WORMLEY CREEK FEDERAL NAVIGATION PROJECT

United States Coast Guard (USCG) Training Center (TRACEN) in Yorktown, Virginia

DRAFT ENVIRONMENTAL ASSESSMENT

Prepared By:

U.S. Army Corps of Engineers

Operations Branch

803 Front Street

Norfolk, Virginia 23510

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I. EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared to assess the potential impacts of the Wormley Creek Federal Navigation project at the United States Coast Guard (USCG) Training Center (TRACEN) in Yorktown, Virginia (TRACEN Yorktown). The Proposed Action includes maintenance dredging and deepening portions of the Wormley Creek Federal Navigation Channel and the beneficial use of the dredged material along the shoreline directly northwest of Wormley Creek Channel, adjacent to USCG-TRACEN property, and overboard placement at Wolf Trap Alternate Placement Site (WTAPS). The following sites were evaluated for the placement of dredged material:

- Overboard placement at Wolftrap Alternate Placement Site (WTAPS);
- Beneficial use of dredged material along the shoreline directly northwest of Wormley Creek Channel, adjacent to USCG-TRACEN property;
- Beneficial use of dredged material behind the breakwaters immediately west of the Wormley Creek channel;
- Beneficial use of dredged material at the Yorktown Public Beach;
- Beneficial use of dredged material at Goodwin Island;
- Upland placement of dredged material at Shirley Plantation (WEANAC);
- Ocean disposal at Norfolk Ocean Disposal Site (NODS)
- Ocean disposal at Dam Neck Ocean Disposal Site (DNODS);
- Placement at Craney Island Dredged Material Management Area (CIDMMA).

The direct and indirect impacts of the Proposed Action Alternative and No-Action Alternative were evaluated for temporary and permanent impacts.

Short-term impacts associated with the Proposed Action include destruction of the non-motile benthic community and temporary changes in water quality, air and noise emissions. Short-term impacts would cease with the completion of construction.

Long-term impacts to soils and bathymetry, typical for a dredging project, would be expected as a result of the Proposed Action.

This EA was prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (40 CFR 1500-1508) and all applicable implementing regulations. This EA will be available for review and comment for 30 days from the date of posting.

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**This appendix will be updated after the 30-day comment period has closed.*

1 INTRODUCTION

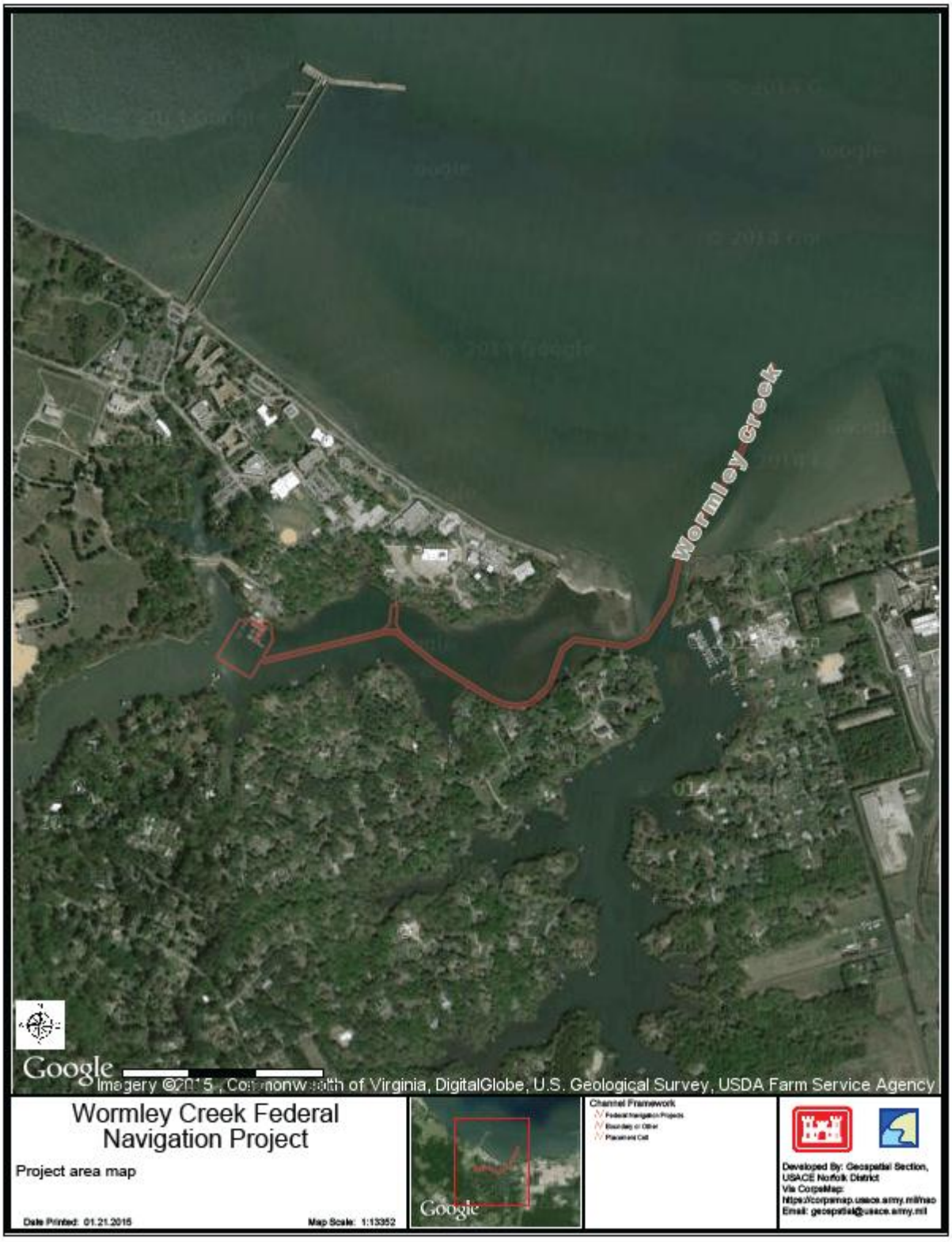
The Wormley Creek Channel provides access to the United States Coast Guard Training Center Yorktown (USCG TRACEN), in Yorktown, Virginia. The USCG Training Center occupies 154 acres of land and supports the Boat Forces and Cutter Operations (BFCO) facility. The BFCO has several schools that provide USCG mission essential requirements for boat crew training. Among the schools located at this facility are: Boatswain's Mate (BM) School, Coxswain C School, RBS/TANB School, and National Motor Lifeboat School. The facility maintains a fleet of twenty-eight vessels. In addition to training, the BFCO facility evaluates prototype equipment and boat alterations before final approval for use in the field and provides feedback from the fleet to the Office of Boat Forces that aid in the development of improved operational techniques and maintenance procedures.

1.1 PROJECT LOCATION

TRACEN Yorktown is located on a 25-mile long peninsula in southeastern Virginia, between the York River and the James River, tidal estuaries of the Chesapeake Bay. TRACEN Yorktown is situated along and immediately south of the York River, near where the river meets the Chesapeake Bay. The training center is bounded on the south and southwest by Wormley Creek, a tidal creek which empties into the York River; on the southwest by the U.S. Navy Fleet and Industrial Supply Center Yorktown (Naval Supply Center); and on the west by the Colonial National Historical Park, a property of the U.S. Department of the Interior/National Park Service (NPS), and a small enclave of residences. East of TRACEN Yorktown is the Dominion Power Yorktown Power Station, and the Plains All American Pipeline, L.P. The Town of Yorktown is immediately northwest of the TRACEN; and the City of Newport News is southwest.

The Wormley Creek Federal Navigation Channel is located in Wormley Creek and extends north and east into the York River. The project location is identified in Figure 1:

Figure 1 Proposed Action project location



1.2 PROJECT'S PURPOSE AND NEED

Wormley Creek provides access to support the BFCO facilities and TRACEN Yorktown. The primary purpose of maintenance dredging the Wormley Creek Channel is to provide safe navigation and anchorage for USCG vessel operations. Wormley Creek also provides access to a local marina and private docks and properties.

Shoaling has reduced the operating depth of the project and is currently impacting the USCG operations. Some of the vessels located at this facility are operating at very shallow depths which should be avoided according to the Commandant Instruction Operator's Manual:

"The waterjet will draw sand, mud and other debris from the sea bottom in water depths as much as 5 FT deep. Debris drawn through the waterjet will cause deterioration resulting in degraded performance. Operation in shallow water should be avoided unless necessary to accomplish the mission."

Currently, these vessels are required to back flush their jets when they transit Wormley Creek to remove sediments or debris that may have accumulated in the jets. As a result of the current channel depths, vessel down time and maintenance cost has increased due to additional repair/maintenance requirements. Reduced or discontinued maintenance dredging would result in the continued reduction in operational depth which would restrict and eventually prevent USCG operations.

1.3 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

Under the requirements of Section 102 of the National Environmental Policy Act (NEPA), this proposed project constitutes a major Federal action, and an Environmental Assessment (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 maintenance and new work dredging and placement of dredged material from the Wormley Creek Channel Federal Navigation project. This document identifies and evaluates the potential environmental,

cultural resources, and socioeconomic effects associated with the Proposed Action as accomplished by implementing the Preferred Alternative discussed in Section 2.0. Section 3.0 of this EA describes the alternatives considered. Section 4.0 describes the existing conditions that fall within the scope of this EA. Section 5.0 describes the environmental consequences envisioned as a result of implementing the Proposed Action.

The EA focuses on impacts likely to occur within the proposed area of construction. 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).

1.4 PUBLIC AND AGENCY INVOLVEMENT

The draft EA was coordinated with the following:

- USCG-TRACEN Yorktown
- National Oceanic and Atmospheric Administration (NOAA)
- NOAA - National Marine Fisheries Service (NMFS)
- U.S. Army Corps of Engineers (USACE)
- USCG
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Agency (USFWS)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
- Virginia Department of Conservation and Recreation (VDCR)
- Virginia Department of Environmental Quality (VDEQ)
- Virginia Department of Game and Inland Fisheries (VDGIF)
- Virginia Department of Historic Resources (VDHR)
- Virginia Institute of Marine Science (VIMS)
- Virginia Marine Resources Commission (VMRC)

This EA will be provided electronically to interested parties for a 30-day comment period. There will also be a link to it on the Norfolk District USACE (http://www.nao.usace.army.mil/) website.

