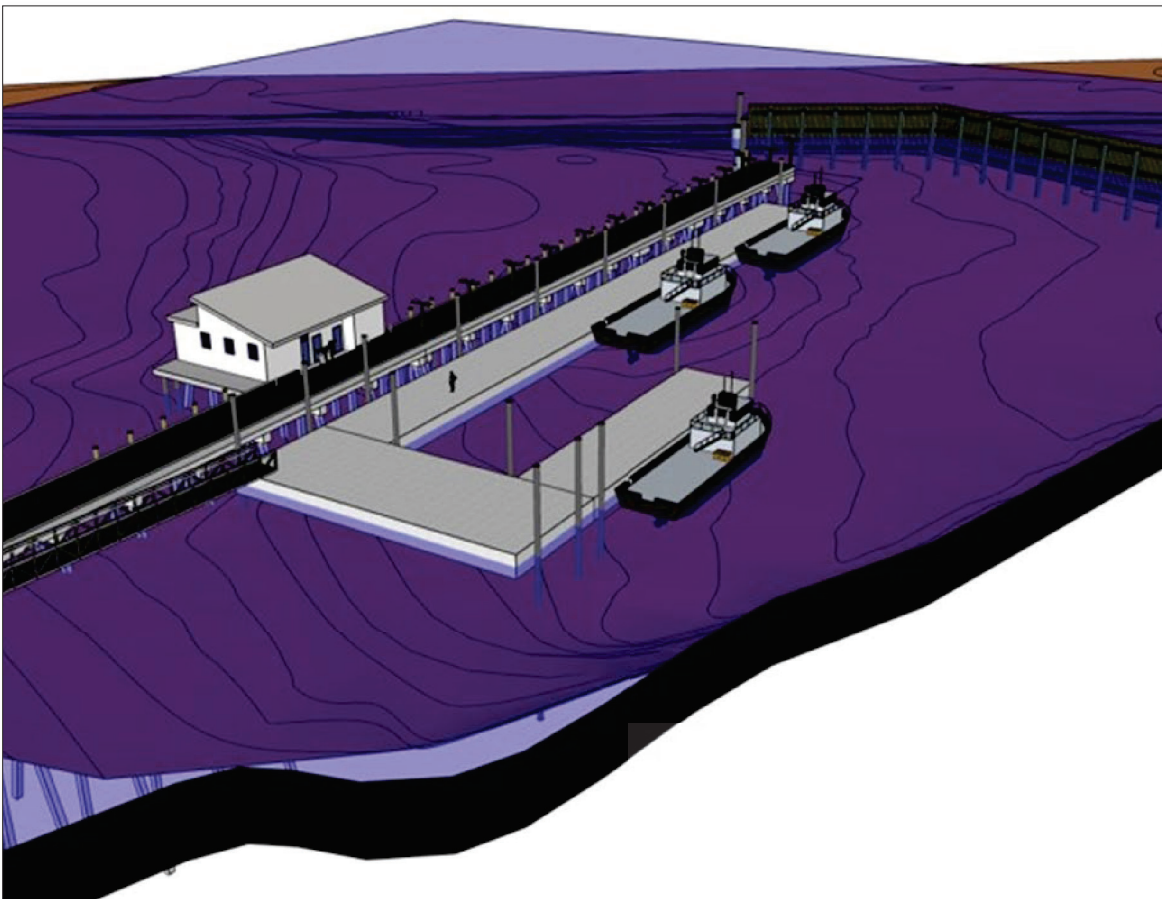


Figure 2. Rendering of the proposed pier improvements including structural improvements, expansion, and wave screen.

Enforceable Policies

The Virginia Coastal Resources Management Program (VCP) contains the below enforceable policies (A-L).

A. Tidal and Non-Tidal Wetlands

It is the policy of the Commonwealth to preserve the tidal wetlands, to prevent their despoliation and destruction, and to accommodate necessary economic development in a manner consistent with wetlands preservation. Furthermore, it is the Commonwealth's policy that non-tidal surface waters, including wetlands and streams, shall be protected. Impacts to wetlands and streams shall be avoided or minimized to the maximum extent practicable. Tidal wetlands are administered by the Virginia Marine Resources Commission (VMRC) under the authority of the Tidal Wetlands Act of 1972 (Virginia Code § 28.2-1301 and -1308; 4 VAC § 20-390-20). Tidal and nontidal wetlands are administered by the DEQ through the Virginia Water Protection Permit program and includes Water Quality Certification pursuant to Section 401 of the CWA (Virginia Code §§ 32.1-44.15:20 and §§ 62.1-44.15:21; and 9 VAC §§ 25-210-10, -210-45, 210-80, 260-10, -380, and -390).

The USFWS National Wetlands Inventory (NWI) mapper has not identified any tidal or non-tidal wetlands in the channel on or near the project site. The closest wetlands identified are estuarine and marine wetlands located approximately 0.75 miles across the river (Figure 3). There would be no direct or indirect impacts to jurisdictional wetlands with implementation of this project.

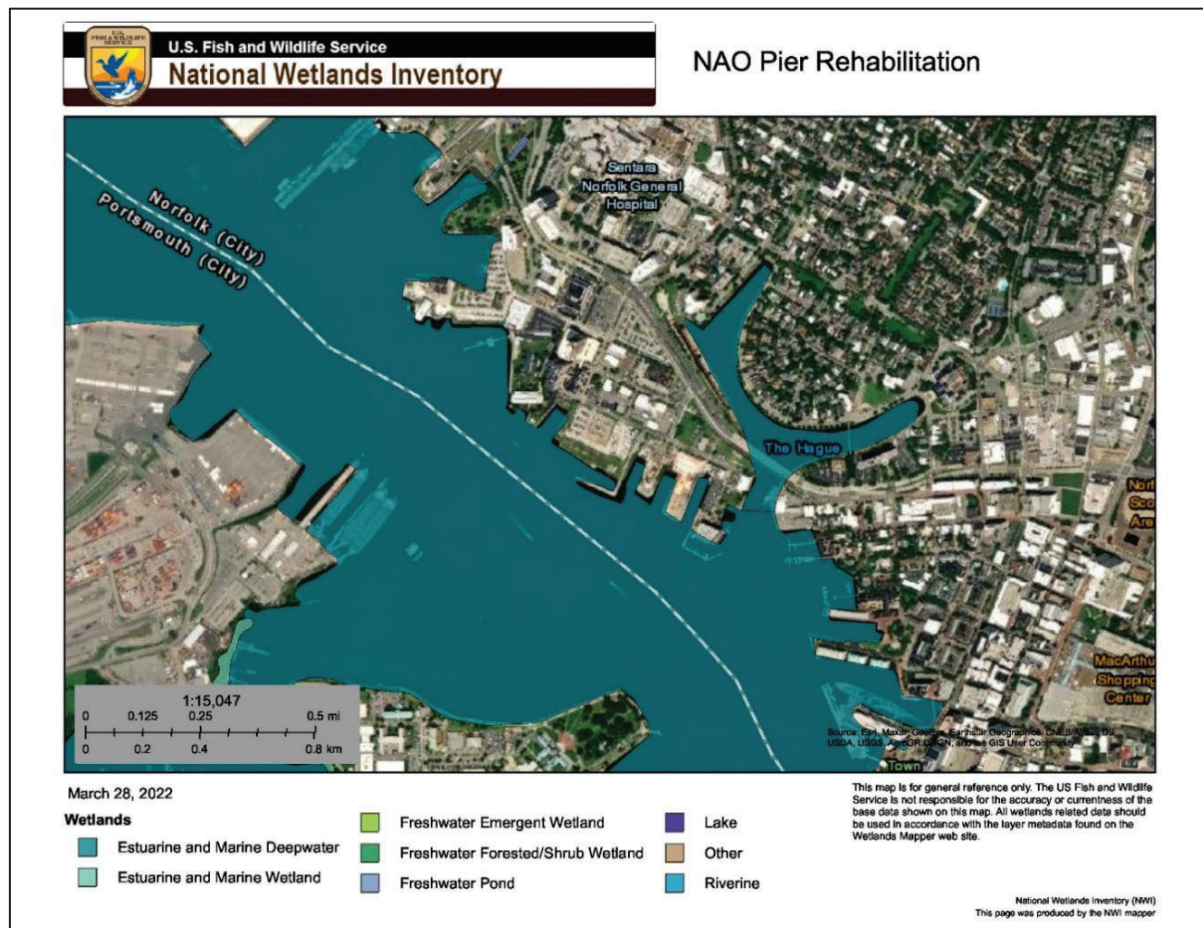


Figure 3. National Wetlands Inventory (NWI) map of wetlands in or adjacent to the project site.

B. Subaqueous Lands

All decisions affecting subaqueous lands shall be guided by the Commonwealth's General Policy to conserve, develop, and utilize its natural resources, its public lands, and its historical sites and buildings and to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth. The General Assembly has authorized VMRC to grant or deny any use of state-owned bottomlands, including dredging, aquaculture, the taking and use of material from the bottomland, and the placement of wharves, bulkheads, and fill. (Virginia Code §§ 28.2-1200, -1203, -1204 and -1205).

The proposed action will be constructed on Federally-owned subaqueous lands. Impacts to water quality will be minor and temporary, consisting of localized increases in turbidity due to pile driving and construction activities. Additionally, the Virginia Institute of Marine Science (VIMS) submerged aquatic vegetation (SAV) data mapper has not identified SAV in the channel, within the project area, or near the project area (Figure 4).



Figure 4. Submerged aquatic vegetation (SAV) in the vicinity of the project area per the Virginia Institute of Marine Science (VIMS) annual SAV survey.

C. Dunes and Beaches

Dune and beach protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended to prevent despoliation and destruction of coastal primary sand dunes and beaches. This program is administered by the Marine Resources Commission (Virginia Code §§ 28.2-1401 and -1408).

There are no coastal primary sand dunes or beaches located in the project area; therefore, no impacts are anticipated.

D. Chesapeake Bay Preservation Areas

It is the policy of the Commonwealth to protect and improve the water quality of the Chesapeake Bay, its tributaries, and other state waters by minimizing the effect of human activity upon these waters. To that end, the Commonwealth will ensure that land use and development performance criteria and standards are implemented in Chesapeake Bay

Preservation Areas, which if improperly used or developed may result in substantial damage to the water quality of the Chesapeake Bay and its tributaries. This program is administered by DEQ and 84 Bay Act localities through the Chesapeake Bay Preservation Act (Virginia Code §§ 28.2-104.1, 62.1-44.15:24, -44.15:51, -44.15:67, -44.15:68, -44.15:69, -44.15:73, -44.15:74, and -44.15:78) and Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC §§ 25-830-30, -40, -80, -90, -100, -120, -130, -140, and -150).

Chesapeake Bay Preservation Areas (CBPAs) are made up of Resource Protection Areas (RPAs), Resource Management Areas (RMAs) and Intensely Developed Areas (IDAs). These areas are all classifications of land use and do not cover in-water areas. Additionally, these classifications do not apply to federal property. All proposed activities are in-water areas on federal property. The proposed project does not involve land development. There are no Resource Protection Areas located within the project area. Therefore, no impacts to Chesapeake Bay Preservation Areas are anticipated.

E. Marine Fisheries

It is the policy of the Commonwealth to conserve and promote the seafood and marine resources of the Commonwealth, including fish, shellfish and marine organisms, and manage the fisheries to maximize food production and recreational opportunities within the Commonwealth's territorial waters. This program is administered by the VMRC (Virginia Code §28.2-101, -201, -203, -203.1, -255, -551, -600, -601, -603, -618, and -1103 and the Constitution of Virginia, Article XI, Section 3).

The proposed project may result in minor, adverse impacts on fishery resources through localized negative effects on water quality which may include decreases in Dissolved Oxygen, increased turbidity, and Total Suspended Solids in the water column. Potential impacts to fisheries management will include temporary disturbance to feeding and localized movement patterns for species that may be within the project area. However, these impacts would be minor and temporary. No oyster leases or public clamming grounds are located in the vicinity according to VMRC's Chesapeake Bay Map.

The Magnuson-Stevens Fishery Conservation and Management Act (16 United States Code 1801 et seq.) established a management system for marine fisheries resources in the United States. Congress charged National Oceanic and Atmospheric Administration (NOAA) Fisheries and fishery management councils, along with other Federal and State/Commonwealth agencies and the fishing community, to identify habitats essential to managed species, which include marine, estuarine, and anadromous finfish, mollusks, and crustaceans. These habitats, referred to as Essential Fish Habitat (EFH), include "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." An EFH consultation document for the Fort Norfolk Pier Rehabilitation and Improvements Project was submitted to NOAA Fisheries in January 2022. NOAA Fisheries provided a concurrence on March 3, 2022, that the proposed project will not substantially adversely affect essential fish habitat and a time of year restriction is not warranted.

This EFH is based on the best scientific, economic, biological, and sociological information available. The design and construction planning of project aims to protect the marine fisheries as much as possible. This includes taking all necessary steps to prevent negative impacts to the local species, spawning stock, nursery areas and habitat. This project will not encroach on natural oyster beds, rocks, and shoals of the Commonwealth. Additionally, this project will not encroach upon the lawful use and occupation of previously leased ground for the term of the lease.

F. Wildlife and Inland Fisheries

Activities affecting wildlife and inland fisheries shall not negatively impact the Commonwealth's efforts in conserving, protecting, replenishing, propagating and increasing of the supply of game birds, game animals, fish and other wildlife of the Commonwealth, including fish or wildlife listed as threatened or endangered by the Department of Wildlife Resources Board, the use of drugs on vertebrate wildlife, and nonindigenous aquatic nuisance, predatory, or undesirable species. The Department of Wildlife Resources (DWR) administers the enforceable policy affecting: Wildlife and Fish (Virginia Code §§ 29.1-501, -512, -521, -530.2, -531, -533, -542, -543.1, -545, -548, -549, -550, -552, -554, -556, -569, and -574; 4 VAC §§ 15-30-10, -20, -50, and 15-290-60); State-listed Threatened and Endangered Species (Virginia Code §§ 29.1-501, -564, -566, -567, and -568; 4 VAC §§ 15-20-130 and -140); The Use of Drugs on Vertebrate Wildlife (Virginia Code § 29.1-501 and -508.1); and Nonindigenous Aquatic Nuisance, Predatory, or Undesirable Species (Virginia Code §§ 29.1-501, -542, -543.1, -545, -569, -571, -574, and -575; 4 VAC §§ 15-20-210, -30-20, -30-40, and 15-290-60).

Listed species that are reported to occur or may potentially occur within the vicinity of the proposed project include juvenile and adult migrating and foraging Atlantic sturgeon (*Acipenser oxyrinchus*), shortnose sturgeon (*Acipenser brevirostrum*), green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), and leatherback sea turtle (*Dermochelys coriacea*).

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. Juvenile and adult Atlantic sturgeon are expected to forage and migrate within the project area; there is no suitable spawning habitat in the project 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. There is no critical habitat for Atlantic sturgeon in the project area.

The shortnose sturgeon may be present in the project area. The shortnose sturgeon is federally- and state-listed as endangered. In Chesapeake Bay, spawning historically occurred in the Susquehanna and Potomac Rivers and may occur currently in the James River. Juvenile and adult shortnose sturgeon may forage and migrate within the project area; there is no suitable spawning habitat in the project area.

Sea turtles have been documented to migrate and forage through the project area. Sea turtles that may be found within the project area are listed as either threatened or endangered. There is no critical habitat or nesting areas for sea turtles in the project area.

To mitigate against the acoustic impacts of pile driving on the surrounding environment, a soft start to pile driving of 15 minutes will be employed, allowing for affected species to escape the area after the vibratory start. Other mitigative measures and best management practices will be implemented as feasible.