2 PROPOSED ACTION

The Proposed Action is to hydraulically or mechanically dredge maintenance and new work material in the Wormley Creek Channel to a maintained depth of -7 feet mean lower low water (MLLW) plus -2 feet paid overdepth and -1 foot non-paid overdepth for a maximum depth of -10 feet MLLW. Dredged material from the inner portion of the channel would be transported by barge/scow for overboard placement in the Wolf Trap Alternate Placement Site (WTAPS). Dredged material from the outer portion of the channel would be transported via hydraulic pipeline for beneficial use along the shoreline directly northwest of Wormley Creek Channel adjacent to the USCG-TRACEN property. Once the shoreline placement site reaches capacity, any remaining dredged material from the outer portion of the channel would be placed at the WTAPS.

The Wormley Creek Channel is currently maintained to -5 feet MLLW plus -2 feet for paid overdepth for a maximum depth of -7 feet MLLW. The channel is approximately 30 feet wide and extends from the 5 foot contour in the York River in to the West Branch of Wormley Creek to the USCG docks and turning basin. The turning basin is approximately 300 feet wide and 400 feet long.

Currently, the average depth ranges from -1 feet MLLW to -8.7 feet MLLW in the channel. Maintenance dredging would restore the site to its previously permitted depth and also remove an additional 2 feet of material to increase the maintained depth from -5 feet MLLW to -7 feet MLLW for adequate waterjet clearance.

2.1 CHANNEL DREDGING

2.1.1 Hydraulic Dredging and Pipeline Placement

Hydraulic dredging is one dredging method that could be used at the Wormley Creek Channel. This method allows for sediment resuspension at the point of material removal only (at the cutterhead) since sediments are suctioned from the bottom and are not directly in contact with the middle or upper part of the water column. The concentration of resuspended sediments the dredging activity will create is a function of dredge type and sediment properties (Collins 1995). Compared to other dredges, cutterhead dredges remove sediment with only limited amounts of resuspension extending beyond the immediate vicinity of the dredge (USACE 1986). If hydraulic

dredging is used for the project, the dredged material would be piped via hydraulic pipeline for placement at the shoreline adjacent to USCG-TRACEN property or into a barge to be transported to WTAPS for overboard placement.

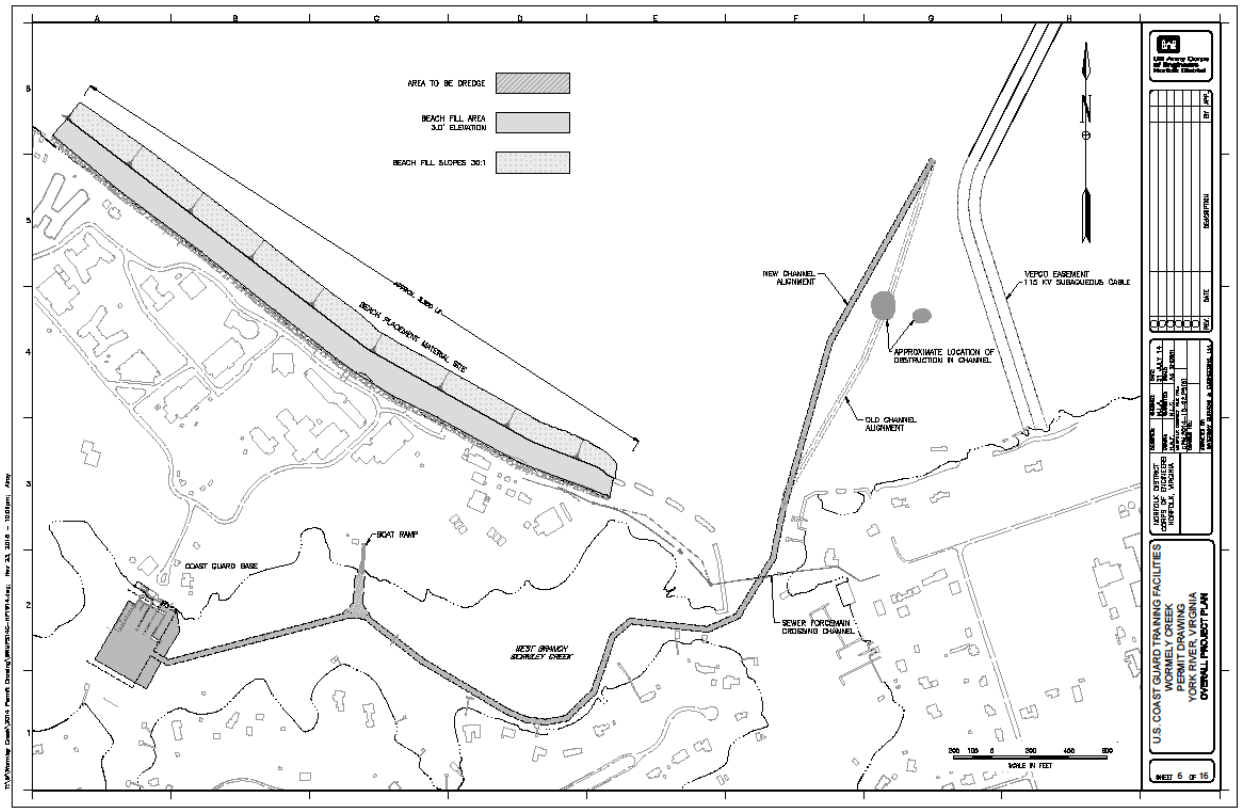
2.1.2 Mechanical Dredging with Barge and/or Scow

Mechanical dredging is the second method that could be used at Wormley Creek Channel. This method allows for sediment resuspension at vertical points in the water column from the bottom to above the water surface. Resuspension of the material into the water column can happen as the bucket impacts the bottom, closes, and is pulled off the bottom through the water column and breaks the water surface. Generally, resuspension of sediment is higher using mechanical clamshell dredges than hydraulic dredges but can be minimized through operational controls. Clamshell (bucket) dredges can be used in smaller navigation channels due to increased maneuverability. If mechanical dredging is used at Wormley Creek, dredged material would be removed from the channel and placed onto a small barge. The barge could transport the dredged material to the placement site or to a larger barge outside of Wormley Creek Channel. The double handling of dredged material would increase efficiency by allowing dredging operations to continue while the dredged material is being transported to the placement site. It would also reduce the number of trips to the placement site.

2.2 BENEFICIAL USE OF DREDGED MATERIAL ALONG SHORELINE DIRECTLY NORTHWEST OF WORMLEY CREEK CHANNEL, ADJACENT TO USCG-TRACEN PROPERTY

Dredging of the Wormley Creek Channel will remove approximately 90,000 cubic yards (CY) of dredged material in approximately 6.8 acres. Based on grain size analysis completed in January 2015, dredged material from the outer portion of the channel is acceptably matched to be placed on the shoreline directly northwest of Wormley Creek Channel, adjacent to the USCG-TRACEN property (see Figure 2 for shoreline placement site location).

Figure 2 Proposed Action project site and shoreline placement site location

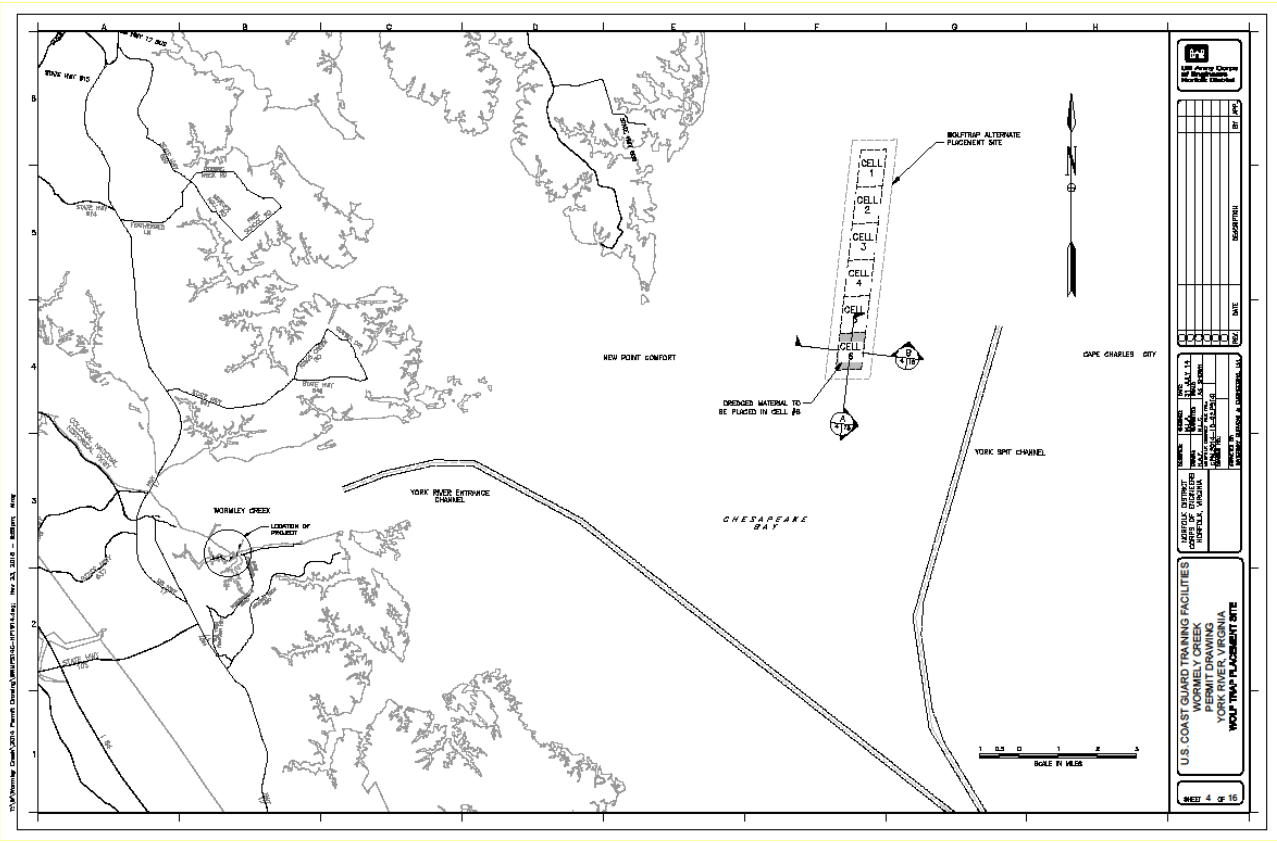


Due to the proximity of the shoreline placement site to the Federal channel and the beneficial usage of dredged material, this alternative has been determined to be an appropriate action to meet the Federal standard and allow for the efficient completion of the project.

2.3 PLACEMENT OF DREDGED MATERIAL AT WTAPS

The WTAPS is a 2,300-acre (4,500 acres with the designated buffer zone) rectangular area located in the Chesapeake Bay, approximately 5 miles east of New Point Comfort and south of Wolf Trap light, east of Mathews County, Virginia with the center of the WTAPS at approximately 37^{o} 19' north latitude and -76^{o} 10' west longitude (see Figure 3 for WTAPS location).

Figure 3 Proposed Action project site and WTAPS location



As a result of monitoring efforts from both the VIMS and the Waterways Experiment Station from 1987 to 1991, the area was classified into six equally divided cells. The WTAPS has previously been used for dredged material placement from the Wormley Creek Federal Navigation Project, York River Entrance Channel and York Spit. The most recent material placement event occurred in 2015 from the York Spit Channel.

Once the shoreline placement site reaches capacity, ~ 25,000 cubic yards, the remaining dredged material from the outer portion of the channel and all of the dredged material from the inner portion of the channel will be transported via barge and/or scow to WTAPS for overboard placement. Survey drawings indicate that the WTAPS was used as early as 1940. The quantity of dredged material being placed is minimal and will not likely impact blue crabs. Dredged material placed by bottom dump scow/barge falls through the water column slowly which allows blue crabs to easily avoid the placement activities at WTAPS. To further avoid impacts to blue crab population, dredged material will only be placed in WTAPS between April 1st through November 30th.

Placement at WTAPS meets the Federal standard, which requires the Federal government to choose the least costly, environmentally acceptable alternative, and is the long term preferred alternative.

2.4 IMPACT TOPICS ELIMINATED FROM FURTHER ANALYSIS AND CONSIDERATION

The following impact topics were eliminated from further analysis in this EA and a brief rationale for dismissal is provided for each topic. Potential impacts to these resources would be negligible, localized, and most likely immeasurable.

2.4.1 Land Use

The project site is subtidal and would not impact occupancy, property values, ownership, or any type of land use; therefore, this impact topic was dismissed from further analysis in this EA.

2.4.2 Prime Farmland

Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. The soil qualities, growing season, and moisture supply are those needed for a well-managed soil to produce a sustained high yield of crops in an economic manner. The land can be cropland, pasture, rangeland, or other land, but not urban built-up land or water. Prime farmland is protected under the Farmland Protection Policy Act of 1981 to minimize the extent to which Federal programs contribute to the unnecessary or irreversible conversion of farmland to nonagricultural uses. The project site is subtidal and is not considered prime farmland; therefore, prime farmland was dismissed as an impact topic in this EA.

2.4.3 Geohazards

There are no known geohazards within the project area; therefore, this impact topic was dismissed from further analysis in this EA.

2.4.4 Floodplains

The project area is located in Zones AE and VE per the Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM) for the York County, Virginia map number 51199C0128D, panel 128 of 159 (see Figures 4 and 5). Zone AE is defined as "areas of 1% annual chance flood with an established base floodplain elevation" and Zone VE is defined as "areas along coasts subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action." FEMA uses the terminology of "Coastal High Hazard Areas" for areas subject to inundation by 1% annual chance flood, extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources.

The project site is subtidal; therefore, no significant floodplain impacts associated with the Proposed Action are anticipated. This impact topic was dismissed from further analysis in this EA.

Figure 4 FEMA project site FIRM

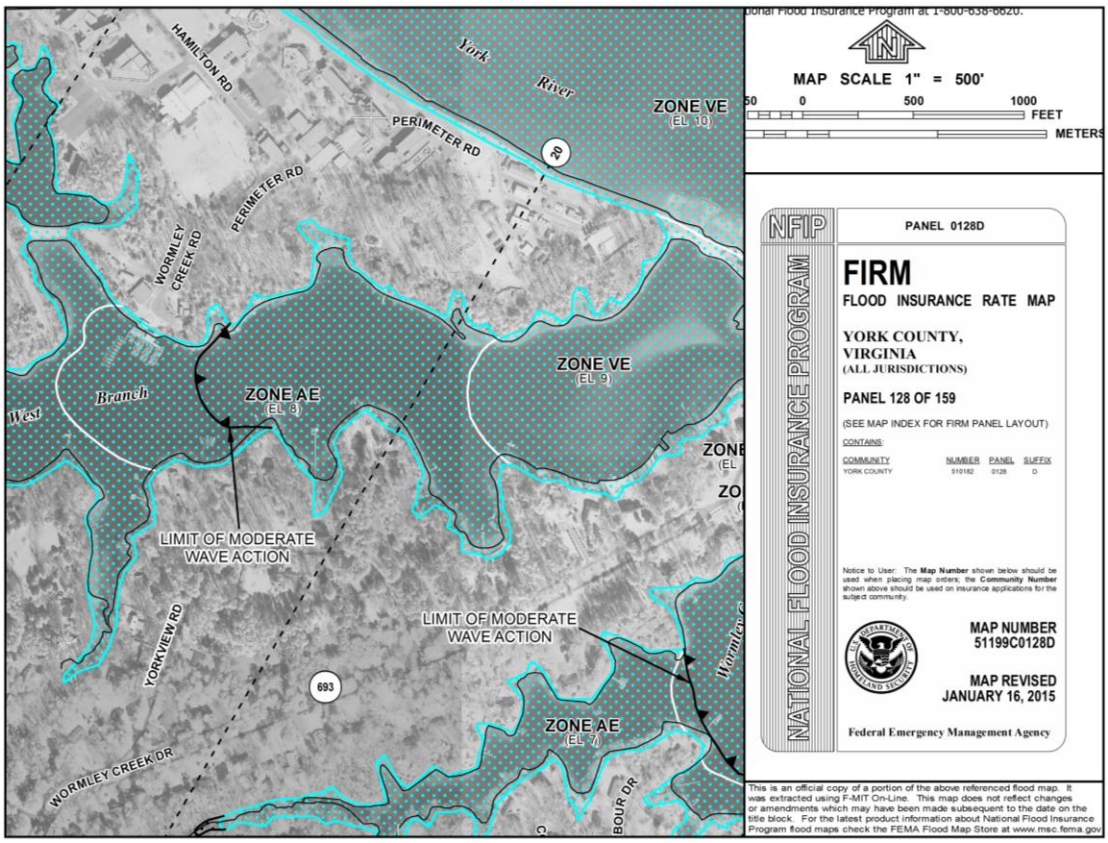
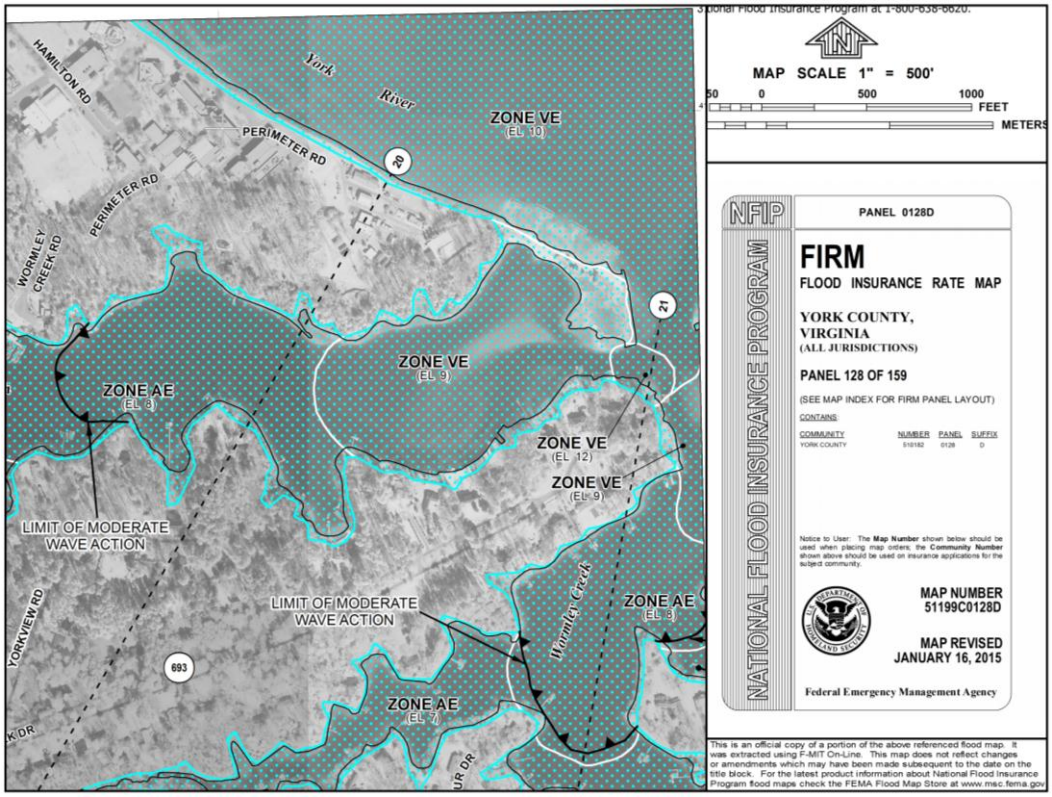


Figure 5 FEMA project site FIRM



2.4.5 Groundwater

The project site is subtidal; therefore, this impact topic was dismissed from further analysis in the EA.