An effects determination of "not likely to adversely affect" (NLAA) for migrating and foraging Atlantic sturgeon, shortnose sturgeon, green, Kemp's ridley, leatherback, and loggerhead sea turtles was submitted to the NMFS Protected Resources Division (PRD) under the USACE NLAA Program on January 6, 2022. NMFS concurred with the determination of NLAA listed species or critical habitat on February 9, 2022. Additionally, an EFH consultation for the Fort Norfolk Pier Rehabilitation and Improvements Project was submitted to NOAA Fisheries in January 2022. NOAA Fisheries provided a concurrence on March 3, 2022, that the proposed project will not substantially adversely affect essential fish habitat and a time of year restriction is not warranted.

G. Plant Pests and Noxious Weeds

The enforceable policy applies to activities affecting quarantines established for pests by the Board of Agriculture and Consumer Services (BACS) or the Commissioner of Agriculture and Consumer Services, the importation of regulated articles proclaimed a menace to public health by BACS, and plant pests and noxious weeds. The Virginia Department of Agriculture and Consumer Services (VDACS) is responsible for the administration of the policy addressing: Quarantines (Virginia Code §§ 3.2-700 and -703; 2 VAC §§ 5-315-10 to -130, - 318-10 to -140, -330-10 to -90, and -440-10 to -70, -100, and -110); Importation of Regulated Articles (Virginia Code § 3.2-704); and Plant Pests and Noxious Weeds (Virginia Code §§ 3.2-712 and -804; 2 VAC §§ 5- 315-10 to -130, -317-10 to -100, -318-10 to -140, -330-10 to -90, and -440-10 to - 70, -100, and -110).

The proposed improvements are primarily in-water elements that will involve marine-based construction and does not involve the movement, introduction, or importation of any plant pests or noxious weeds. The contractor will be required to clean their equipment prior to bringing it on site to prevent transportation or introduction of any species. Therefore, no introductions or importations of plant pests or noxious weeds are anticipated.

H. Commonwealth Lands

The enforceable policy applies to activities on state-owned lands managed by DWR and the Department of Conservation and Recreation (DCR) to include the free passage of anadromous and other migratory fish, the removal of coastal resources from Back Bay, encroachments into game refuges, tampering with DWR owned or operated aquatic and terrestrial habitats, and fire use, hunting and fishing, feeding wildlife, boating and vehicle use in state parks. DWR authority for the administration of the policy includes: Dams and Fish Passage (Virginia Code § 29.1-532); Back Bay (Virginia Code § 29.1-103(10); 4 VAC § 15-20-90); Damage to Boundary Enclosures and Entry to Refuges (Virginia Code § 29.1- 554); and Protection of Aquatic and Terrestrial Habitats Used or Owned by DGIF (Virginia Code § 29.1-554; 4 VAC §§ 15-20-150 and -320-100). DCR authority for the administration of the policy includes: Fire Prevention (4 VAC §§ 5-30-70 and -220); Hunting and Fishing in State Parks (4 VAC §§ 5-30-240 to -250). Feeding Wildlife in State Parks Prohibited (4 VAC § 5-30-422); and Boating and Vehicles in State Parks (4 VAC §§ 5-30-190, -290, and -330).

None of the proposed activities take place near a dam, fish passage, back bay, boundary enclosure, entry to refuge, or habitats used or owned by DWR or DCR. Additionally, none of the proposed activities take place in a Virginia State Park. All proposed activities are in water or on Federal property. Therefore, no impacts to Commonwealth Lands managed by DWR or DCR are anticipated.

I. Point Source Air Pollution

The Clean Air Act established by the Federal Government and the Commonwealth of Virginia is automatically incorporated into the Commonwealth's Coastal Zone Management Program in accordance with 15 CFR § 923.45. Furthermore, it is the policy of the Commonwealth, after observing the effects of air pollution, to abate, control, and prohibit air pollution throughout the Commonwealth (Virginia Code § 10.1-1308). DEQ is responsible for the administration of the policy affecting: Asphalt Paving Operations in Volatile Organic Compound Emission Control Areas (Virginia Code §§ 10.1-1308 and -1322; 9 VAC §§ 5-20-206 and -45-780); Open Burning (Virginia Code §§ 10.1-1308 and -1322; 9 VAC §§ 5-80-1105, - 130-10, -130-30 to -50, 20-60-30, and 5-60-200); Fugitive Dust Emissions (Virginia Code §§ 10.1-1308 and -1322; 9 VAC §§ 5-50- 90 and -40-90); State Operating Permits (Virginia Code §§ 10.1-1308 and -1322; 9 VAC § 5-80- 800); and New Source Review (Virginia Code §§ 10.1-1308 and -1322; 9 VAC §§ 5-80- 1100, -1400, -1605, and -2000).

The proposed project is located in the Air Quality Control Region (AQCR) known as Hampton Roads Intrastate ACQR in Virginia (40 CFR 81.93) and is a part of the Norfolk-Virginia Beach- Newport News (Hampton Roads), VA Marginal Maintenance Area for the 1997 ozone NAAQS. The Hampton Roads area

is in attainment for all other NAAQS. Although the 1997 ozone standard has been revoked, maintenance areas for that standard must still demonstrate compliance with it 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. This includes conducting conformity determinations for projects within those areas, and Hampton Roads is one such area. Therefore, a conformity applicability analysis was completed to estimate the emission totals of the criteria pollutants associated with the proposed project.

The proposed project would result in air emissions from the operation of the propulsion motors of harbor craft vessels, as well as auxiliary motors onboard each vessel. The USEPA's Ports Emissions Inventory Guidance (Published in year 2020) was utilized to estimate the equipment emissions based on the estimated hours of usage and emission factors for each motorized source. Appendix B of this document illustrates the estimated emission totals for each criteria pollutant and describes the methodology used to develop these estimates. The estimates were found to be well below de minimis threshold levels in accordance with 40 CFR 93.153(b)(2) for maintenance areas, therefore the proposed project does not require a formal General Conformity Analysis. Since the impacts to air quality would be negligible, a Record of Non-Applicability (RONA) was prepared in November 2021 (See Attachment A for RONA).

J. Point Source Water Pollution

It is the policy of the Commonwealth to protect existing high quality state waters and restore all other state waters to such condition of quality that any such waters will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish, which might reasonably be expected to inhabit them; safeguard the clean waters of the Commonwealth from pollution; prevent any increase in pollution; reduce existing pollution; promote and encourage the reclamation and reuse of wastewater in a manner protective of the environment and public health; and promote water resource conservation, management and distribution, and encourage water consumption reduction in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth. The National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to Section 402 of the federal CWA and administered by DEQ as the Virginia Pollutant Discharge Elimination System (VPDES) permit program (Virginia Code § 62.1-44.2; 9 VAC § 25-31-20).

This project does not involve point source discharges into state waters and therefore is not subject to Section 402 of the Clean Water Act. This project complies with the policy of the Commonwealth to protect existing high quality state waters and restore all other state waters to such condition of quality that any such waters will permit all reasonable public uses and support the propagation of all aquatic life.

There will be no Section 404 or 401 fill with the proposed action. The proposed action will be regulated solely under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

K. Non-Point Source Water Pollution

It is the policy of the Commonwealth to control stormwater runoff to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater; to control soil erosion and sediment deposition in order to prevent unreasonable degradation of properties, stream channels, state waters, and other natural resources; and to otherwise act to control nonpoint source water pollution to ensure the general health, safety, and welfare of the citizens of the Commonwealth. Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by DEQ (Virginia Code §§ 62.1- 44.15:25, 62.1-44.15:52; 9 VAC §§ 25-840-30, 25-870-20).

Project activities will be marine-based construction channelward of land areas with no upland soil disturbing activities that may result in soil erosion or require storm water management best management practices. Therefore, this project complies with the Commonwealth policy to control stormwater runoff to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater. This project will not alter soil erosion or sediment deposition. Stream channels will not be disrupted by this project. This project will not endanger the general health, safety, or welfare of the citizens of the Commonwealth by altering the nonpoint source water pollution.

L. Shoreline Sanitation

It is the policy of the Commonwealth for sewage to be disposed of in a safe and sanitary manner that protects the public health and welfare and the environment. The Virginia Department of Health administers the enforceable policy for conventional and alternative onsite sewage systems. Adequate Service for Human Occupied Structures (Virginia Code §§ 32.1-12 and -164; 12 VAC §§ 5-610-20 and -80). Public and Environmental Health Protection (Virginia Code §§ 32.1-12 and -164; 12 VAC §§ 5-610-20, -120, -240, -320, -330, -450 to -500, -560, -593, -594, -596, -597, -670, -720 to -770, -810, -815, -870, -880, -890, -960, -965, -1000, -1010, -1040, -1050, -1060, -1070, -1110, -1120, -1130, -613-10 to -210, and -640-5,-20 to -40, -60 to -90, -110 to -120, -140 to -180, -210 to -290, -390 to -470, and -490 to -520). Onsite Sewage System Design Requirements (Virginia Code §§ 32.1-12, -163.5(A), -163.6(A), and -164; 12 VAC §§ 5-610-260 and -597).

The proposed project does not involve alterations to any existing on-site sewage systems; therefore, impacts to shoreline sanitation are not anticipated.

Advisory Policies for Geographic Area of Particular Concern

a. Coastal Natural Resource Areas

Coastal Natural Resource Areas are areas that have been designated as vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. These areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas include the following resources: wetlands, aquatic spawning, nursing, and feeding grounds, coastal primary sand dunes, barrier islands, significant wildlife habitat areas, public recreation areas, sand gravel resources, and underwater historic sites.

The Magnuson-Stevens Fishery Conservation and Management Act (16 United States Code 1801 et seq.) established a management system for marine fisheries resources in the United States. Congress charged National Oceanic and Atmospheric Administration (NOAA) Fisheries and fishery management councils, along with other Federal and State/Commonwealth agencies and the fishing community, to identify habitats essential to managed species, which include marine, estuarine, and anadromous finfish, mollusks, and crustaceans. These habitats, referred to as EFH, include “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” An EFH Assessment was submitted to NOAA Fisheries Habitat Conservation Division on January 6, 2022. NOAA Fisheries provided a concurrence on March 3, 2022, that the proposed project will not substantially adversely affect essential fish habitat and a time of year restriction is not warranted. An effects determination of “not likely to adversely affect” (NLAA) for migrating and foraging Atlantic sturgeon, shortnose sturgeon, green sea turtles, Kemp’s ridley sea turtles, leatherback sea turtles, and loggerhead sea turtles was submitted to the NMFS Protected Resources Division (PRD) under the USACE NLAA Program on January 6, 2022. NMFS concurred with the determination of NLAA listed species or critical habitat on February 9, 2022. To mitigate against the acoustic impacts of pile driving on the surrounding environment, a soft start to pile driving of 15 minutes will be employed, allowing for the species to escape the area after the vibratory start. Therefore, there are no

significant impacts anticipated to Coastal Natural Resource Areas as a result of the implementation of the project.

b. Coastal Natural Hazard Areas

This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are highly erodible areas and coastal high hazard areas, including flood plains.

The proposed project does not involve construction of buildings or structures in coastal natural hazard areas.

c. Waterfront Development Areas

These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are commercial ports, commercial fishing piers, and community waterfronts.

The project area is located entirely in subaqueous land and does not include commercial ports, commercial fishing piers, or community waterfronts.

Advisory Policies for Shorefront Access Planning and Protection

a. Virginia Public Beaches

These public shoreline areas will be maintained to allow public access to recreational resources.

There are no public beaches within the project area; therefore, this project will not affect public access to beaches.

b. Virginia Outdoors Plan (VOP)

The VOP, which is published by Virginia's Department of Conservation and Recreation (DCR), identifies recreational facilities in the Commonwealth that provide recreational access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

There are no recreational facilities located in the project area.

c. Parks, Natural Areas, and Wildlife Management Areas

The recreational values of these areas should be protected and maintained.

There are no parks, natural areas, or wildlife management areas within the project area.

d. Waterfront Recreational Land Acquisition

It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be acquired, preserved, and maintained for the citizens of the Commonwealth.

This project does not limit the ability of the Commonwealth in any way to acquire, preserve, or maintain waterfront recreational lands.

e. Waterfront Recreational Facilities

Boat ramps, public landings, and bridges shall be designed, constructed, and maintained to provide points of water access when and where practicable.

This project does not involve the design, construction, or maintenance of any boat ramps, public landings, or bridges.

f. Waterfront Historic Properties

The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas. The protection and preservation of historic shorefront properties is primarily the responsibility of the Virginia Department of Historic Resources.

The project site is located offshore of the Fort Norfolk historical resource site (Figure 5). Coordination with the Virginia Department of Historic Resources will be submitted with the request of a "No Adverse Effect" concurrence.

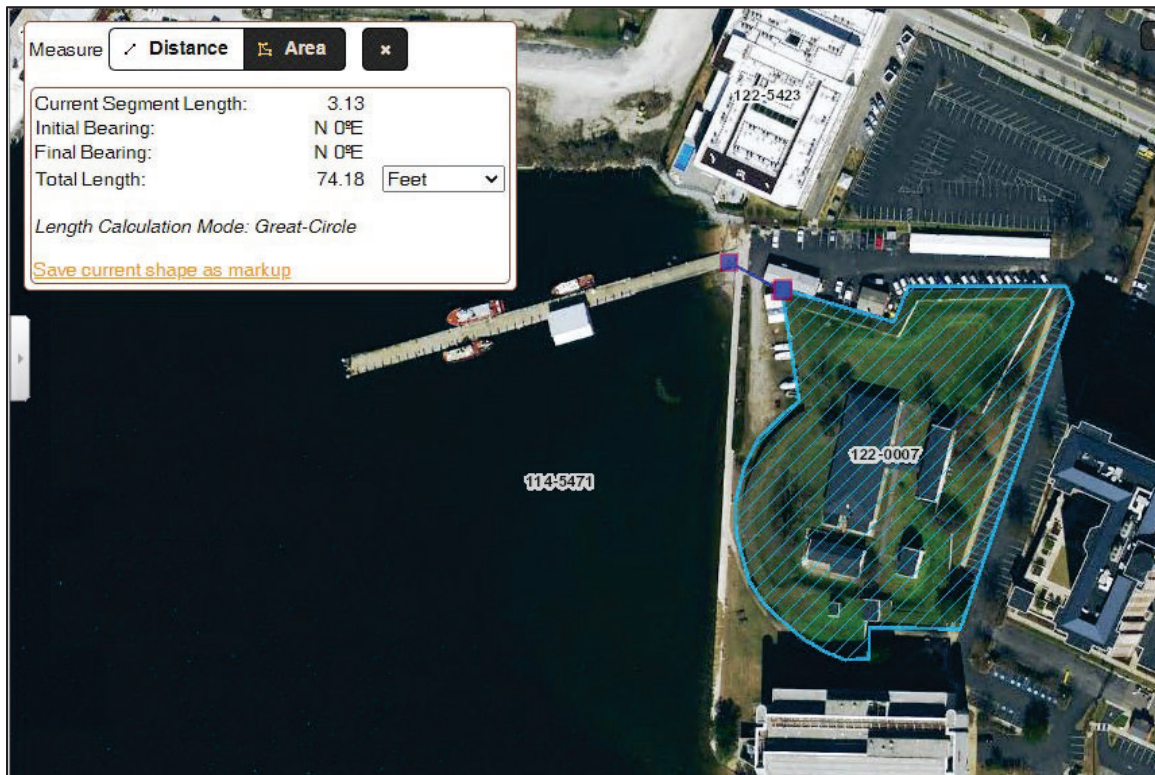


Figure 5. Fort Norfolk Historical Resource Site

Determination

Based upon the following information, data, and analysis of the Fort Norfolk Pier Rehabilitation project, the U.S. Army Corps of Engineers, Norfolk District, finds that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program.