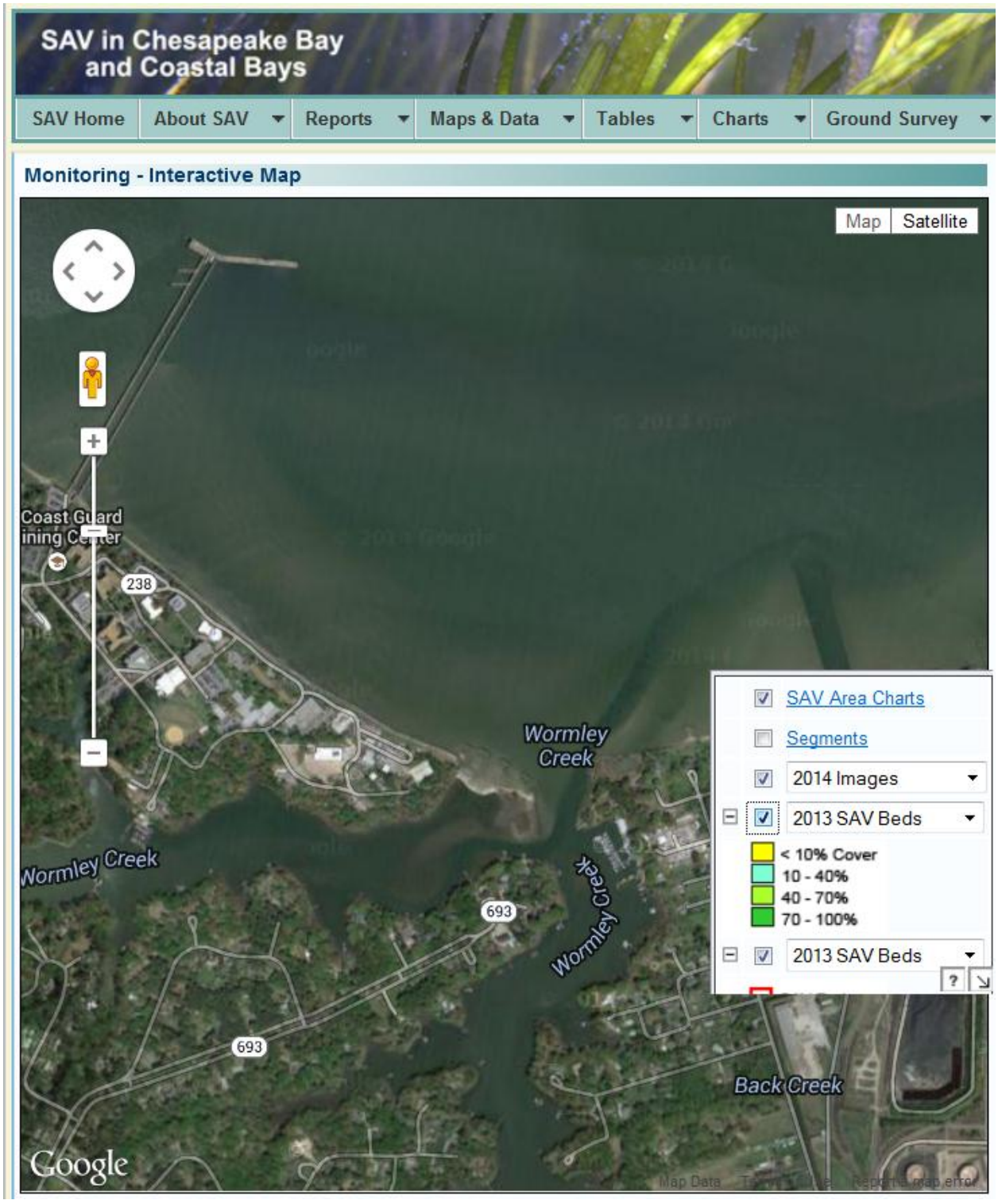
2.4.6 Stormwater Systems

The project site is subtidal; therefore, this impact topic was dismissed from further analysis in the EA.

2.4.7 Vegetation

VIMS has not identified any submerged aquatic vegetation (SAV) in or adjacent to the project area (see Figure 6); therefore, this impact topic was dismissed from further analysis in this EA.

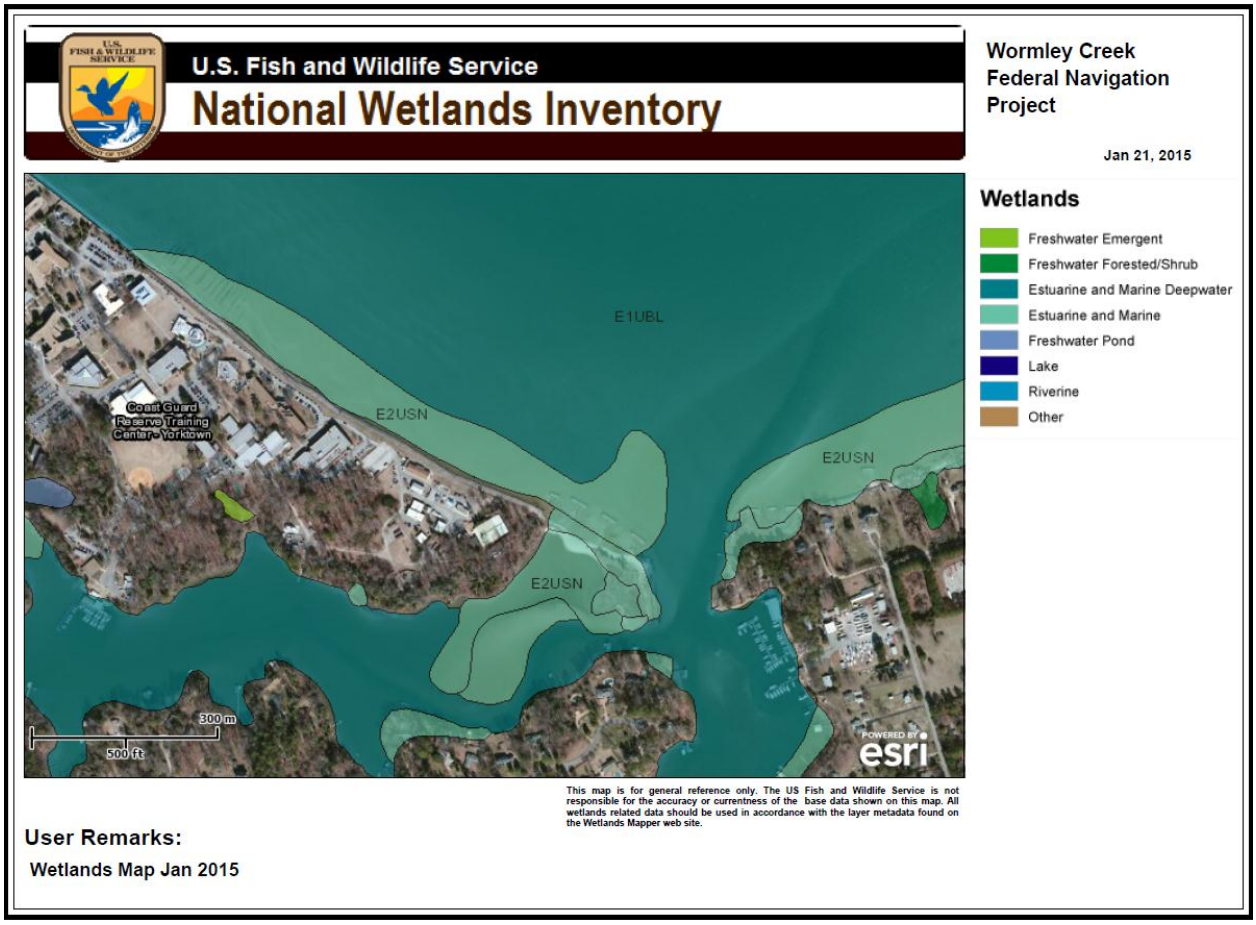
Figure 6 VIMS map showing no SAV in or adjacent to the project site



2.4.8 Wetlands

The USFWS National Wetlands Inventory (NWI) has identified wetlands near but not within the project area (see Figure 7); therefore, this impact topic was dismissed from further analysis in this EA.

Figure 7 NWI map showing no wetlands in or adjacent to the project site



2.4.9 Unique Ecosystems, Biosphere Reserves, and World Heritage Sites

There are no known unique ecosystems, biosphere reserves, or World Heritage Sites listed within or adjacent to the project site; therefore, this impact topic was dismissed from further analysis in this EA.

2.4.10 Wild and Scenic Rivers

The project site is not located in or adjacent to a National Wild and Scenic river; therefore, this impact topic was dismissed from further analysis in this EA.

2.4.11 Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies is explicitly addressed in environmental documents. The Federal Indian Trust responsibility is a legally enforceable fiduciary obligation on the part of the U. S. Government to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of Federal law with respect to American Indian tribes and Alaska Native entities. The project area is not held in Trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians; therefore, this impact topic was dismissed from further analysis in this EA.

2.4.12 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations". This order directs agencies to address environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate placement from any adverse effects by Federal policies and actions on these populations. Local residents near the project may include low-income populations; however, these populations would not be particularly or disproportionately affected by activities associated with the project. This impact topic was dismissed from further analysis in this EA.

2.4.13 Socioeconomic Resources

NEPA requires an analysis of impacts to the human environment, which includes economic, social, and demographic elements in the affected area. The current conditions in the project area, as represented by the No-Action Alternative, would not have any impacts to the socioeconomic resources of the surrounding area. The Proposed Action would neither change local and regional land use, nor appreciably impact local businesses or other agencies. Implementation of the Proposed Action could provide a negligible beneficial impact to the nearby surrounding economies

from short-term minimal increases in employment opportunities for the construction workforce and revenues for local businesses and government generated from construction activities. Since the impacts to the socioeconomic resources associated with the project would be negligible, this impact topic was dismissed from further analysis in this EA.

2.4.14 Aesthetics

The project site is sub-tidal; therefore, the project does not have features that are aesthetically prominent nor architecturally distinguished. This impact topic was dismissed from further analysis in this EA.

2.4.15 Transportation

The Wormley Creek Channel and WTAPS are subtidal and accessible by boat; therefore, no impacts to traffic conditions are anticipated, and this impact topic was dismissed from further analysis in the EA.

3 ALTERNATIVES TO THE PROPOSED ACTION

Under NEPA, an EA must evaluate reasonable alternatives for a project. Ten (10) alternatives have been identified for the project:

- No Action Alternative;
- Overboard placement of dredged material at WTAPS;
- Beneficial use of dredged material along the shoreline directly northwest of Wormley Creek Channel, adjacent to USCG-TRACEN property;
- Beneficial use of dredged material behind the breakwaters immediately west of the Wormley Creek channel;
- Beneficial use of dredged material at the Yorktown Public Beach;
- Beneficial use of dredged material at Goodwin Island;
- Upland placement of dredged material at Shirley Plantation (WEANAC);
- Ocean disposal at Norfolk Ocean Disposal Site (NODS);
- Ocean disposal at Dam Neck Ocean Disposal Site (DNODS);
- Placement at Craney Island Dredged Material Management Area (CIDMMA).