Pursuant to 15 CFR Section 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this letter in which to concur with or object to this Federal Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Virginia's concurrence will be presumed if its response is not received by the U.S. Army Corps of Engineers on the 60th day from receipt of this determination.

August 30, 2022

Date



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Lesley Dobbins-Noble
Operations Branch Chief
Norfolk District, U.S. Army Corps of Engineers

NAO Pier Rehabilitation Project Located in Virginia Beach, Virginia

1. Technical Evaluation Factors

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (230.20-230.25)(Subpart C)

	N/A	Not Significant	Significant
(1) Substrate impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(2) Suspended particulates/turbidity impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(3) Water Quality Control	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(4) Alteration of current patterns and water circulation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(5) Alteration of normal water fluctuations/hydroperiod	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(6) Alteration of salinity gradients	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The wave screens will have minor impacts on the substrate and alter the existing current patterns and water circulation. The screens will also alter normal water fluctuations. Pile driving will cause a minor, temporary increase in turbidity.

b. Biological Characteristics of the Aquatic Ecosystem (230.30-230.32) (Subpart D)

	N/A	Not Significant	Significant
(1) Effect on threatened/endangered species and their habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(2) Effect on the aquatic food web	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(3) Effect on other wildlife (mammals, birds, reptiles, and amphibians)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Based on a search of Virginia's endangered species databases, coordination with NOAA Fisheries for the Section 7 Consultation, the project will not significantly affect any federally or state listed threatened or endangered species.

It is anticipated that the adverse effects to the essential fish habitat are no more than minimal, temporary, or can be alleviated with minor project modifications or conservation recommendations.

c. Special Aquatic Site (230.40-230.45) (Subpart E)

	N/A	Not Significant	Significant
(1) Sanctuaries and refuges	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Mud flats	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Vegetated shallows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) Coral reefs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(6) Riffle and pool complexes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Wetlands are not located near the project area. There are no special aquatic sites located in the project area; therefore, no impacts are anticipated.

d. Human Use Characteristics (230.50-230.54) (Subpart F)

	N/A	Not Significant	Significant
(1) Effects on municipal and private water supplies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Recreational and Commercial fisheries impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(3) Effects on water-related recreation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(4) Aesthetic impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2. Evaluation of Dredged or Fill Material (230.60) (Subpart G)

- a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. **(Check only those appropriate)**

- (1) Physical characteristics
- (2) Hydrography in relation to known or anticipated sources of contaminants
- (3) Results from previous testing of the material in the vicinity of the project
- (4) Known, significant, sources of persistent pesticides from land runoff or percolation
- (5) Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances
- (6) Other public records of significant introduction of contaminants from industries, municipalities or other sources
- (7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge
- (8) Other sources (specify)

The wave screen may cause an increase or change in sedimentation due to changing water circulation patterns. The pilings and cement within the pilings are considered fill material. Approximately 166 CY of fill is proposed.

- b. An evaluation of the appropriate information in 2a above indicated that there is reason to believe the proposed dredged or fill material is not a carrier of contaminants, of that levels of contaminants are substantively similar at extraction and disposal sites and not likely to exceed constraints. The material meets the testing exclusion criteria.

YES NO

3. Disposal Site Delineation (Section 230.11(f))

- a. The following factors, as appropriate, have been considered in evaluating the disposal site.
- (1) Depth of water at disposal site
 - (2) Current velocity, direction, and variability at disposal site
 - (3) Degree of turbulence
 - (4) Water volume stratification
 - (5) Discharge vessel speed and direction
 - (6) Rate of discharge
 - (7) Dredged material characteristics (constituents, amount, and type of material, settling velocities)
 - (8) Number of discharges per unit of time
 - (9) Other factors affecting rates and patterns of mixing (specify)
- b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

YES NO

4. Actions to Minimize Adverse Effects (Section 230.70-230.77)(Subpart H)

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

YES NO

5. Factual Determination (Section 230.11)

A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short or long-term environmental effects of the proposed discharge as related to:

- a. Physical substrate at the disposal site (review sections 2a, 3, 4, & 5)
- b. Water circulation, fluctuation & salinity (review sections 2a, 3, 4, & 5)
- c. Suspended particulates/turbidity (review sections 2a, 3, 4, & 5)
- d. Contaminant availability (review sections 2a, 3, & 4)
- e. Aquatic ecosystem structure and function (review sections 2b, c; 3, & 5)
- f. Disposal site (review sections 2, 4, & 5)
- g. Cumulative impact on the aquatic ecosystem
- h. Secondary impacts on the aquatic ecosystem

6. Review of Compliance (230.10(a)-(d) (Subpart B)

A review of the permit application indicates that:

- a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose (if no, see section 2 and information gathered for EA alternative);

YES NO

- b. The activity does not appear to 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies);

YES NO

- c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values (if no, see section 2);

YES NO

- d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see section 5);

YES NO

The proposed discharge of fill or dredged material is the least environmentally damaging practicable alternative and meets the Federal Standard.

7. Findings

- a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404 (b)(1) guidelines


- b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions:

- c. The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reason(s):

- (1) There is a less damaging practicable alternative
 (2) The proposed discharge will result in significant degradation of the aquatic ecosystem
 (3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem

August 30, 2022

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Lesley Dobbins-Noble
Operations Branch Chief

**Clean Air Act – General Conformity Rule
Record of Non-Applicability
NAO Pier Rehabilitation Project located in Virginia Beach, Virginia**

Section 176(c) (42 U.S.C. § 7506) of the Clean Air Act (CAA) requires Federal agencies to ensure that emissions from Federal actions will conform to state implementation plans (SIP) designed to maintain an attainment designation for air pollutants as defined by the National Ambient Air Quality Standard (NAAQS). The conformity rule applies to Federal actions which cause emissions in areas designated as nonattainment under Section 107 of the CAA and maintenance areas established under Section 157A of the CAA. The Environmental Protection Agency's General Conformity Regulations also exempt certain categories of actions from the conformity analysis requirement.

The NAO Pier Rehabilitation proposes to rehabilitate the existing NAO Pier 1 at Fort Norfolk. The project area is located on the Elizabeth River in Norfolk, Virginia.

The scope of the Proposed Action involves developing the north side of NAO Pier 1 with a floating mooring system to allow for minimal adjustments of mooring lines during tidal fluctuations. A "main" floating dock with two finger floating docks (three slips) will be installed. The freeboard of the docks will be 30" (maximum for stability). The NAO Pier 1 will be modified for new utilities as well as raised to accommodate for rising tide levels and a new gangway. Pier raising will be done by building a secondary deck atop the existing pier. Wide flange steel beams will be used to increase the height and a fiberglass grating will be used for the new deck surface. New concrete edge beams will be poured atop the perimeter of the pier and will include scuppers to handle drainage. All concrete pouring will take place above the water on the existing structure.

Under the No-Action Alternative, the pier will not be improved. This alternative would eliminate all construction, leaving the Pier unable to safely moor the vessels required. The planned rehabilitation will allow for the mooring of vessels throughout severe storm events.

The project area within the Elizabeth River is located in the Air Quality Control Region (AQCR) known as Hampton Roads Intrastate ACQR in Virginia (40 CFR 81.93) and is a part of the Norfolk-Virginia Beach-Newport News (Hampton Roads), VA Marginal Maintenance Area for the 1997 ozone NAAQS. The Hampton Roads area is in attainment for all other NAAQS. Although the 1997 ozone standard has been revoked, maintenance areas for that standard must still demonstrate compliance with it 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. This includes conducting conformity determinations for projects within those areas, and Hampton Roads is one such area. Therefore, a conformity applicability analysis was completed to estimate the emission totals of the criteria pollutants associated with the Proposed Action.

The Proposed Action would result in air emissions from the operation of the propulsion motors of harbor craft vessels, as well as auxiliary motors onboard each vessel. The USEPA's *Ports Emissions Inventory Guidance* (published in year 2020) was utilized to estimate the equipment emissions based on the estimated hours of usage and emission factors for each motorized source. Appendix D of the Environmental Assessment illustrate the estimated emission totals for each criteria pollutant and describes the methodology used to develop these estimates. The estimates were found to be well below *de minimis* threshold levels in accordance to 40 CFR 93.153(b)(2) for maintenance areas, therefore the Action Alternative does not require a formal General Conformity Analysis.

We have considered the potential direct and indirect emissions from the NAO Pier Rehabilitation project, and reach the following conclusion(s):

The action is entirely outside of and will not cause any direct or indirect emissions in any nonattainment or maintenance area [see 40 CFR 93.153(b)].

The total direct and indirect emissions are below de minimis levels [40 CFR 93.153(c)(1) for the exemption, but for the applicable levels see 40 CFR 93.153(b)(1) for nonattainment areas or 40 CFR 93.153(b)(2) for maintenance areas].

The following de minimis exemption to the conformity requirements applies: 40 CFR Part 93.153(c)(2)(ix) "Maintenance dredging and debris disposal where no new depths are required, applicable permits are secured, and disposal will be at an approved disposal site".


The action is on the agency's "presumed to conform" list at: [EPA regulation describing the "presumed to conform" process see 40 CFR 93.153(f)].

The facility has a facility-wide emissions budget approved by the State as a part of the SIP, and the emissions from the proposed action are within the budget.

To the best of my knowledge the information provided is correct and accurate. I concur in the finding that the proposed action meets the exemptions stated above and thus will conform to the SIP.

August 30, 2022

Date

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Lesley Dobbins-Noble
Chief, Operations Branch

Air Emission Estimates

This appendix provides detailed information on the calculations of air emissions associated with the Proposed Action.

1.0 Emissions Determination

The Proposed Action would result in air emissions from the operation of propulsion and auxiliary motors of harbor craft vessels, as well as construction equipment, for the duration of the project. The type and quantity of emissions depend on each emission source and the time during which the source is operated. Section 1.1 (Emission Sources) lists the assumptions underlying the analysis with regard to source types and duration for each source for the duration of the project. Section 1.2 (Methodology) identifies the methodology used to evaluate the emissions for the different types of sources. Table 1.0 displays the results of the estimated project emissions. Not accounting for weather/contingency days, it is estimated to take four months for the installation of piles, floating docks and wave screens. However, the operating hours of each piece of equipment have been estimated separately, as the different types of equipment will be used for different stages and durations of the project. This is a single occurrence project with no future maintenance events.

1.1 NAO Pier Rehabilitation Emission Sources

- Crane: 390 kW main engine with 85 total operating hours
- Hydraulic Vibratory Hammer: 1,100 kW main engine with 21 total operating hours
- Dive Compressors: 6.3 kW main engine with 64 total operating hours
- Dive Generators: 8.7 kW main engine with 64 total operating hours
- Work Tug: 560 kW main engine with 80 total operating hours; 75 kW auxiliary engine with 160 total operating hours
- Crew Boat: 298 kW main engine with 360 total operating hours; 60 kW auxiliary engine with 540 total operating hours
- Excavator: 204 kW main engine with 40 total operating hours

1.2 Methodology

1.2.1 Equipment Operations and Emissions

The estimates of equipment emissions were developed based on the engine power, engine load factor, estimated hours of usage, and the emission factor for each pollutant based on the United States Environmental Protection Agency's (USEPA) Port Emissions Inventory Guidance (The Guidance) published in September 2020. The Guidance focuses on port related diesel emissions from various mobile source sectors. The harbor craft source sector

NAO Pier Rehabilitation

was used for this emissions analysis as it is most relevant to the dredging operations of the Proposed Action. The Guidance defines the harbor craft source sector as “...all commercial marine vessels that are not considered in the ocean-going vessels (OGV) sector, such as tugboats and work boats. Unlike OGV, harbor craft typically spend most of their operating time in or near a single port or region, and they typically have C1 or C2 engines” (USEPA 2020).

The engine tier employed for the emissions estimates was established utilizing Table B.1 of The Guidance (Category 1 and 2 Engine Tiers). The power range of the harbor craft proposed to complete the Proposed Action were in the range of Engine Tier 3. Utilizing the Tier 3 power range of the harbor craft, emission factors for the criteria pollutants were obtained from Table H.7 (Average Harbor Craft Emission Factors by Engine Tier 3) of The Guidance (USEPA September 2020).

The USEPA recommends the following formula to calculate harbor craft base year emissions from both propulsion and auxiliary engines for each vessel of the Proposed Action (Equation 4.1):

$$E = P \times LF \times A \times EF$$

Where:	<i>E</i>	= per vessel emissions (g)
	<i>P</i>	= engine power (kW)
	<i>LF</i>	= engine load factor (unitless)
	<i>A</i>	= engine operating activity (h)
	<i>EF</i>	= emission factor (g/kWh)

Except for the emission factor designated for each criteria pollutant based on tier 3 engines, each of the above parameters models a specific emissions source from the Proposed Action and thus changed for each vessel. Table 2 shows the parameters associated with each vessel and emission factors used to develop the estimated emission inventory for the Proposed Action.

1.2.2 Marine Vessel Operations and Emissions

USEPA’s methodologies and default marine vessel input parameters and emissions factors available in The Guidance were used to predict emissions from vessels. The Guidance was used to determine the harbor craft source sector as the classification of the marine vessels used during the dredging activities associated with the Proposed Action. Section 4 of the Guidance, “Harbor Craft” was used to determine the emissions inventory of the Proposed Action.

NAO Pier Rehabilitation

1.2.3 Total Emissions

The total emissions of the Proposed Action to rehabilitate the NAO Pier are shown in Table 1.

The total emissions for the NAO Pier project under the No Action Alternative (the baseline) 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). This information is presented in Table 3.

The increase in emissions associated with the Action Alternative relative to the No Action Alternative (the baseline) is shown in Table 4.