The maintenance dredging with the beneficial use of dredged material along the shoreline directly northwest of Wormley Creek Channel, adjacent to USCG-TRACEN property and the overboard placement of dredged material at WTAPS was carried forward as part of the Proposed Action. This plan has been determined to be the best and most appropriate action to meet the Federal standard and allow for the efficient completion of the project.

3.1 THE NO-ACTION ALTERNATIVE

NEPA regulations refer to the No-Action Alternative as the continuation of existing conditions of the affected environment without implementation of, or in the absence of, the Proposed Action. Inclusion of the No-Action Alternative is prescribed by the Council on Environmental Quality (CEQ) regulations as the benchmark against which Federal actions are evaluated. Under this alternative, the Proposed Action would not occur. This alternative would eliminate environmental impacts to the benthic community at the project site and dredged material placement site. Reduced or discontinued maintenance dredging would result in the continued reduction in operational depth of the navigation channel and basin due to naturally occurring shoaling. Continued shoaling would restrict and eventually prevent efficient deployment of TRACEN-Yorktown vessels' which will inhibit the training center's ability to deploy for training activities and missions. The channel and basin would eventually reach hydrodynamic equilibrium and the benefits of the waterway would be eliminated as the shoaling would become a hazard to safe navigation and human health and safety.

3.2 BENEFICIAL USE OF DREDGED MATERIAL BEHIND THE BREAKWATERS IMMEDIATELY WEST OF THE WORMLEY CREEK CHANNEL

Beneficial use of dredged material from the Wormley Creek Federal Navigation project at the breakwaters immediately west of the channel was considered as an alternative. Grain size analysis was completed in January 2015. Due to the dynamic energy in the breakwater location and its adjacency to the channel, dredged material placed in this location would likely migrate back into the channel. This alternative is not a preferred placement alternative.

3.3 BENEFICIAL USE OF DREDGED MATERIAL AT THE YORKTOWN PUBLIC BEACH

Placement of dredged material from the Wormley Creek Federal Navigation project at the Yorktown Public Beach was considered as an alternative. Sediment grain size analysis conducted showed the fine grained sands are not likely to be acceptable for use on a public beach, such as the Yorktown Beach. Additionally, a local sponsor would need to be identified to secure real estate easements. If future grain size analysis proves that channel sediments are compatible with beach sediments, this alternative would be a preferred future alternative for future cycles; however, this is not a feasible alternative for the upcoming dredging cycle.

3.4 BENEFICIAL USE OF DREDGED MATERIAL AT GOODWIN ISLAND

VIMS, the local sponsor for Goodwin Island, was contacted via email regarding the possibility of beneficially using the dredged material on the island. In an email response on April 21, 2015, Dr. William Reay, the representative for VIMS, declined dredged material placement on Goodwin Island for this cycle. Dr. Reay states in the email that the island is an approved NOAA Climate Change Sentinel Site and therefore would require development of a comprehensive plan to avoid compromising the island's current and future use as a sentinel site. He specifically states that given the proposed project schedule, staff do not have adequate time to develop the plan and address concerns related to grain size analysis, feasibility of deposition at this location versus alternative sites, and potential impacts to existing resources (e.g. – sea grasses). Due to these constraints, this is not a feasible alternative.

3.5 UPLAND PLACEMENT OF DREDGED MATERIAL AT SHIRLEY PLANTATION (WEANAC)

Placement of dredged material from the Wormley Creek Federal Navigation project at Shirley Plantation/WEANAC was considered as an alternative. This alternative is cost prohibitive and does not meet the Federal standard. A local sponsor would need to be identified to pay the incremental difference beyond the Federal Standard.

3.6 OCEAN DISPOSAL AT NODS

Management of the NODS and dredged material placement operations at NODS are conducted in accordance with the Site Management and Monitoring Plan (SMMP). 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 with the MPRSA Section 103 regulations may be placed at the site. The placement of dredged materials from the Wormley Creek Federal Navigation project at NODS is cost prohibitive and does not meet the Federal standard.

3.7 OCEAN DISPOSAL AT DNODS

Management of the DNODS and dredged material placement operations at DNODS are conducted in accordance with the SMMP, which establishes specific requirements for use of the site. The SMMP provides that only dredged material that has been evaluated in accordance with the MPRSA Section 103 regulations may be placed at the site. The placement of dredged materials from the Wormley Creek Federal Navigation project at DNODS is cost prohibitive and does not meet the Federal standard.

3.8 PLACEMENT AT CIDMMA

Congress authorized the CIDMMA in 1946 in the River and Harbor Act, P.L. 79-525, in accordance with House Document 563 of the 79th Congress. As set forth in House Document 563, the project was authorized in order to create a disposal area for the sole purpose of accommodating materials dredged locally from Norfolk Harbor and adjacent waters for navigation purposes. The project is located outside of the geographic limits established in the Congressional authorization for CIDMMA.

4 AFFECTED ENVIRONMENT

This section describes the affected environment and the existing conditions for the resource categories that may be impacted by the Wormley Creek Channel Federal Navigation project. Each resource category was reviewed for its potential to be impacted. Through this analysis, resource categories clearly not applicable to the alternatives were screened from further evaluation (and were briefly described in Section 2.4). Only those affected resources applicable to the Proposed Action are discussed further in this section and in Section 5.0, Environmental Consequences.

Impacts from the Proposed Action would primarily be found within the project boundaries. The dredging project footprint is approximately 6.8 acres and the shoreline placement area is approximately 15.4 acres. Dredging would remove approximately 75,000 CY of material. The area will be hydraulically or mechanically dredged to a minimum depth of -7 feet MLLW plus -2 feet paid overdepth and -1 foot non-paid overdepth for a maximum depth of -10 feet MLLW. The maintained depth of -7 feet MLLW is necessary to provide safe navigation and access for USCG vessel operations. Dredged material from the inner portion of the channel will be placed at WTAPS. As much dredged material as possible from the outer portion of the channel will be placed along the shoreline at USCG-TRACEN's property. Once the shoreline site reaches capacity, the remainder of the material from the outer channel will be transported and placed at WTAPS.

4.1 SOILS

Sediment in the Wormley Creek Channel project site is considered previously disturbed maintenance material and new work material. To ensure the dredged material from Wormley Creek Channel is suitable for placement at WTAPS and the USCG-TRACEN shoreline, sediment core samples were collected from five separate locations within the project's dredging footprint (see Figures 8, 9, and 10):

Figure 8 Actual sample locations – Wormley Creek Channel, sites WCC1, WCC2, and WCC3