Table 1. Total Project Emissions

Equipment	Engine HP	Engine kW	Operating Hours	Per Vessel Emissions (g)	Nox	PM10	PM2.5	VOC	CO	CO2	SO2	Pb*
Emission Factor												
Crane	523 hp engine	390.0	85.33		67963.15203	1187.4054	1151.787	1785.909	13147.42	9723487.488	89.38276	0.1439734
Hydraulic Vibratory Hammer	1475 hp engine	1100.0	21.33		47921.95426	837.25942	812.1442	1259.274	9270.467	6856193.522	63.02528	0.101518
Dive compressors	8.5 hp engine	6.3	64		828.4250788	14.473673	14.03951	21.76903	160.2582	118522.7678	1.089516	0.0017549
Dive Generators	8.7 hp engine	6.5	64		847.9174336	14.81423	14.36985	22.28124	164.029	121311.5388	1.115151	0.0017962
Work Tug	750hp main engine	559.3	80		110494.453	1930.4831	1872.574	2903.53	21375.07	15808440.3	145.3184	0.2340718
	100hp aux engine	74.6	160		24365.44349	425.69627	412.9267	640.2657	4713.477	3485963.76	32.04458	0.0516158
Crew boat	400hp main engine	298.3	360		229488.4794	4009.4648	3889.193	6030.409	44394.38	32832914.48	301.8152	0.4861491
	80hp aux equip	59.7	540		65786.69743	1149.3799	1114.902	1728.717	12726.39	9412102.151	86.52036	0.1393627
Excavator	273 hp engine	203.6	40		22817.10455	398.64475	386.6866	599.579	4413.952	3264442.923	30.00826	0.0483358
Total Project Emissions (Tons)					0.628882876	0.0109874	0.010658	0.016526	0.121657	89.97426683	0.000827	1.332E-06

Table 2. Total Project Emissions Parameters

Equipment	Engine HP	Engine kW	Operating Hours	Nox	PM10	PM2.5	VOC	CO	CO2	SO2	Pb*
Emission Factor											
Crane	523 hp engine	390.0	85.33	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05
Hydraulic Vibratory Hammer	1475 hp engine	1100.0	21.33	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05
Dive compressors	8.5 hp engine	6.3	64	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05
Dive Generators	8.7 hp engine	6.5	64	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05
Work Tug	750hp main engine	559.3	80	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05
	100hp aux engine	74.6	160	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05
Crew boat	400hp main engine	298.3	360	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05
	80hp aux equip	59.7	540	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05
Excavator	273 hp engine	203.6	40	4.749214	0.082975	0.080486	0.124798	0.918732	679.47	0.006246	1.00608E-05

Table 3. Baseline Conditions of the Hampton Roads Area 2019 (No Action)

Criteria Pollutant	Nox	PM10	PM2.5	VOC	CO	SO2
2019 Emissions (tons)	3810.16	1322.85	529.26	3718.33	3237.58	1189.98

Table 4. Net Increase of the Action Alternative to the Baseline Conditions



NAO Pier Rehabilitation

	Nox	PM10	PM2.5	VOC	CO	SO2
2019 Emissions (tons)	3810.16	1322.85	529.26	3718.33	3237.58	1189.98
Proposed Action (tons)	0.62888	0.01099	0.01066	0.01653	0.12166	0.00083
Net Increase (tons)	3810.79	1322.86	529.271	3718.35	3237.7	1189.98

2. Clean Air Conformity

The 1990 amendments to the Clean Air Act require federal agencies to ensure that their actions conform to the appropriate State Implementation Plan in a nonattainment area. The State Implementation Plan provides for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS); it includes emission limitations and control measures to attain and maintain the NAAQS. Conformity to a State Implementation Plan, as defined in the Clean Air Act, means conformity to the plan's purpose of reducing the severity and number of violations of the NAAQS to achieve the standards. The federal agency responsible for a Proposed Action is required to determine if its Proposed Action conforms to the applicable State Implementation Plan.

The USEPA has developed two sets of conformity regulations; federal actions are differentiated into transportation projects and non-transportation-related projects:

- Transportation projects, which are governed by the “transportation conformity” regulations (40 C.F.R. Parts 51 and 93), effective on December 27, 1993, and revised on August 15, 1997.
- Non-transportation projects which are governed by the “general conformity” regulations (40 C.F.R. Parts 6, 51 and 93) described in the final rule for Determining Conformity of General Federal Actions to State or Federal Implementation Plans published in the Federal Register on November 30, 1993. The general conformity rule became effective January 31, 1994 and was revised on March 24, 2010.

Since the Proposed Action evaluated in this appendix is not a transportation project, the general conformity regulation applies.

2.1 Attainment and Nonattainment Areas

The General Conformity Rule applies to federal actions occurring in air basins designated as nonattainment for the NAAQS or in attainment areas subject to maintenance plans (maintenance areas). Federal actions occurring in air basins that are in attainment with the NAAQS are not subject to the conformity rule. The designation of nonattainment is based on the violations of the NAAQS. Maintenance areas are areas that have been re-designated as attainment from a previous nonattainment status and have established a maintenance plan with measures to control emissions to ensure the air quality standards are maintained.

NAO Pier Rehabilitation

There are six criteria pollutants for which the USEPA has established NAAQS: carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), inhalable particulate matter (PM₁₀ and PM_{2.5}), and lead (Pb).

Under the Action Alternative, the project area within the Elizabeth River is located in the Air Quality Control Region (AQCR) known as Hampton Roads Intrastate ACQR in Virginia (40 CFR 81.93) and is a part of the Norfolk-Virginia Beach-Newport News (Hampton Roads), VA Marginal Maintenance Area for the 1997 ozone NAAQS. The Hampton Roads area is in attainment for all other NAAQS. Although the 1997 ozone standard has been revoked, maintenance areas for that standard must still demonstrate compliance with it 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. This includes conducting conformity determinations for projects within those areas, and Hampton Roads is one such area. Therefore, a conformity applicability analysis was completed to estimate the emission totals of the criteria pollutants associated with the Proposed Action.

2.2 De Minimis Emission Levels

To focus general conformity requirements on those federal actions with the potential to have significant air quality impacts, threshold (*de minimis*) rates of emissions were established in the final rule. A formal conformity determination is required when the annual net total of direct and indirect emissions of a criteria pollutant or its precursors from a federal action occurring in a nonattainment or maintenance area would equal or exceed the applicable annual de minimis level for that pollutant. Table 5 shows the *de minimis* threshold levels for each pollutant.

Table 5. Annual *de minimis* Criteria Pollutant Levels for Maintenance Areas

Pollutant	Maintenance Area Limits (tons/year) 40 CFR 93.153(b)(2)
NOx	100
PM10	100
PM2.5	100
VOC Inside Transport Region / Outside Transport Region	50/100
CO	100
CO2	-
SO2	100
Pb	25

2.3 Compliance Analysis

A conformity applicability analysis was conducted for the activity for the Proposed Action according to the guidance provided by 40 CFR Parts 6, 51, and 93, Determining Conformity of General Federal Actions to State or Federal Implementation Plans, (USEPA 1993 and 2010). The analysis was performed to determine whether a formal conformity analysis would be required.

Pursuant to the General Conformity Rule, all reasonably foreseeable emissions (both direct and indirect) associated with a federal action must be quantified and compared to the applicable annual de minimis levels. The conformity analysis must take into account the direct and indirect net emissions from mobile and stationary sources. Direct emissions are emissions of a criteria pollutant or its precursors that are caused or initiated by the federal action and occur at the same time and place as the action. Indirect emissions occur later in time or farther from the action; they must be included in the analysis if the following conditions are met:

- That are caused or initiated by the federal action and originate in the same nonattainment or maintenance area but occur at a different time or place as the action;
- The federal agency can practicably control the emissions and has continuing program responsibility to maintain control;
- The emissions caused by the federal action are reasonably foreseeable;
- For which the agency has continuing program responsibility.

Indirect emissions from this federal action are not reasonably foreseeable, and not controlled by the federal agency. Therefore, indirect emissions were not evaluated for this applicability analysis.

The General Conformity Rule requires that the federal action's emissions be compared with baseline emissions on an annual basis. For this Proposed Action, the No Action Alternative, which would amount to not rehabilitating the NAO Pier. Therefore, the most recent calendar year emissions reporting represents the baseline (USEPA December 2020). Table 4 of this appendix displays the minimal significance of the potential net increase of criteria pollutant emissions from the Action Alternative to the Hampton Roads Area.

For ozone maintenance areas, de minimis levels have been established for both ozone precursors: NO_x and VOC, on the presumption that NO_x and VOC reductions will contribute to reductions in O₃ formation. The applicable de minimis level is 100 tons per year of NO_x and VOC, respectively.

NAO Pier Rehabilitation

Table 6 shows the proposed project's net emissions of NO_x and VOC associated with the Action Alternative based on the estimates detailed in Section 1 (Emissions Determination) of this appendix in accordance with 40 CFR 93.153(b)(2).

Table 6. Project Emissions of NO_x and VOC (tons/year)

	Project Emissions	
	VOC	Nox
Project Action	0.016526	0.628883
<i>De Minimis</i> Level	100	100

Based on this analysis of NO_x and VOC emissions performed in conjunction with the Final Rule of Determining Conformity of Federal Actions to State or Federal Implementation Plans, (USEPA 1993 and 2010), the Proposed Action would not require a formal conformity determination. The total net emissions under the Action Alternative show no exceedance of the applicable de minimis criteria of 100 tons per year for VOC and NO_x. Therefore, the Proposed Action would have minimal air quality impacts and would not require a formal conformity determination.

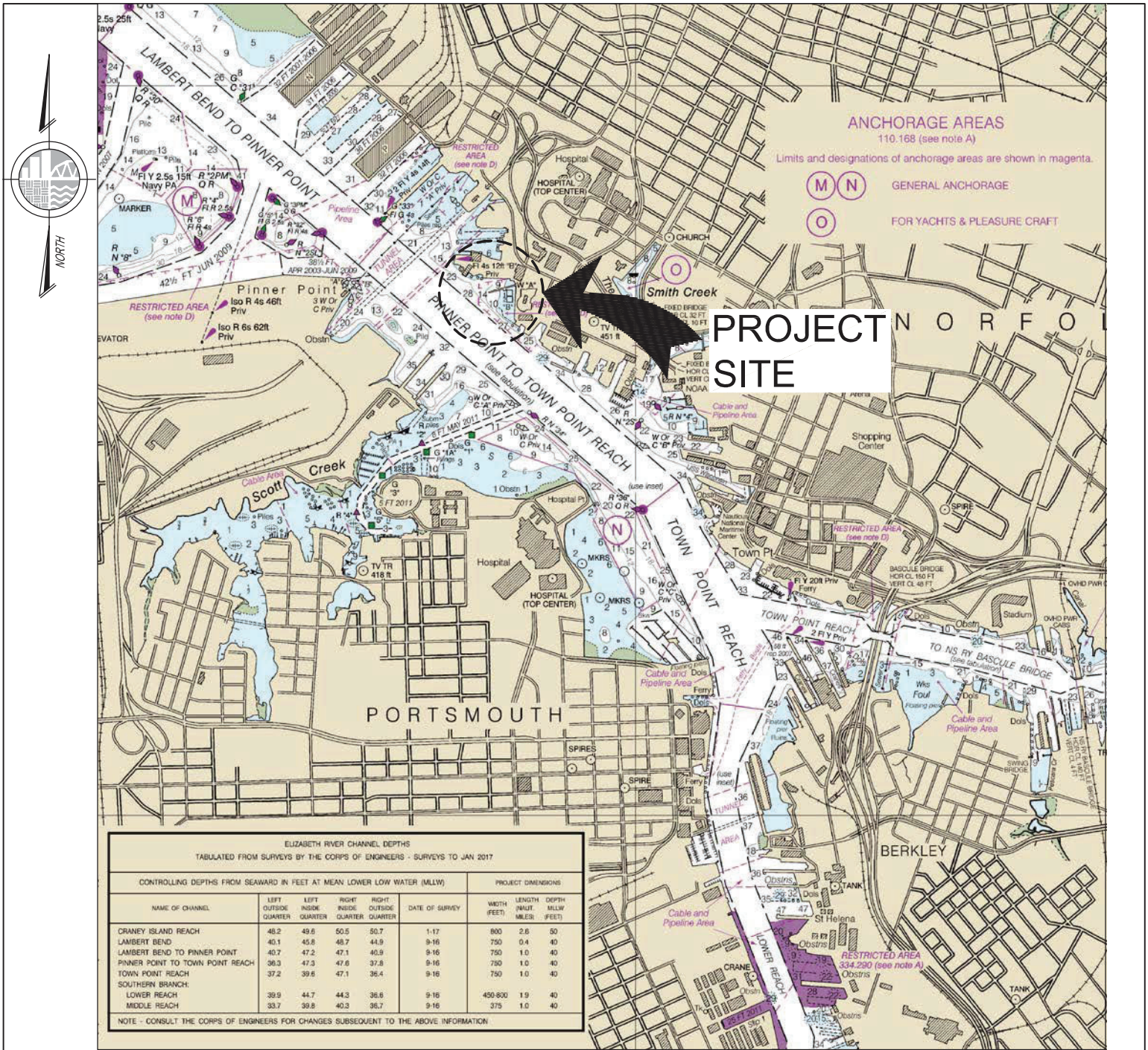
References:

U.S. Environmental Protection Agency. (1993 and 2010). 40 C.F.R. Parts 6, 51, and 93. Determining conformity of federal actions to state or federal implementation plans. Federal Register. November 30, 1993. Revisions to Parts 51 and 93 April 5, 2010. Federal Register.

United States Environmental Protection Agency (USEPA) (September 2020). Ports emissions inventory guidance: methodologies for estimating port-related and goods movement mobile source emissions. EPA-420-B-20-046.

United States Environmental Protection Agency (USEPA) (December 2020). General conformity training module 3.2: emissions calculations. <https://www.epa.gov/general-conformity/generalconformity-training-module-32-emissions-calculations>

Virginia Department of Environmental Quality (VADEQ). (2019). Annual point source criteria pollutant emissions. <https://www.deq.virginia.gov/air/air-quality-monitoring-assessments/airquality-reports>



SITE LOCATION MAP

N.T.S.

DATUM: NAVD88

NAO PIER - SMALL CRAFT HARBOR

SITE LOCATION MAP

ADJACENT OWNERS:

APPLICANT: Lesley Dobbins-Noble
United States Army Corps Of Engineers
Norfolk District 803 Front St.
Norfolk, VA 23510

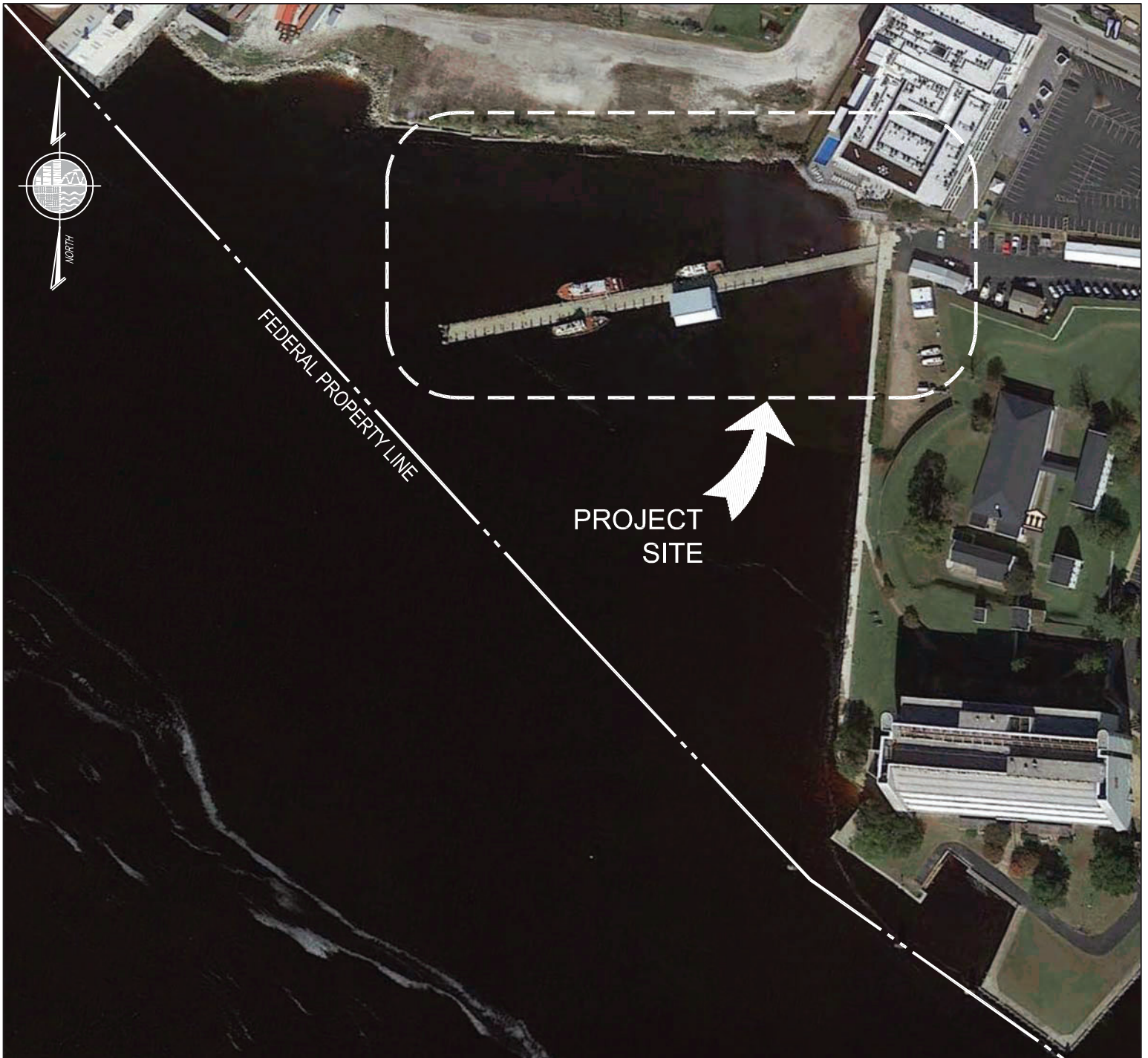
IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK STATE: VA

1. REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

AGENT: M.G. McLaren Engineering and Land Surveying, P.C.
530 Chestnut Ridge Rd.
Woodcliff Lake, NJ 07677

SHT 1 OF 16

11/20/21



SITE VICINITY MAP

N.T.S.