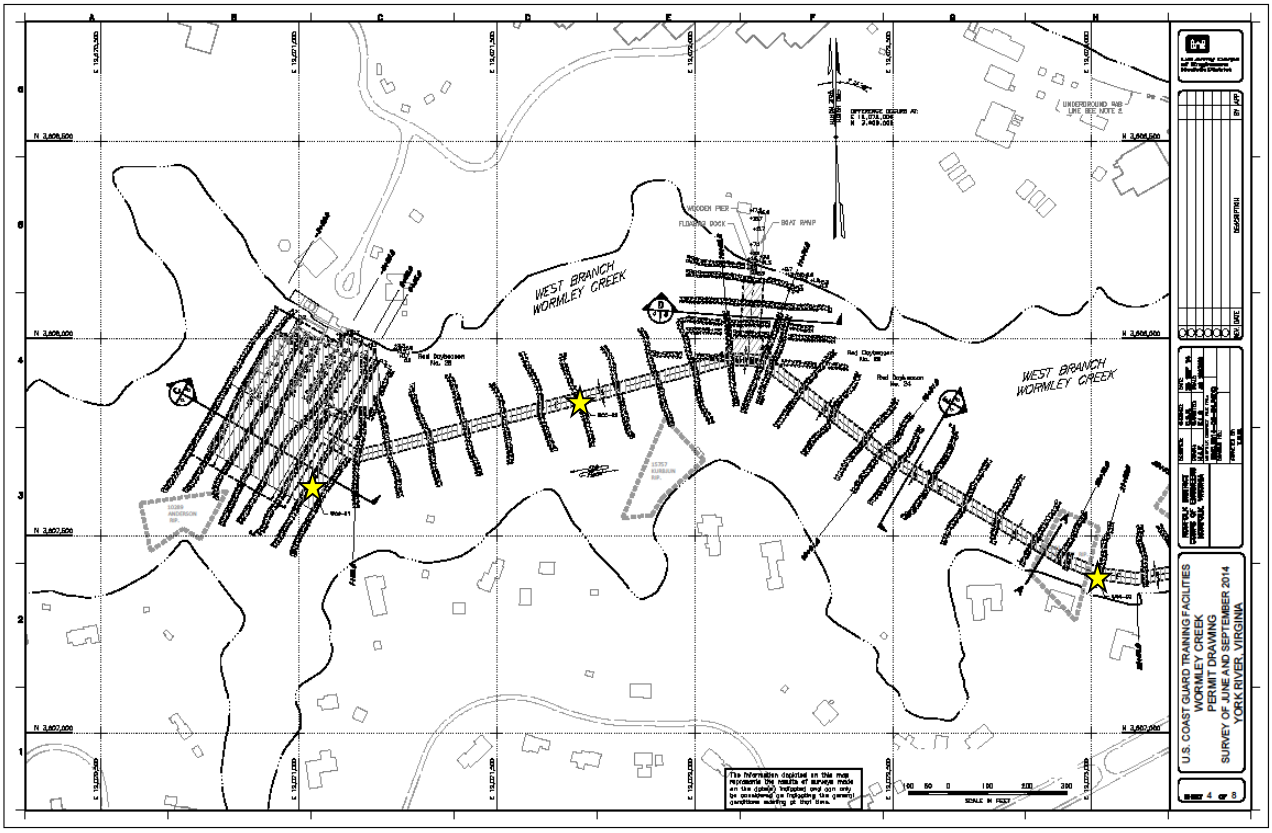


Figure 9 Actual sample locations – Wormley Creek Channel, sites WCC3 and WCC4

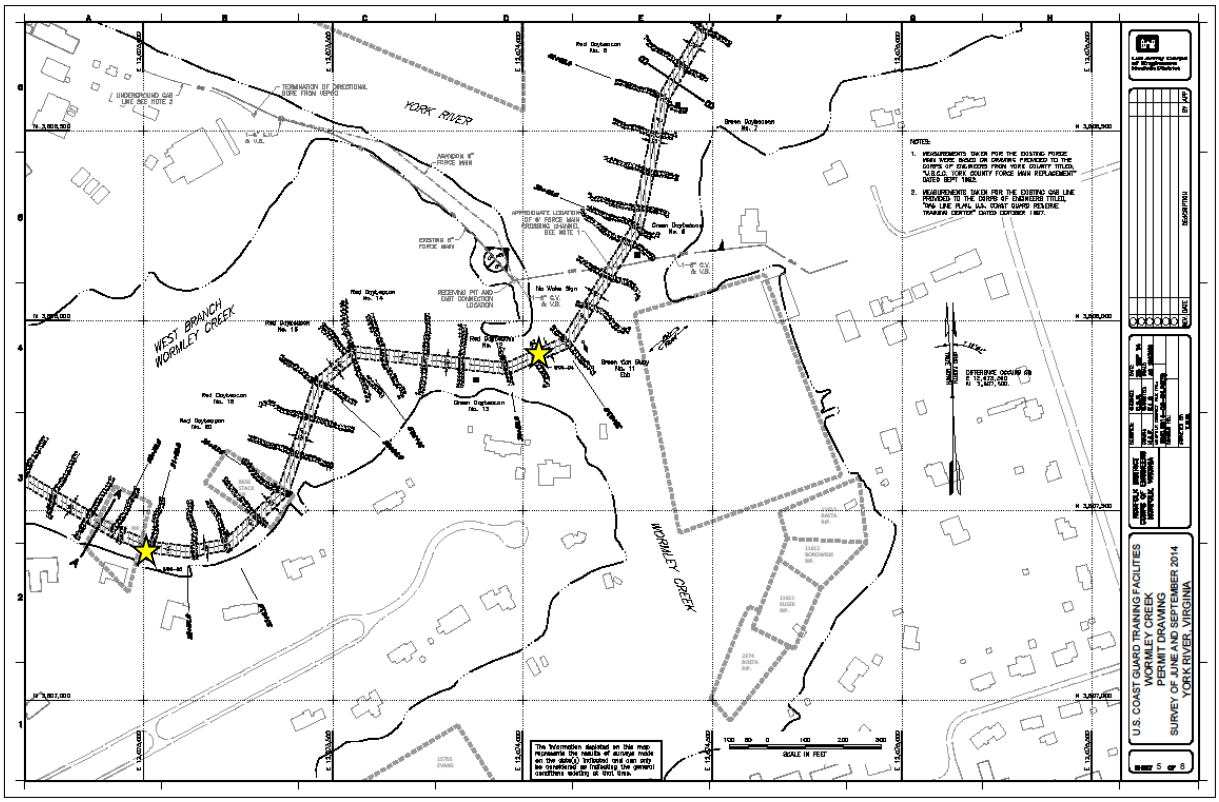
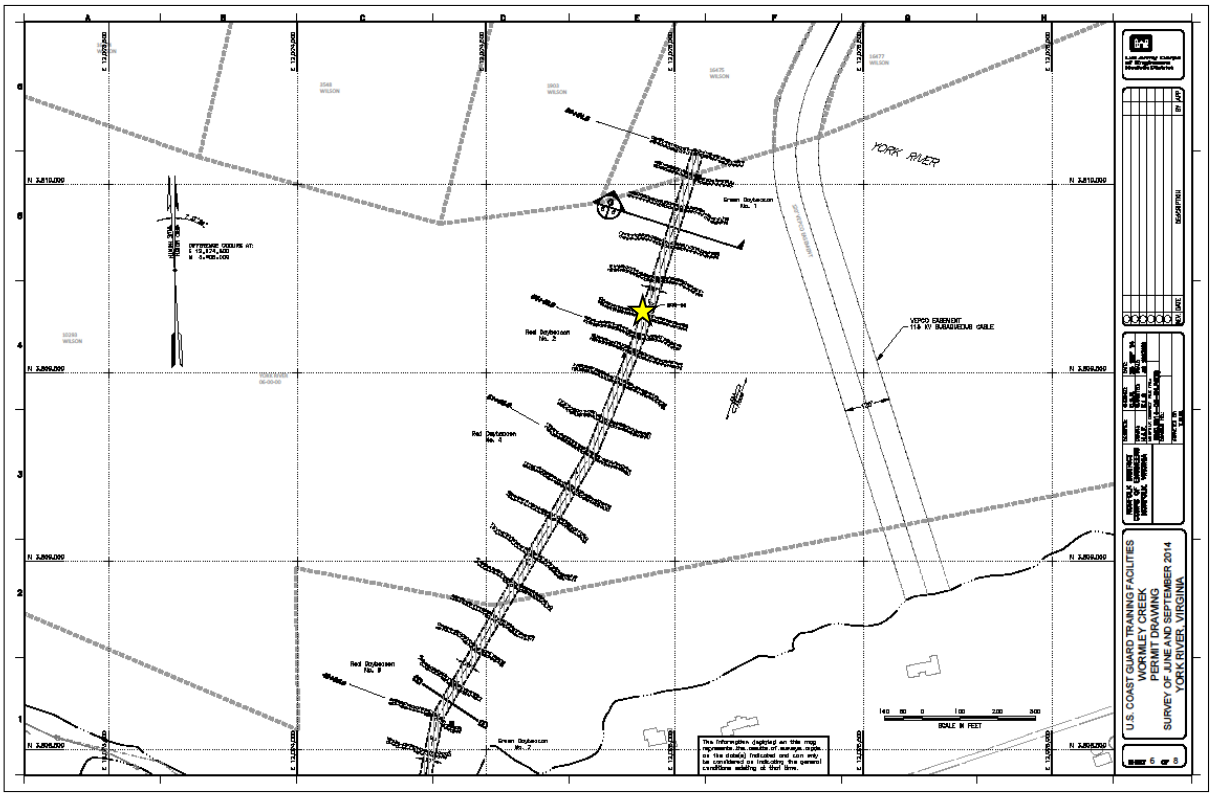


Figure 10 Actual sample locations – Wormley Creek Channel, site WCC5



Samples from the dredging footprint were collected in December 2014 via vibracore and were evaluated for grain size. Soils are predominantly fine grain materials (silts and clays) in the inner channel and fine grained sands in the outer channel. No sensitive soils or Prime or Unique Farmland soils are present in the project site. (See Appendix E – Dredged Material Sediment Grain Size Analysis Summary Table.)

4.2 BATHYMETRY

The project site is located within the Atlantic Coastal Plain Physiographic Province. The site itself is sub-tidal and mostly flat with water depth varying from -1 feet to -8.7 feet. Roads, buildings, bridges, and other common urban features are found in the surrounding area.

4.3 WATER QUALITY

The Wormley Creek Channel ranges in salinity from 12.6 – 25.75 parts per thousand, and water temperature ranges from 35.42° to 82.45° Fahrenheit. Dredged material discharges into "waters

of the United States" including all waters landward of the baseline of the territorial sea are regulated under Section 404 of the CWA (Clean Water Act). All dredged material discharges authorized under Section 404 of the CWA must be certified under Section 401 of the CWA as complying with applicable State water quality standards. The CWA 404(b)(1) guidelines state in part that "No discharge of dredged or fill material shall be permitted if it: (1) causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard" (see Appendix C "Clean Water Act 404(b)1" for the completed worksheet).

In addition, the Proposed Action may require permits from the Regulatory Office of USACE, VMRC, and/or VDEQ for the discharge of dredged material. These permits and approvals would be obtained prior to the start of construction.

4.4 PROTECTED SPECIES AND CRITICAL HABITAT

Wildlife found in this area is typical for an urban environment. Species generally include squirrel, rabbit, raccoon, opossum, fox, and deer. Various small reptiles and amphibians inhabit the area as well as songbirds and bats. The Northern Long-eared Bat (*Myotis septentrionalis*) is listed on the IPaC resource report, however, there is no critical habitat for the species since the project area is tidal and subtidal. Refer to Appendix D "Threatened and Endangered Species Lists" for the VDGIF, USFWS, and Virginia Natural Heritage Resources (VNHR) species tables for the project area.

4.4.1 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a Federal fisheries management plan (FMP). Section 305(b)(2) of the Magnuson-Stevens Act requires Federal action agencies to consult with NMFS on all actions, or Proposed Actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH. As part of the EFH consultation process, the guidelines require Federal action agencies to prepare a written EFH Assessment describing the effects of that action on EFH (50 CFR 600.920(e)(1)).

Coordination with the NOAA Fisheries Service is ongoing. The written EFH Assessment was submitted in December 2014, as required by the Magnuson-Stevens Act, with the recommendation of no significant adverse effect on EFH. An amended EFH was submitted in December 2015 with the same recommendation (see Appendix A "Agency Coordination").

4.4.2 Informal Section 7 Consultation for the Atlantic Sturgeon

The Atlantic Sturgeon (*Acipenser oxyrinchus*) may be present in the project area based on data from the VDGIF Biota of Virginia Report (see Appendix D "Threatened and Endangered Species Lists" for detailed table listings.) An informal section 7 consultation regarding the incidence of Atlantic sturgeon within the area of the Proposed Action was submitted in January 2015 with the recommendation of insignificant adverse effect on Atlantic Sturgeon. The site is not in an area where spawning is known to occur. Small juveniles are not likely using the area, but adults and sub-adults may transit the project area during migration or to forage. No injuries or mortalities of Atlantic Sturgeon have been reported for the Southwest Branch of the Back River area. NMFS concurred with the insignificant adverse effect conclusion in a letter on March 4, 2015 (see Appendix A "Agency Coordination"). An amendment notice was submitted in December 2015 with the recommendation of no significant adverse effect. NMFS concurred via email with the amendment notification in December 2015, and stated no re-initiation of consultation is necessary.

4.5 AIR QUALITY

The Clean Air Act (CAA) as amended requires Federal actions to conform to an approved state implementation plan (SIP) designed to achieve or maintain an attainment designation for air pollutants as defined by the National Ambient Air Quality Standard (NAAQS). The NAAQS were designed to protect public health and welfare. The criteria pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$ and PM_{10}), VOC, and lead (Pb). The General Conformity Rule (40 CFR Parts 51 and 93) implements these requirements for actions occurring in air quality nonattainment areas.