DATUM: NAVD88

ADJACENT OWNERS:
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NAO PIER - SMALL CRAFT HARBOR

APPLICANT: Lesley Dobbins-Noble
 United States Army Corps Of Engineers
 Norfolk District 803 Front St.
 Norfolk, VA 23510

AGENT: M.G. McLaren Engineering and Land Surveying, P.C.
 530 Chestnut Ridge Rd.
 Woodcliff Lake, NJ 07677

SITE VICINITY MAP

IN: ELIZABETH RIVER
 AT: NORFOLK (NORFOLK HARBOR)
 COUNTY OF: NORFOLK STATE: VA

TIDAL DATA

BASED ON DATA PUBLISHED BY NOAA. PUBLICATION DATE
10/20/17.
FOR TIDAL EPOCH 1983 - 2001.

	NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29)	MEAN-LOW-WATER DATUM
100 YR. FLOOD LEVEL 3 HURRICANE	10.00	11.66
HIGHEST OBSERVED (HOWL)	4.62	6.28
PLATFORM DECK (TYP.)	4.24	5.90
SPRING HIGH TIDE (SHT)	1.37	3.03
MEAN HIGH HIGH WATER (MHHW)	1.24	2.90
MEAN HIGH WATER (MHW)	0.99	2.65
NGVD OF 1929 (NGVD 29)	0.00	1.66
MEAN LOW WATER (MLW)	-1.66	0.00
MEAN LOW LOW WATER (MLLW)	-1.79	-0.13
LOWEST OBSERVED (LOWL)	-3.28	-1.62

NOTES:

1. DATUMS FOR ELIZABETH RIVER (NORFOLK HARBOR) VA.
2. ALL ELEVATIONS ARE IN FEET.

TIDAL DATUM

N.T.S.

DATUM: NAVD88

ADJACENT OWNERS:

1. REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

NAO PIER - SMALL CRAFT HARBOR

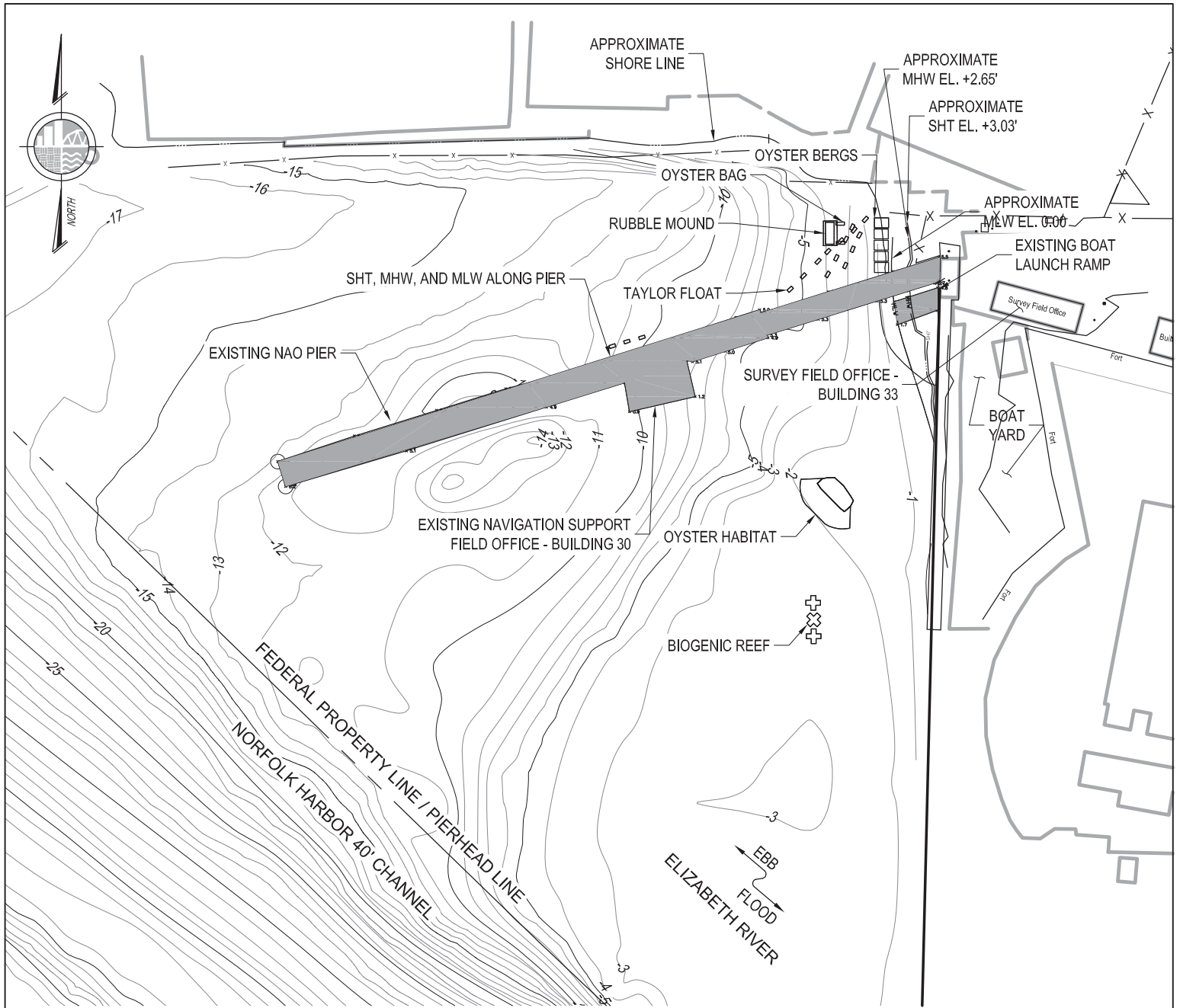
APPLICANT: Lesley Dobbins-Noble
United States Army Corps Of Engineers
Norfolk District 803 Front St.
Norfolk, VA 23510

AGENT: M.G. McLaren Engineering
and Land Surveying, P.C.
530 Chestnut Ridge Rd.
Woodcliff Lake, NJ 07677

TIDAL DATUM

IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK **STATE:** VA

SHT 3 OF 16 11/20/21



4 EXISTING SITE PLAN

NOTE:
1. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

1"=100'

DATUM: NAVD88

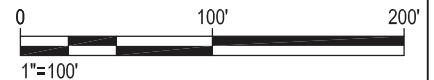
ADJACENT OWNERS:
1. REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

NAO PIER - SMALL CRAFT HARBOR

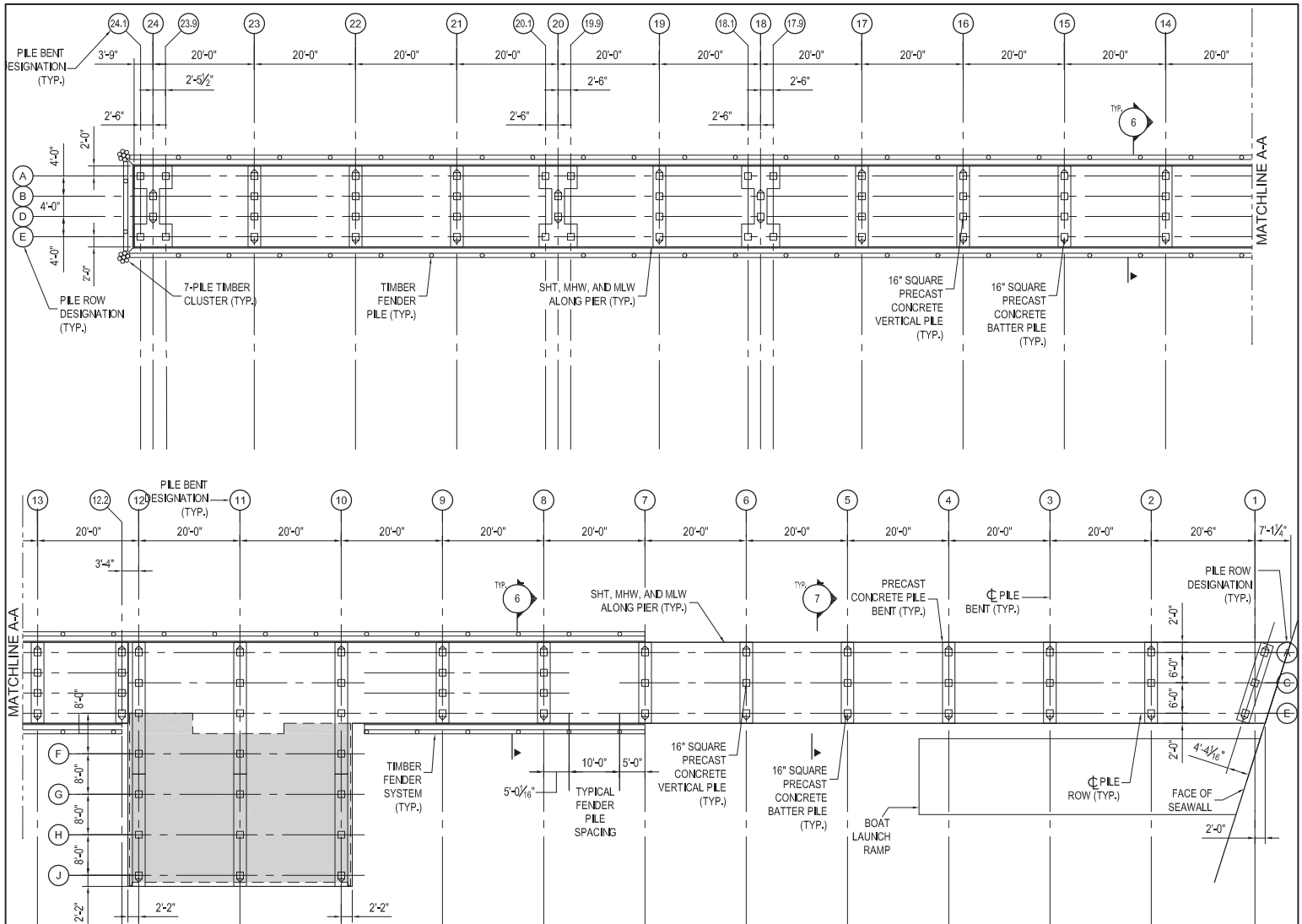
APPLICANT: Lesley Dobbins-Noble
United States Army Corps Of Engineers
Norfolk District 803 Front St.
Norfolk, VA 23510
AGENT: M.G. McLaren Engineering
and Land Surveying, P.C.
530 Chestnut Ridge Rd.
Woodcliff Lake, NJ 07677

EXISTING SITE PLAN

IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK STATE: VA



SHT 4 OF 16 11/20/21



5

EXISTING PIER PILE PLAN

1/32"=1'-0"

DATUM: NAVD88

ADJACENT OWNERS:

- REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

NAO PIER - SMALL CRAFT HARBOR

APPLICANT: Lesley Dobbins-Noble
 United States Army Corps Of Engineers
 Norfolk District 803 Front St.
 Norfolk, VA 23510

AGENT: M.G. McLaren Engineering
 and Land Surveying, P.C.
 530 Chestnut Ridge Rd.
 Woodcliff Lake, NJ 07677

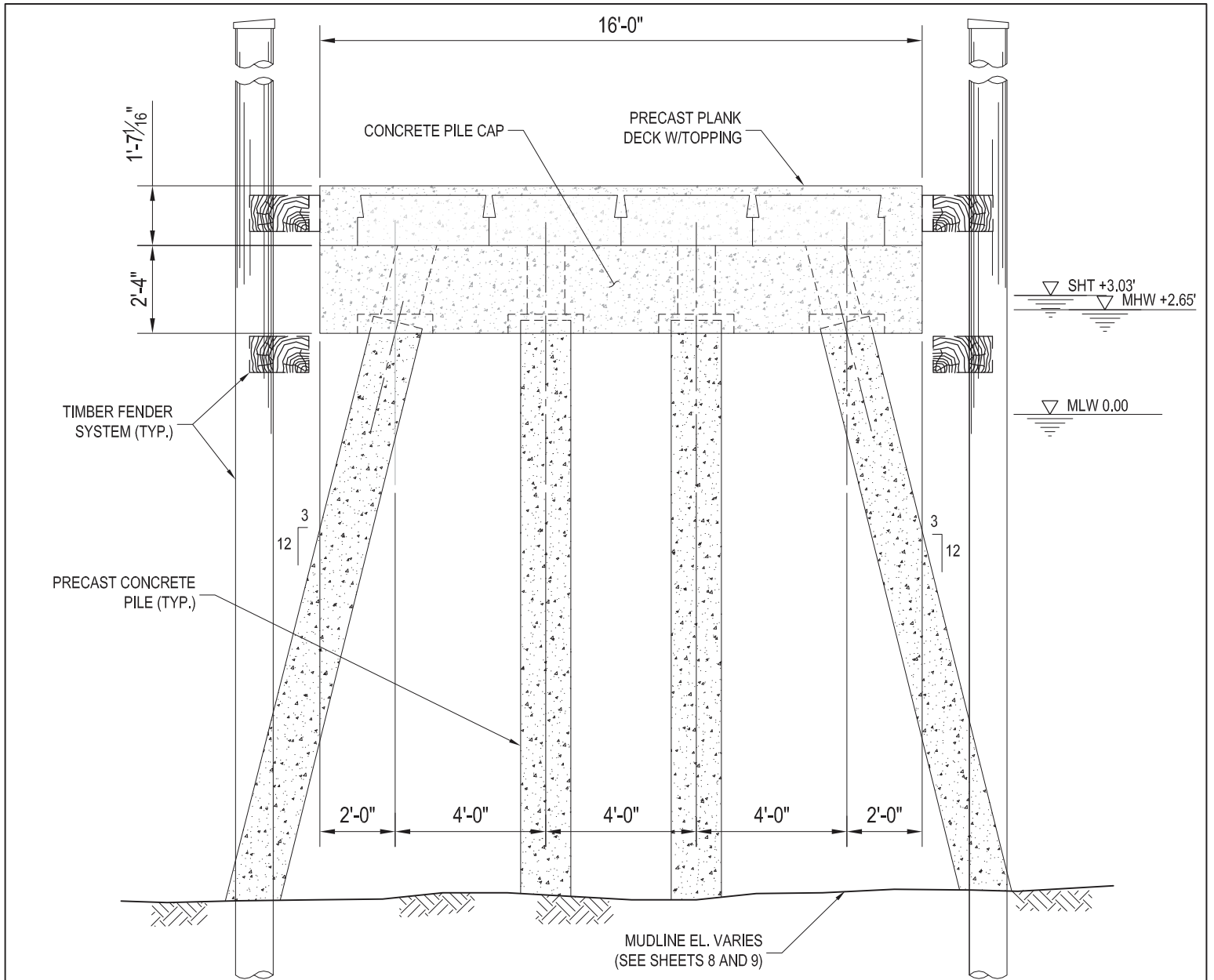
EXISTING PIER PILE PLAN

IN: ELIZABETH RIVER
 AT: NORFOLK (NORFOLK HARBOR)
 COUNTY OF: NORFOLK STATE: VA



SHT 5 OF 16

11/20/21



6 **EXISTING TYPICAL BENT CONFIGURATION** 1/4"=1'-0"

NOTE:
 1. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

DATUM: NAVD88

ADJACENT OWNERS:
 1. REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

NAO PIER - SMALL CRAFT HARBOR

APPLICANT: Lesley Dobbins-Noble
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 Norfolk District 803 Front St.
 Norfolk, VA 23510
 AGENT: M.G. McLaren Engineering
 and Land Surveying, P.C.
 530 Chestnut Ridge Rd.
 Woodcliff Lake, NJ 07677

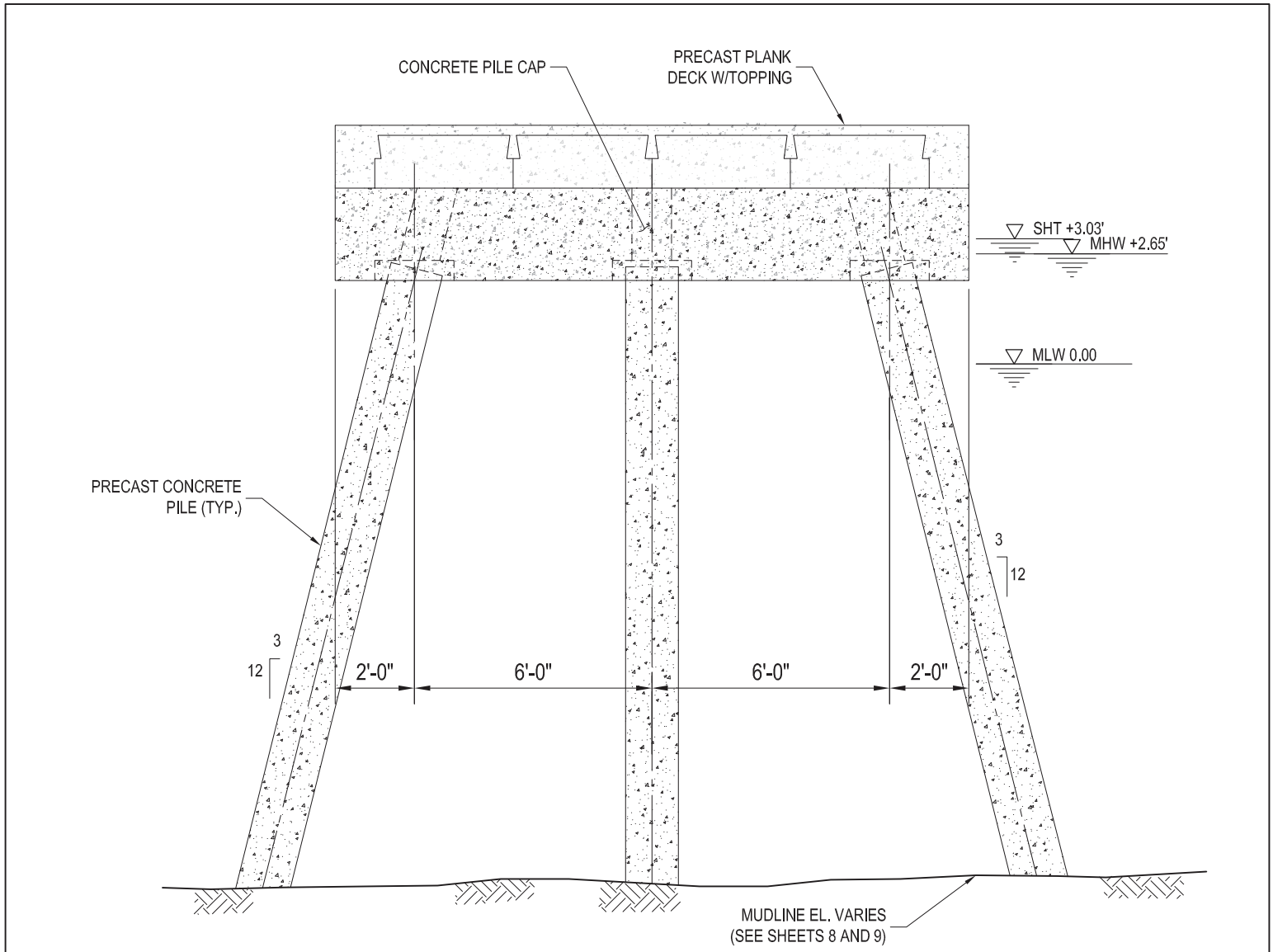
EXISTING SECTIONS

IN: ELIZABETH RIVER
 AT: NORFOLK (NORFOLK HARBOR)
 COUNTY OF: NORFOLK STATE: VA



SHT 6 OF 16

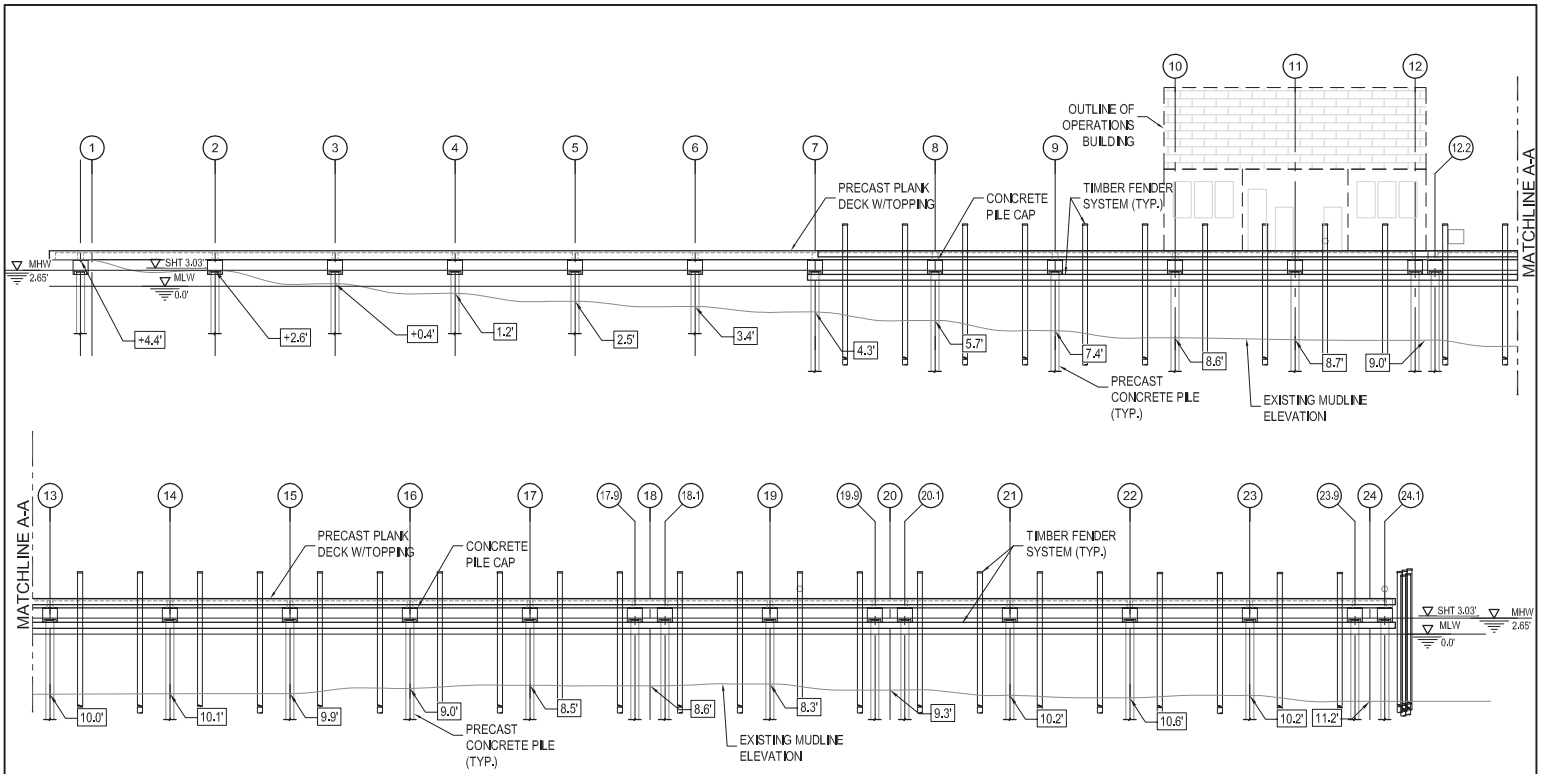
11/20/21



7 EXISTING PIER RAMP BENT CONFIGURATION
 1/4"=1'-0"

- NOTES:
 1. TYPICAL BENT CONFIGURATION FOR BENTS 1-7.
 2. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

<p>DATUM: NAVD88</p> <p>ADJACENT OWNERS: 1. REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.</p>	<p>NAO PIER - SMALL CRAFT HARBOR</p> <p>APPLICANT: Lesley Dobbins-Noble United States Army Corps Of Engineers Norfolk District 803 Front St. Norfolk, VA 23510</p> <p>AGENT: M.G. McLaren Engineering and Land Surveying, P.C. 530 Chestnut Ridge Rd. Woodcliff Lake, NJ 07677</p>	<p>EXISTING SECTIONS</p> <p>IN: ELIZABETH RIVER AT: NORFOLK (NORFOLK HARBOR) COUNTY OF: NORFOLK STATE: VA</p> <p>0 4' 8' 1/4"=1'-0"</p> <p>SHT 7 OF 16 11/20/21</p>
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**PIER ELEVATION
(LOOKING SOUTH)**

8 EXISTING ELEVATIONS
1/32"=1'-0"

NOTE:
1. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

LEGEND:

☐xx☐ MUDLINE ELEVATION BELOW
MEAN-LOW-WATER

① PILE BENT IDENTIFICATION

DATUM: NAVD88

ADJACENT OWNERS:
1. REFER TO SECTION 14 OF
THE JOINT PERMIT
APPLICATION FOR THE LIST
OF ADJACENT PROPERTY
OWNERS.

NAO PIER - SMALL CRAFT HARBOR

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United States Army Corps Of Engineers
Norfolk District 803 Front St.
Norfolk, VA 23510
AGENT: M.G. McLaren Engineering
and Land Surveying, P.C.
530 Chestnut Ridge Rd.
Woodcliff Lake, NJ 07677

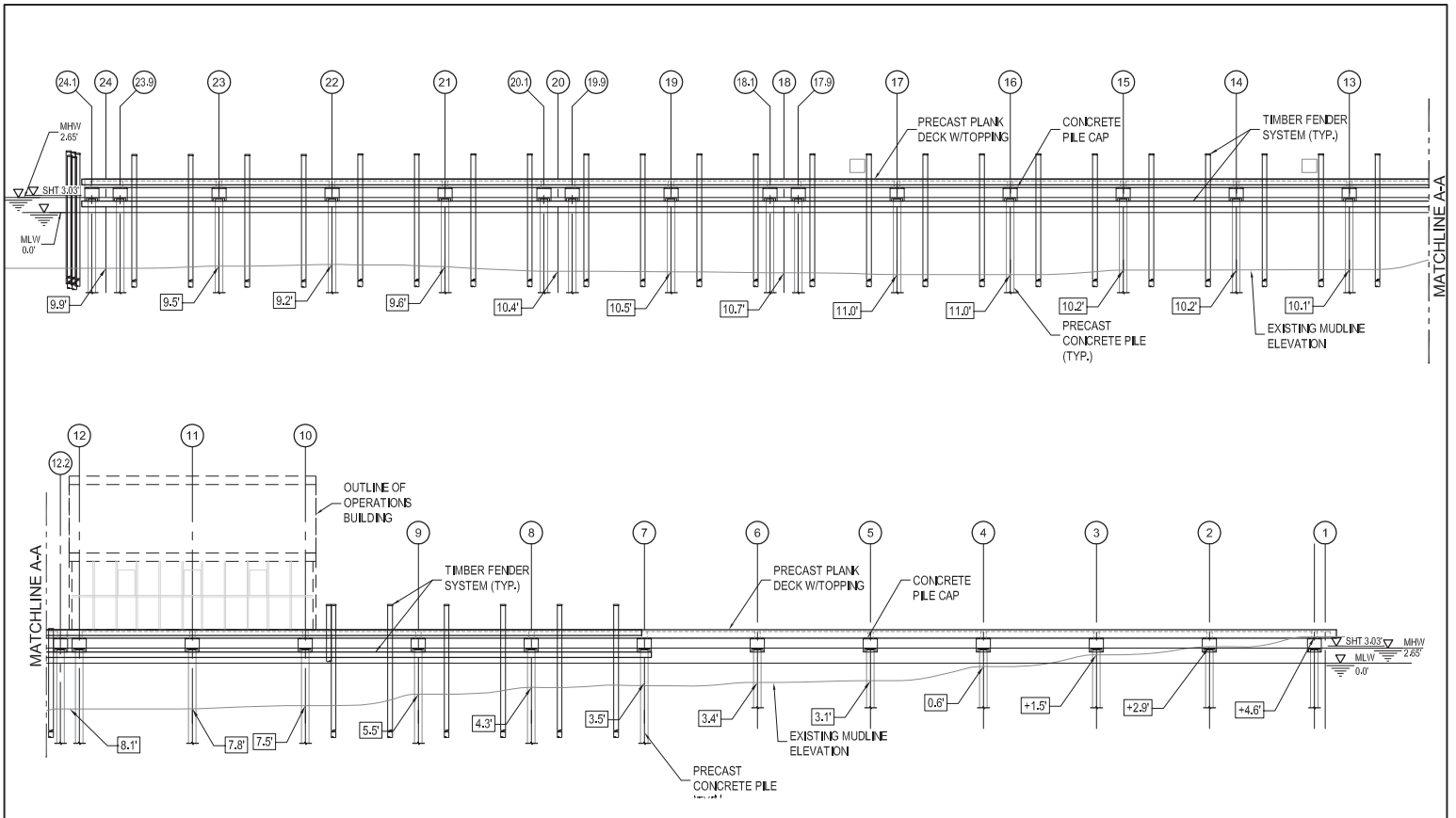
**EXISTING
ELEVATIONS**

IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK STATE: VA



SHT 8 OF 16

11/20/21



**PIER ELEVATION
(LOOKING NORTH)**

9 EXISTING ELEVATIONS
1/32"=1'-0"

NOTE:
1. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

- LEGEND:**
- x.x MUDLINE ELEVATION BELOW MEAN-LOW-WATER
 - 1 PILE BENT IDENTIFICATION

DATUM: NAVD88

ADJACENT OWNERS:
1. REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

NAO PIER - SMALL CRAFT HARBOR

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Norfolk, VA 23510
AGENT: M.G. McLaren Engineering and Land Surveying, P.C.
530 Chestnut Ridge Rd.
Woodcliff Lake, NJ 07677