The Proposed Action is located in the Air Quality Control Region (AQCR) known as Hampton Roads Intrastate ACQR in Virginia (42 CFR 481.93). This region is in attainment for all the NAAQSs.

4.6 NOISE

The main source of noise at the project site and the surrounding area is USCG boat traffic as well as commercial and recreational boats passing near or through the area. Noise also originates from common sources found in an urban environment, such as lawn mowers and vehicles.

4.7 RECREATIONAL AND COMMERCIAL USE OF WATERS

Recreational boats transit the Wormley Creek Channel to access the York River. Oyster leases are located in the project vicinity. According to the VMRC database, as of December 2, 2015 three oyster leases transect the Federal channel.

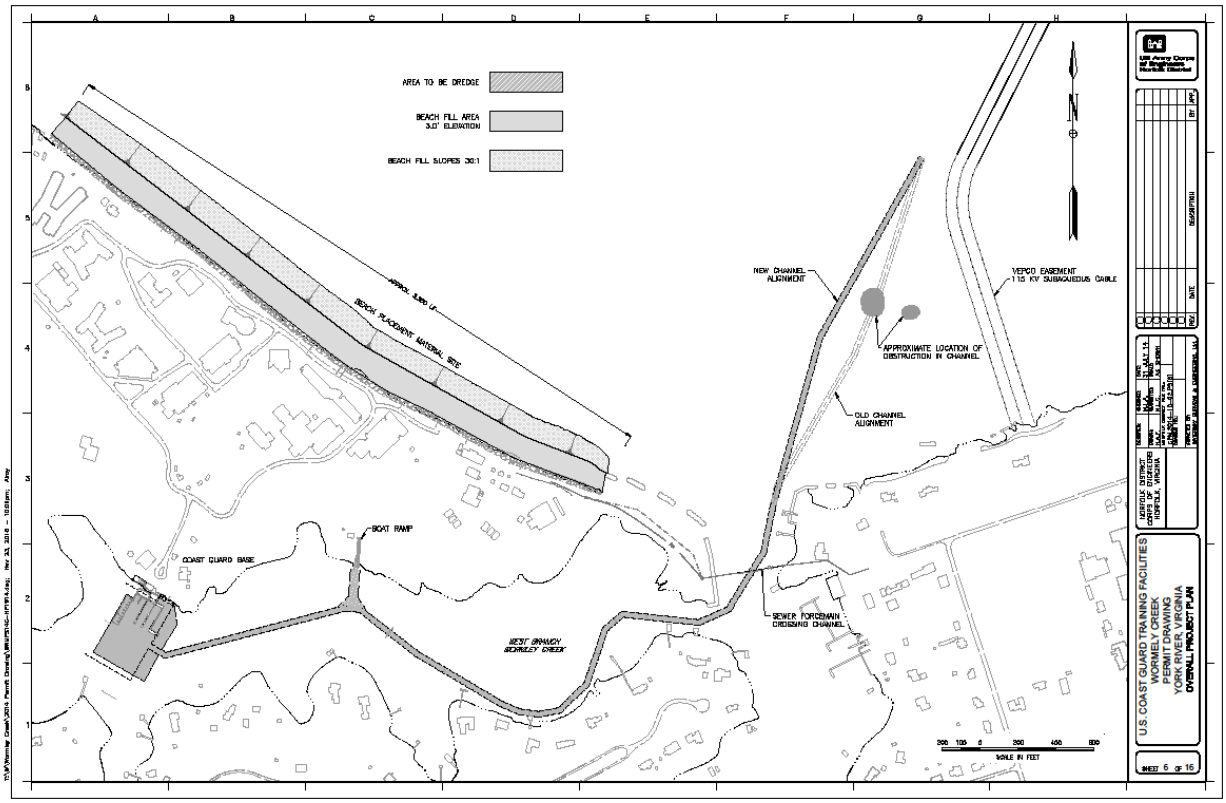
4.8 UTILITIES

Three existing pipelines transect the Wormley Creek Channel (See Appendix F – Wormley Creek Channel Utility Crossings for a detailed drawing.) An existing sewer force main pipe line crosses approximately -10 feet MLLW near station 38+00. An existing gas line is located approximately -120 feet MLLW near station 39+46. An existing fuel line is located approximately -80 feet MLLW and transects the Wormley Creek Channel at approximately stations 37+00, 15+00, and 04+00. No other utilities exist within or adjacent to the project footprint.

4.9 CULTURAL RESOURCES

Section 106 consultation was completed regarding cultural resources within the area of Wormley Creek Channel. The consultation with VDHR was started in December 2014 and revealed two areas of potential historical artifacts near or within the outer portion of Wormley Creek Channel. To avoid any potential impacts to the historical artifacts, a magnometer survey was completed in June 2015. (See Appendix G – Wormley Creek Channel Magnetometer Survey for the full magnetometer study results.) Results of the survey confirmed the potential presence of historical artifacts in the area. The channel was realigned to avoid any potential impacts. (See Figure 11 for channel realignment).

Figure 11 Wormley Creek Channel – outer portion channel realignment



4.10 HUMAN HEALTH AND SAFETY

Shoaling has reduced the operating depth of the project and is currently impacting the USCG operations. Reduced operating depths restrict efficient deployment of TRACEN-Yorktown vessels and inhibit the training center's ability to deploy for training activities and missions. Reduced depths may also inhibit or be a hazard to recreational boaters navigating the area.

5 ENVIRONMENTAL CONSEQUENCES

This section of the EA identifies and evaluates the anticipated environmental consequences or impacts associated with the Proposed Action and the No-Action Alternative. Table 5.1 summarizes the environmental impacts associated with the Proposed Action.

The terms "impact" and "effect" are used interchangeably in this section. Impacts may be discussed as positive or negative, significant or minor, as appropriate to the resource area. Positive impacts occur when an action results in a beneficial change to the resource, whereas negative impacts occur when an action results in a detrimental change to the resource. Significant impacts occur when an action substantially changes or affects the resource. A minor impact occurs when an action causes impact, but the resource is not substantially changed. Impacts are also discussed as temporary as well as short and long-term impacts and are associated with relative time frames as the direct result of the action. In this case, temporary refers to an impact only during the period of construction. Short-term describes the impact for 1-3 years post construction, whereas long-term describes the permanent impacts that would be expected to remain for many years. This section is organized by resource area following the same sequence as in the preceding Section 4.0. Some resource topics were excluded from further evaluation. A brief discussion of those topics can be found in Section 2.3.

In addition to the following, a Coastal Consistency Determination (CCD) is being submitted to comply with the requirements of the Coastal Zone Management Act (CZMA) passed in 1972. The Act provides for management of the nation's coastal resources and balances economic development with environmental conservation. It requires that federal agencies be consistent in enforcing the policies of state coastal zone management programs when conducting or supporting activities that affect a coastal zone. The CZMA is intended to ensure that federal activities are consistent with state programs for the protection and, where possible, enhancement of the nation's coastal zones. The CCD is included in Appendix B "Coastal Consistency Determination and Clean Air Act General Conformity Rule" with the recommendation that the Proposed Action is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program.

Table 5.1 Environmental Consequences Summary

Impact	Proposed Action	No Action Alternative
Soils	• Long-term impact due to removing soil from the project site	• No impact to existing conditions
Bathymetry	• Long-term impact due to deepening the project site to a maximum depth of -10 feet MLLW	• No impact to existing conditions
Water Quality: Dredging Site	• Temporary, localized adverse impacts due to resuspension of sediments at dredging site	• No impact to existing conditions
Water Quality: Dredged Material Placement Site	• Temporary, localized adverse impacts due to resuspension of sediments at placement sites	• No impact to existing conditions
Protected Species and Critical Habitat	• Localized, short-term adverse impacts to benthos at dredging and placement sites	• No impact to existing conditions
Air Quality	• Temporary, localized adverse impacts due to dredging and dredged material discharge activities and construction at shoreline placement site	• No impact to existing conditions
Noise	• Temporary, localized adverse impacts due to dredging and dredged material discharge activities and construction at shoreline placement site	• No impact to existing conditions
Recreational and Commercial Use of Waters	• Long term impact to one oyster lease that overlaps the outer portion of the channel • Temporary interruptions to access during dredging activities	• Continued shoaling could result in a reduction in operational depth that would eventually eliminate the benefits of the waterway and allow shoaling to become a hazard to safe navigation

	• Long term positive impacts as the Proposed Action would improve conditions for safe navigation and access to Wormley Creek	
Utilities	• No impact to existing conditions	• No impact to existing conditions
Cultural Resources	• Channel realigned to avoid potential impacts to potential historical artifacts in the area	• No impact to existing conditions
Human Health and Safety	• Long term positive impacts as the Proposed Action would eliminate the potential hazards to safe navigation	• Continued shoaling and reduced depths could allow for the potential increase of safety hazards and negative impacts to human health

5.1 SOILS

5.1.1 Proposed Action

Long-term impacts, typical of dredging projects, would be expected from the Proposed Action. Approximately 75,000 CY of material would be dredged from the project's dredging footprint to achieve a maximum depth of -10 feet MLLW in the Wormley Creek Channel. Dredged material from the outer portion of the channel would be transported via hydraulic pipeline to the shoreline directly northwest of Wormley Creek Channel, adjacent to the USCG-TRACEN property, for beneficial use. Once the shoreline placement site reaches capacity the remaining dredged material from the outer portion of the channel and all of the dredged material from the inner portion of the channel will be transported via barge and/or scow to WTAPS for overboard placement between April 1st through November 30th to avoid any potential impacts to overwintering blue crabs in WTAPS.

5.1.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to soils.

5.2 BATHYMETRY

5.2.1 Proposed Action

The Proposed Action's intent is to remove sediment in the project footprint to deepen the Wormley Creek Channel to a maintained depth of -7 feet MLLW plus -2 feet paid overdepth and -1 foot non-paid overdepth for a maximum depth of -10 feet MLLW. The result of this action would create long term impacts to the current bathymetry.

5.2.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur. There would be no impacts to the site's bathymetry; therefore, the ongoing shoaling would continue to occur and result in an increased potential for negative impacts to human health and safety.

5.3 WATER QUALITY

5.3.1 Proposed Action

The Proposed Action would result in temporary impacts to water quality at the dredging and placement sites.