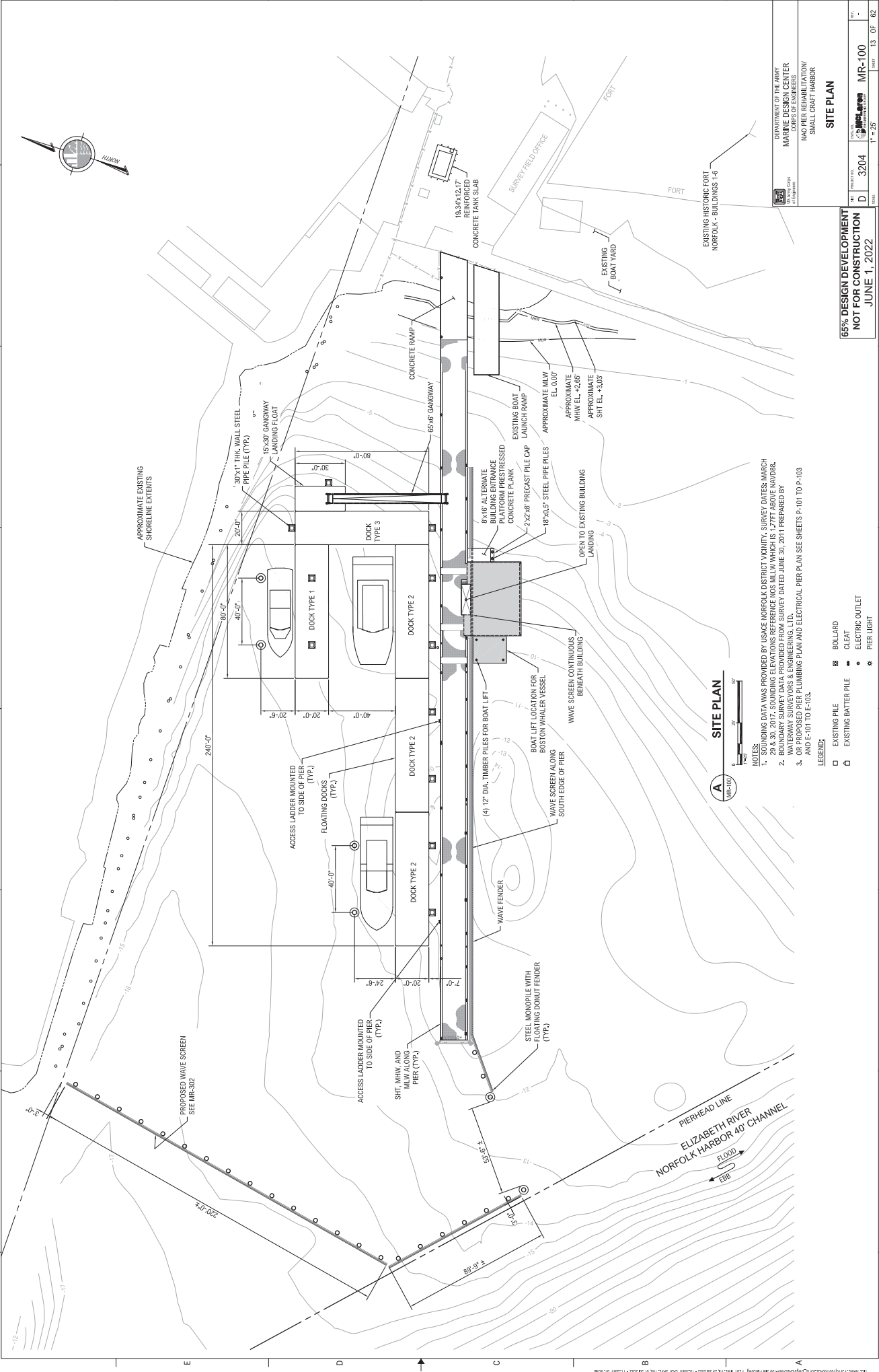
EXISTING ELEVATIONS

IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK STATE: VA

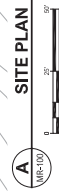


SHT 9 OF 16

11/20/21



NOTES:
 1. EXISTING DATA WAS PROVIDED BY USACE NORFOLK DISTRICT (USACE SURVEY DATES: MARCH 2006, 2007, 2017. SOUNDING ELEVATIONS REFERENCE WAS BULLWINKER IS. 2777 ABOVE MVD598.
 2. BOUNDARY SURVEY DATA PROVIDED FROM SURVEY DATED JUNE 30, 2011 PREPARED BY WATERWAY SURVEYORS & ENGINEERING, LTD.
 3. OR PROPOSED PIER PLUMBING PLAN AND ELECTRICAL PIER PLAN SEE SHEETS P-101 TO P-103 AND E-101 TO E-105.



- LEGEND:**
- EXISTING PILE
 - EXISTING BATTER PILE
 - ⊠ EXISTING PIER LIGHT
 - ⊞ BOLLARD
 - ⊞ CLEAT
 - ⊞ ELECTRIC OUTLET
 - ⊞ PIER LIGHT

DEPARTMENT OF THE ARMY
 MARINE CORPS CENTER
 1616 BRADLEY BLVD
 WASHINGTON, DC 20384
 MR-100
 1" = 25'
 SHEET 13 OF 62

**65% DESIGN DEVELOPMENT
 NOT FOR CONSTRUCTION**
 JUNE 1, 2022

SITE PLAN

PROJECT NO. 3204
 DATE 06/01/2022

EXISTING HISTORIC FORT
 NORFOLK - BUILDINGS 1-6

EXISTING BOAT YARD

CONCRETE TANK SLAB
 19.34'x12.17'
 REINFORCED

SURVEY FIELD OFFICE

CONCRETE RAMP

85% GANGWAY

EXISTING BOAT LAUNCH RAMP

APPROXIMATE MLW EL. 0.00'

APPROXIMATE MHW EL. +2.65'

APPROXIMATE SHL EL. +3.03'

OPEN TO EXISTING BUILDING LANDING

WAVE SCREEN CONTINUOUS BORGAR BUILDING

BOAT LIFT LOCATION FOR BOSTON WHALER VESSEL

WAVE SCREEN ALONG SOUTH EDGE OF PIER

WAVE FENDER

(4) 12" DIA. TIMBER PILES FOR BOAT LIFT

STEEL MONOPILE WITH TAPPING DOWN FENDER (TYP.)

SHL MARK AND TIALK ALONG PIER (TYP.)

ACCESS LADDER MOUNTED TO SIDE OF PIER (TYP.)

FLOATING DOCKS (TYP.)

ACCESS LADDER MOUNTED TO SIDE OF PIER (TYP.)

DOCK TYPE 1

DOCK TYPE 2

DOCK TYPE 2

DOCK TYPE 2

DOCK TYPE 3

15'x30' GANGWAY LANDING FLOAT

30" x 1" THICK WALL STEEL PIPE PILE (TYP.)

APPROXIMATE EXISTING SHORELINE EXTENTS

PROPOSED WAVE SCREEN SEE MR-302

240'-0"

80'-0"

40'-0"

20'-0"

20'-0"

40'-0"

20'-0"

20'-0"

20'-0"

7'-0"

24'-6"

89'-9"

12'-6"

17'-6"

17'

3'-0"

220'-0"

15'

16'

15'

14'

13'

12'

11'

10'

9'

8'

7'

6'

5'

4'

3'

2'

1'

0'

-1'

-2'

-3'

-4'

-5'

-6'

-7'

-8'

-9'

-10'

-11'

-12'

-13'

-14'

-15'

-16'

-17'

-18'

-19'

-20'

-21'

-22'

-23'

-24'

-25'

-26'

-27'

-28'

-29'

-30'

-31'

-32'

-33'

-34'

-35'

-36'

-37'

-38'

-39'

-40'

-41'

-42'

-43'

-44'

-45'

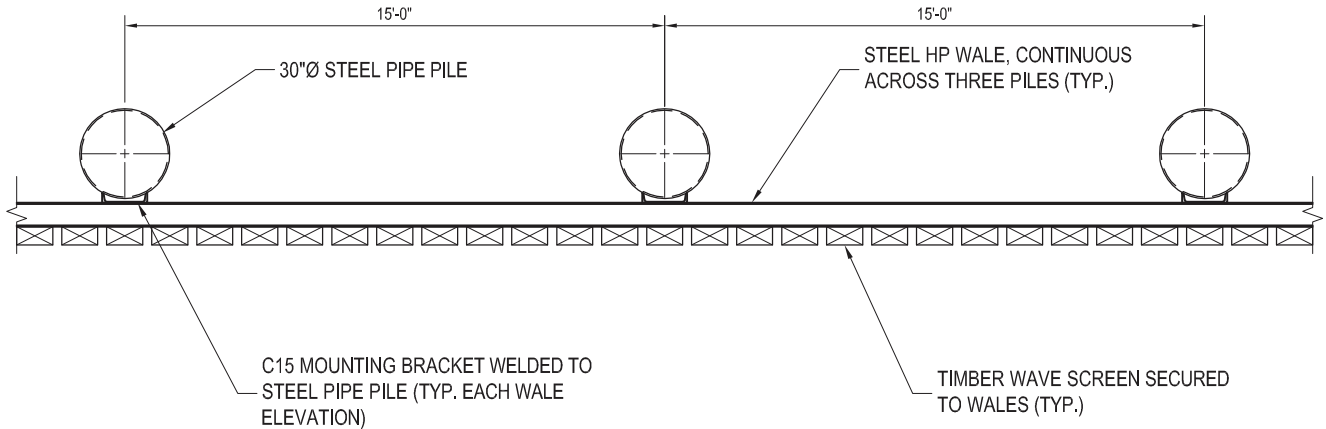
-46'

-47'

-48'

-49'

-50'



11 STEEL BREAKWATER PART PLAN

3/16"=1'-0"

DATUM: NAVD88

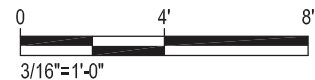
ADJACENT OWNERS:
1. REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

NAO PIER - SMALL CRAFT HARBOR

APPLICANT: Lesley Dobbins-Noble
United States Army Corps Of Engineers
Norfolk District 803 Front St.
Norfolk, VA 23510
AGENT: M.G. McLaren Engineering and Land Surveying, P.C.
530 Chestnut Ridge Rd.
Woodcliff Lake, NJ 07677

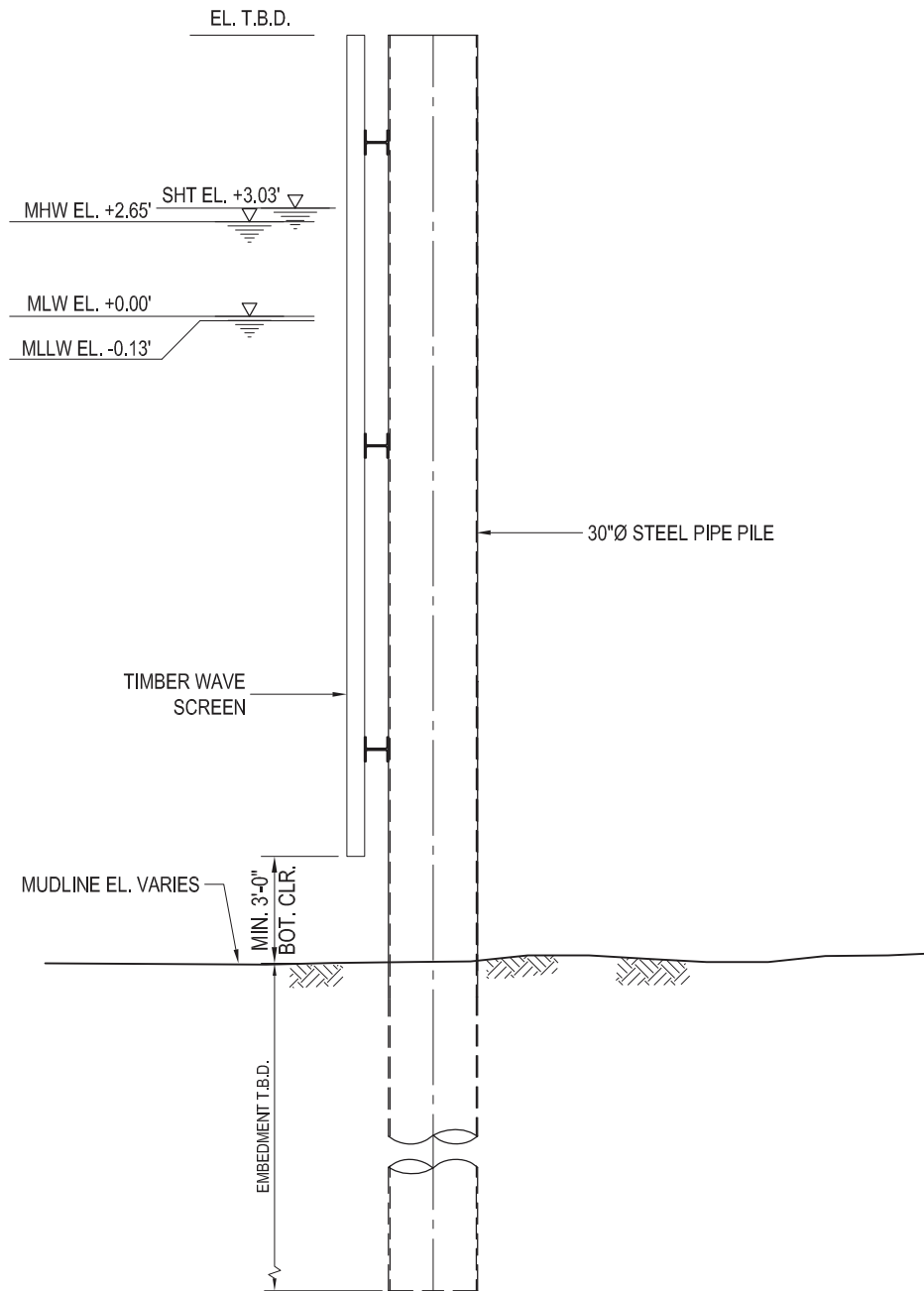
WAVE SCREEN PART PLAN

IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK STATE: VA



SHT 11 OF 16

11/20/21



12 STEEL BREAKWATER SECTION 3/16"=1'-0"

NOTE:
1. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

DATUM: NAVD88

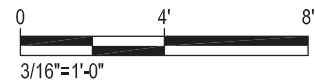
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NAO PIER - SMALL CRAFT HARBOR

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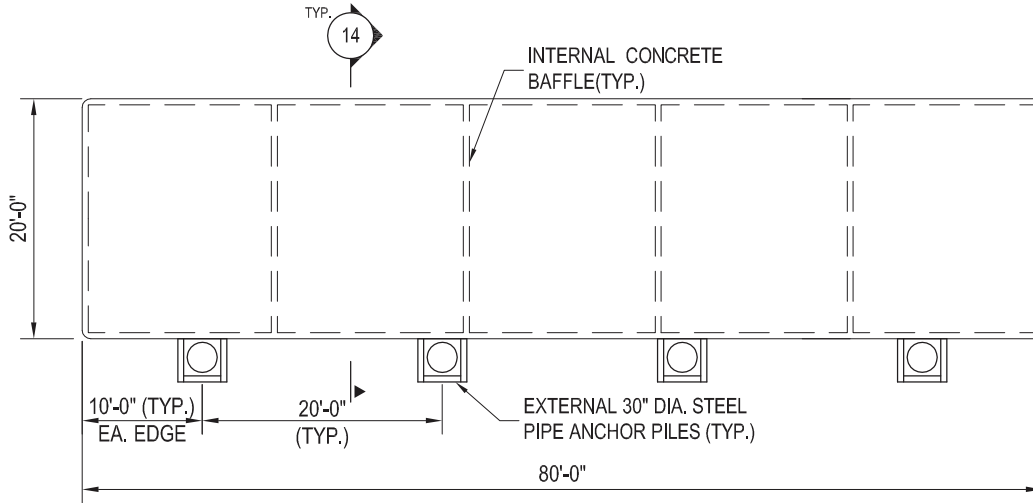
WAVE SCREEN SECTION

IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK STATE: VA

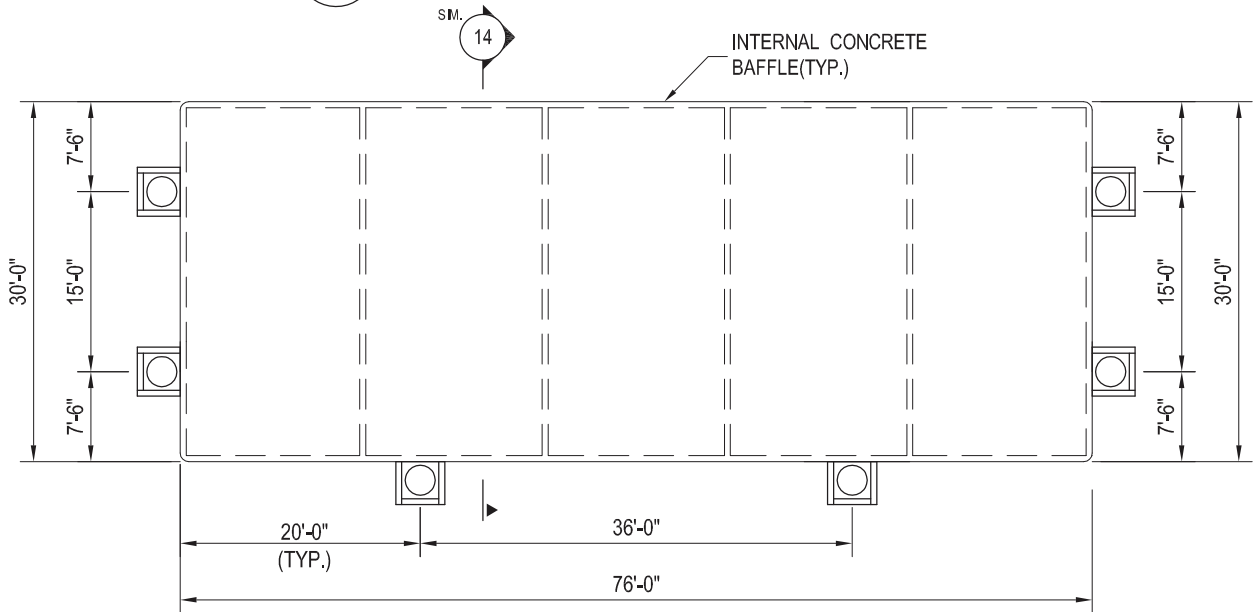


SHT 12 OF 16

11/20/21



13A TYPE 1 FLOATING DOCK PLAN
1/16"=1'-0"



13B TYPE 2 FLOATING DOCK PLAN
1/16"=1'-0"

NOTE:

- FLOAT BAFFLE LAYOUT AND GEOMETRY ARE APPROXIMATE. FINAL DESIGN TO BE PERFORMED BY MANUFACTURER AND SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO PROCUREMENT.

DATUM: NAVD88

ADJACENT OWNERS:

- REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

NAO PIER - SMALL CRAFT HARBOR

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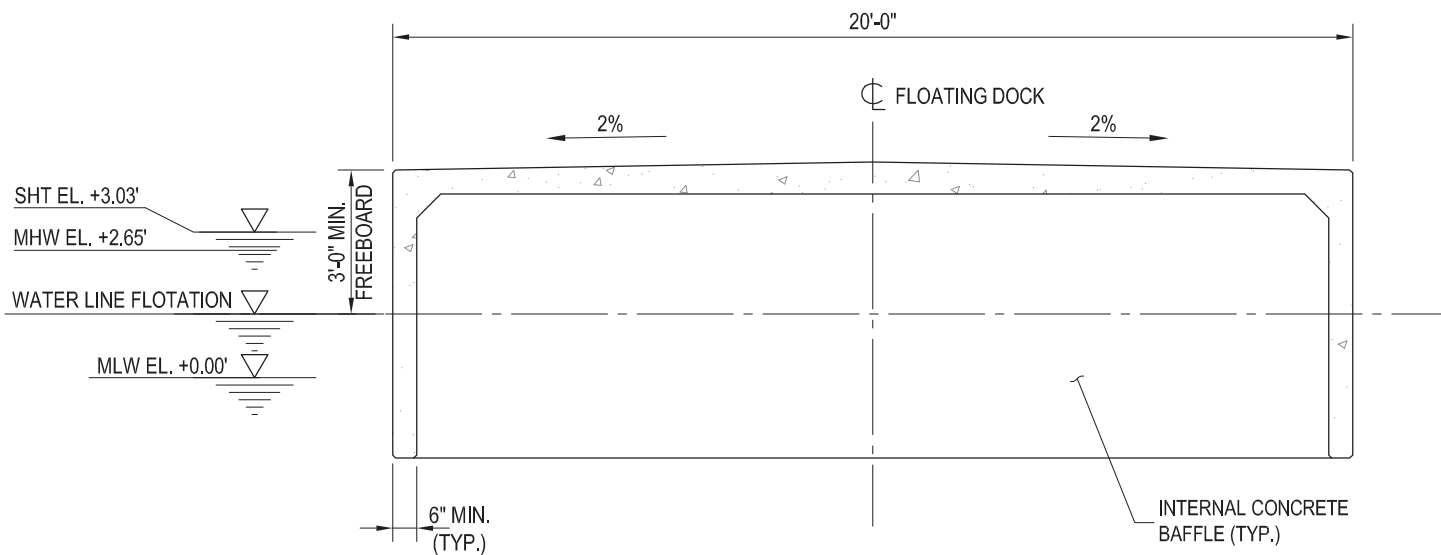
FLOATING DOCK PLAN

IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK STATE: VA



SHT 13 OF 16

11/20/21



14

FLOATING DOCK TYPICAL SECTION

1/4"=1'-0"

NOTE:

- 1. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

DATUM: NAVD88

ADJACENT OWNERS:
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NAO PIER - SMALL CRAFT HARBOR

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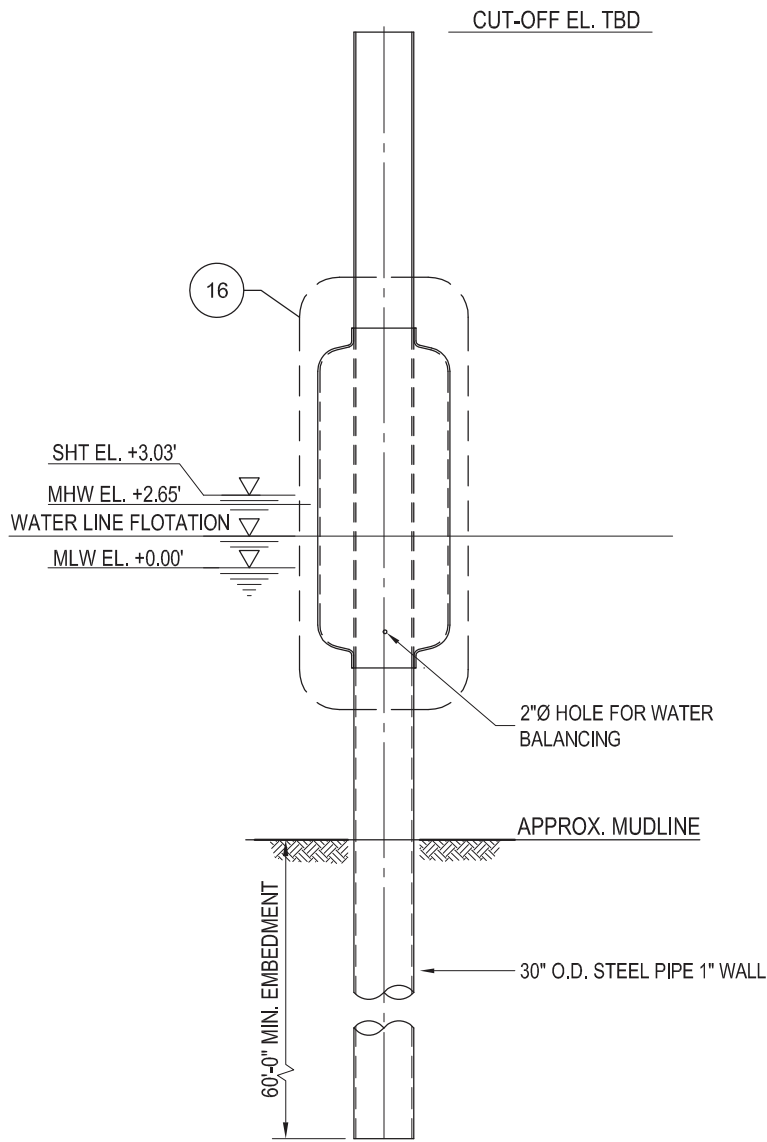
FLOATING DOCK SECTION

IN: ELIZABETH RIVER
 AT: NORFOLK (NORFOLK HARBOR)
 COUNTY OF: NORFOLK STATE: VA



SHT 14 OF 16

11/20/21



15 **MONOPILE ELEVATION**
 1/8"=1'-0"

NOTE:
 1. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

DATUM: NAVD88

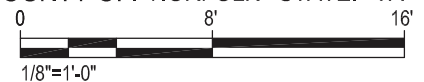
ADJACENT OWNERS:
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NAO PIER - SMALL CRAFT HARBOR

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 Norfolk District 803 Front St.
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 530 Chestnut Ridge Rd.
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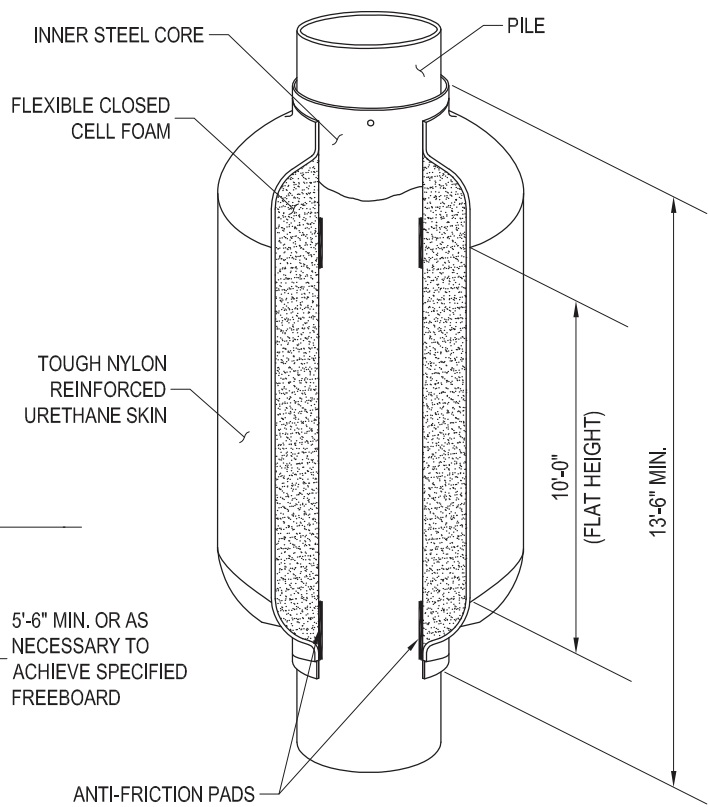
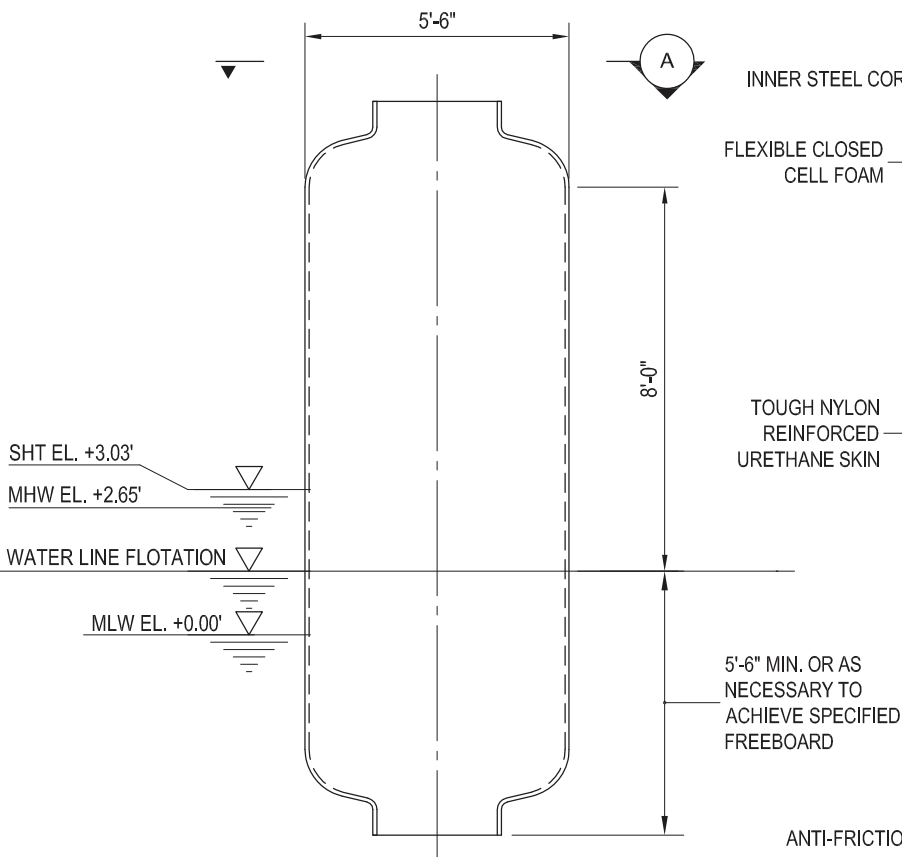
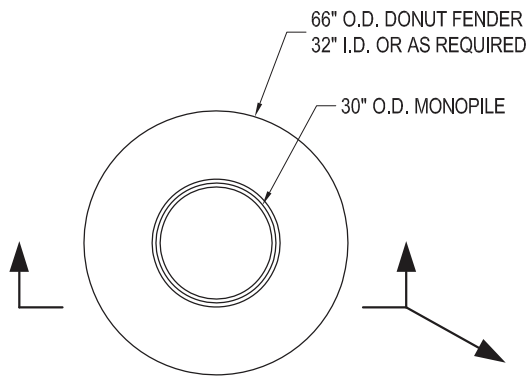
MONOPILE & FLOATING DONUT FENDER

IN: ELIZABETH RIVER
 AT: NORFOLK (NORFOLK HARBOR)
 COUNTY OF: NORFOLK STATE: VA



SHT 15 OF 16

11/20/21



16 DONUT FENDER
1/4"=1'-0"

A SECTION
N.T.S.

NOTE:
1. REFERENCE DATUM IS TO MEAN LOW WATER (MLW).

DATUM: NAVD88

NAO PIER - SMALL CRAFT HARBOR

ADJACENT OWNERS:
1. REFER TO SECTION 14 OF THE JOINT PERMIT APPLICATION FOR THE LIST OF ADJACENT PROPERTY OWNERS.

APPLICANT: Lesley Dobbins-Noble
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FLOATING DONUT FENDER SECTIONS

IN: ELIZABETH RIVER
AT: NORFOLK (NORFOLK HARBOR)
COUNTY OF: NORFOLK STATE: VA



SHT 16 OF 16

11/20/21