5.3.1.1 Impacts to Water Quality at the Dredging Site

Resuspension of sediment is expected with dredging. Generally, resuspension is higher using mechanical clamshell dredges than hydraulic dredges; however, this impact can be minimized through operational controls. Impacts to water quality from mechanical or hydraulic dredging would be minor, temporary and localized to the area around the dredge. Localized turbidity would dissipate once dredging has ceased. Due to the area of impact and relatively short duration of the dredging activity, the Proposed Action would not significantly impact water quality.

5.3.1.2 Impacts to Water Quality at the Proposed Placement Sites

Dredged material removed from the channel would be beneficially used along the shoreline directly northwest of Wormley Creek Channel, adjacent to USCG-TRACEN property, and also transported to WTAPS for overboard placement between April 1st and November 30th. Temporary turbidity impacts to water quality during dredge material disposal would occur at the proposed placement sites. Increased sediment loads in the water column can result in a reduction of

dissolved oxygen through biochemical oxygen demand. These impacts may be more pronounced during late summer months when water temperatures are warmer and less capable of holding dissolved oxygen. Due to the area of impact and relatively short duration of the discharge activity, the Proposed Action is not likely to significantly impact water quality.

5.3.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to water quality.

5.4 PROTECTED SPECIES AND CRITICAL HABITAT

5.4.1 Proposed Action

The Proposed Action would result in localized, temporary impacts to existing resources in the project area and placement site. The dredging and associated placement activity would result in the destruction of the existing non-motile benthic community. After the dredging is complete, repopulation of benthic organisms within the impacted areas would begin quickly. The probability of sea turtles or Atlantic sturgeon being found within the project site is very low. In addition, motile marine organisms would be able to relocate during the dredging operations to avoid any direct physical impacts. To further reduce any impacts to the blue crab, dredged material placement operations at WTAPS would only occur between April 1st through November 30th.

Listed bird species may pass through and use areas in or adjacent to the project site; however, no adverse impacts are anticipated because they are highly mobile. Other species not mentioned but are listed would likely not be present as they are upland species and the Proposed Action's project sites are sub-tidal.

5.4.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to existing wildlife and aquatic biota.

5.5 AIR QUALITY

5.5.1 Proposed Action

Temporary increases in air pollution could occur during the Proposed Action's implementation; however, the impacts to air quality are anticipated to be localized and negligible, lasting only as long as dredging and dredged material discharge activities occur. Since the impacts to air quality would be negligible, a Record of Non-Applicability (RONA) was prepared in January 2015 and is included with the CCD. (Refer to Appendix B "Coastal Consistency Determination and Clean Air Act General Conformity Rule Record of Non-Applicability" for the RONA letter).

5.5.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to the existing air quality conditions.

5.6 NOISE

5.6.1 Proposed Action

The Proposed Action would result in minor, short term, local increases in noise production during the dredging phase of the project. The noise would result from the use of heavy machinery and the use of dredging equipment. The construction crews would be required to comply with all applicable laws regarding noise, including any potential time of day restrictions and maximum decibel levels. Additionally, 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 the Proposed Action would cease with the completion of the project.

5.6.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no noise impacts beyond those associated with the existing daily activities at the facilities and in the surrounding area.

5.7 RECREATIONAL AND COMMERCIAL USE OF WATERS

5.7.1 Proposed Action

Dredging activities may cause interruptions in accessibility to and from the Wormley Creek Channel during construction. The interruptions would be temporary in nature and minimized to the maximum extent practicable. The dredging in the Federal channel will permanently impact the transecting oyster leases. Notifications to the impacted lease holders are handled through the joint permit application (JPA) process, and any easements or transfers of leases would be completed prior to receipt of any state permits and construction of the Proposed Action.

5.7.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to the existing recreational and commercial use of waters. The ongoing shoaling would result in a continued reduction in operational depth of the channel and basin. Eventually, the shoaled conditions would eliminate the benefits of the waterway as the channel and basin reach hydrodynamic equilibrium and the shoaling would become a hazard to safe navigation and human health and safety.

5.8 UTILITIES

5.8.1 PROPOSED ACTION

To avoid any potential impacts to the sewer force main, a land-to-land buffer zone will be established to protect the pipeline by not allowing spudding, anchoring, or dredging within the buffer zone. Although the natural gas line and fuel line transect the channel, due to the depth of the pipelines and required dredging depth, neither pipeline will be impacted by the project.

5.8.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to the existing utilities conditions.

5.9 CULTURAL RESOURCES

5.9.1 PROPOSED ACTION

Coordination with VDHR is ongoing. An updated section 106 determination and the magnometer underwater investigation report and survey were submitted in December 2015 with the recommendation of no significant adverse effect on cultural resources (see Appendix A "Agency Coordination").

5.9.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to the existing conditions.

5.10 HUMAN HEALTH AND SAFETY

5.10.1 PROPOSED ACTION

No human health or safety hazards would be introduced into the project sites as a result of the Proposed Action. Dredging the Wormley Creek Channel to operational depths would maintain safe navigation and reduce risks to human health and safety that could occur if the current shoaling continues.

5.10.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to the existing conditions. The ongoing shoaling would result in a continued reduction in operational depth of the channel and basin. Eventually, the shoaled conditions would eliminate the benefits of the waterway as the channel and basin reach hydrodynamic equilibrium and the shoaling would become a hazard to safe navigation and human health and safety.

6 CONCLUSIONS

The Norfolk District USACE has prepared this NEPA documentation for the Wormley Creek Channel Federal Navigation project at USCG-TRACEN in Yorktown, Virginia. The purpose of this project is to provide safe navigation and anchorage for USCG vessel operations and other recreational and commercial boaters accessing Wormley Creek. The project includes maintenance dredging and deepening portions of the Wormley Creek Federal Navigation Channel. Approximately 75,000 CY of material would be dredged from the project's dredging footprint to achieve a maximum depth of -10 feet MLLW. Dredging would be performed hydraulically or mechanically to remove the maintenance and new work material in the dredging footprint. Dredged material would be beneficially used along the shoreline directly northwest of Wormley Creek Channel, adjacent to USCG-TRACEN property, and overboard placement at Wolf Trap Alternate Placement Site (WTAPS).

The Proposed Action needs to be completed for USCG-TRACEN to safely execute operations. Vessel down time and maintenance cost has increased due to additional repair/maintenance requirements. Reduced or discontinued maintenance dredging would result in the continued reduction in operational depth which would restrict and eventually prevent USCG operations.

Short-term adverse impacts associated with the Proposed Action include localized impacts to the benthic environment at the dredging and placement sites. Temporary, localized adverse impacts to water quality, noise, and air emissions would occur at the dredging and placement sites. Long-term impacts to soils and bathymetry, typical for a dredging project, would be expected as a result of the Proposed Action. Additionally, long-term positive impacts to human health and safety could also be anticipated as the Proposed Action will improve channel conditions for safe navigation and access to Wormley Creek.

The Proposed Action would require coordination for Federal, state, and local permits and/or approvals for the discharge of dredged material. All permits and/or approvals would be obtained prior to the start of construction. In addition, coordination is required with the utility companies prior to and during construction.

This Environmental Assessment was prepared by the Norfolk District USACE in compliance with the NEPA and all applicable implementing regulations. Based on the evaluation of environmental impacts described in Section 5 and summarized in Table 5.1, no significant impacts would be expected from the Proposed Action; therefore, an Environmental Impact Statement will not be prepared and a Finding of No Significant Impact will be prepared and signed.

7 CONTACT INFORMATION

If you have any questions or wish to provide comments, please contact Ms. Kristen Scheler of the U.S. Army Corps of Engineers, Norfolk District, at Kristen.L.Scheler@usace.army.mil or 757-201-7843.

8 DISTRIBUTION LIST

The draft EA has been submitted to the following for comments:

COMMANDING OFFICER
COAST GUARD TRAINING CENTER YORKTOWN
CDR JED R. BOBA, P.E.
CHIEF, FACILITIES ENGINEERING
1 U.S. Coast Guard Training Center
Yorktown, VA 23690

Neil Morgan, County Administrator
County Administration Building
224 Ballard Street
PO Box 532
Yorktown, VA 23690

Commander, U.S. Coast Guard
Portsmouth Federal Building
431 Crawford Street
Portsmouth, VA 23704

NEPA Programs
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103

Regional Director, Northeast Region
National Marine Fisheries Service, NOAA
U.S. Department of Commerce
1 Blackburn Drive
Gloucester, MA 09130

Regional Director
U.S. Fish and Wildlife Service
300 West Gate Center Drive
Hadley, MA 01035

Ms. Cindy Schulz
Ecological Services
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Mr. Lee Hill
VA Department of Conservation and Recreation
203 Governor Street, Suite 302
Richmond, VA 23219

Mr. David Davis
VA Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

Ms. Valerie Fulcher
Office of Environmental Impact Review
P.O. Box 1105
Richmond, VA 23218

Mr. Bert Parolari
VA Department of Environmental Quality-TRO
5636 Southern Boulevard
Virginia Beach, VA 23462

Mr. Raymond T. Fernald
Environmental Services Section
VA Department of Game & Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

Ms. Julie Langan
Director, DRSR
VA Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Ms. Julie Bradshaw
VA Institute of Marine Science
P.O. Box 1345
Gloucester Point, VA 23062

Mr. Tony Watkinson
Habitat Management Division
VA Marine Resources Commission
2600 Washington Avenue, Third Floor
Newport News, VA 23607

Dave O'Brien
Habitat Conservation Division
PO Box 1346
7580 Spencer Road
Gloucester Point, VA 23062

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U.S. Fish and Wildlife Service National Wetlands Inventory search January 21, 2015 http://www.fws.gov/wetlands/Wetlands-Mapper.html

Virginia Department of Game and Inland Fisheries Biota of Virginia search December 1, 2015 http://vafwis.org/fwis/?Title=VaFWIS+Geographic+Search+By+Name&vUT=Visitor

Virginia Natural Heritage Resources by County search December 16, 2015 https://vanhde.org/content/map

William and Mary Virginia Institute of Marine Science SAV in Chesapeake Bay and Coastal Bays search January 21, 2015 http://web.vims.edu/bio/sav/maps.html

10 COMMENTS/RESPONSE SECTION

This section will be updated after the 30-day comment period has closed.